Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1	1	3	Notes for Clause 2.4.1 & 2.4.2	Page 7 - 10 of 12	Each Partner other than the Lead Partner must meet at least 15% of the requirement of 2.4.1(a) (A) or 2.4.1(b) (A) in any Contract of Similar Works.	Request to please waive off the condition of min 15% requirement in each partner category in Joint Venture. All Parties combined can meet the requirement.	Please follow Bid Conditions
2	1	3	Notes for Clause 2.4.1 & 2.4.2	Page 10 of 12	Lead Partner shall be the UNISIG full member or an Associate/ Subsidiary Company of UNISIG full member.	Request to please also allow Associate Members of UNISIG to be the Lead Partner.	Please follow Bid Conditions
3	1	3	2.4.1 & 2.4.2	Pg. 11 of 12	Evaluation and Qualification Criteria Notes for Clause 2.4.1 & 2.4.2, S.No.2: "Lead Partner shall be UNISIG full member or an Associate/ Subsidiary Company of UNISIG full member."	Notes for Cluase 2.4.1 for Lead Partner restricts to only UNISIG Full members. However, few UNISIG members are not interested to be Lead partner but keen to participate as a member with "JOINT and SEVERAL LIABILITY". Therefore, we request you to remove this restrictions by allowing NON UNISIG members also as Lead partner. This will allow more Companies to participate.	Please follow Bid Conditions
4	1	3	2.4.1 (a)	Pg. 7 of 12	Evaluation and Qualification Criteria 2.4 Design and Construction Experience 2.4.1(a) Contracts of Similar Size: Clause 2.4.1(a) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 5230 million in the similar work.	Generally for Construction experience the employer (eg. DFCCIL, Indian railways, CORE etc) also allows Management Contractor or Concessionaire to participate in addittion to Contractor or JV partners. As they would have comprehensive Execution and Integration Capabilities including Operation and Maintenance for any mainline or Mass Transit projects. Therefore, We request you to modify clause as below: Clause 2.4.1(a) (A) "Participation as a contractor or JV partner or Management Contractor or Concessionaire in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 5230 million in the similar work."	Please follow Bid Conditions
5	1	3	2.4.2	Pg. No. 10 of 12	Evaluation and Qualification Criteria 2.4.2 Construction Experience in Key Activities Criteria Requirement A. Completed Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control: (i) On-Board Systems of ETCS Level 2 for at least 10 number of On-Board units in a single work. and (ii) Track Side Systems of ETCS Level 2 for at least 10 Route Kms in a single work.	We request you to consider the 'Must meet requirement' of the referred clause by Lead Partner as the same can be met through JV/Consortium member. Therefore, This clause can be modified as under: Lead Partner - Not Applicable All partners combined - Must meet requirement.	Please follow Bid Conditions
6	1	3	2.4.1 & 2.4.2	Pg. No. 12 of 12	Evaluation and Qualification Criteria Notes for Clause 2.4.1 & 2.4.2, S.No.9: The requirements under Clause 2.4.2 (C) and 2.4.2 (D) shall be met by the same JV member / same specialist Sub-Contractor.	Request you to clarify the understanding of this clause.	Please refer Addendum & Corrigendum-02A
7	3	8B	14.7	Pg. No.35 of 44	The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied. The Goods imported for the project execution are exempt from whole of the duty of customs leviable theron under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the special duty of customs leviable under section 68 of the Finance (No. 2) Act 1996 as per the provison of the Notification No. 84/97 dated 11th Nov 1997, as amended time to time. (Copy of Notification attached in PCC for ready reference).	Notification No. 84/97 dated 11th Nov 1997, and amendments thereafter, grants exemption from custom duty payable on imports – on approval by GOI for implementation by Central or State government. NCRTC being a JV of GOI and state governments, kindly clarify whether the exemption be available on such JV as well. Further, the above quoted notification includes funding from Asian Development Bank but it does not mention the Asian Infrastructure Investment bank. Kindly Clarify	Exemption applies on this Project.
8	3	8B	13.7	Pg.No.31 of 44	Adjustments for Changes in Cost - Not Applicable and part-3, Section 8: Particular Conditions of Contract Part- B, 13.7 Not Applicable	We understand that non applicability of Adjustment in cost will lead to speculations in bid. Therefore we request you to provide the Price variation formula which will cover the fluctuation in commodity prices specially like Cables and various erection works.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
9	1 & 3	1	14.7	Pg.No.12 of 25 & Pg.No.35 of 44	All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder. AND Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	We have observed an ambiguity in the referred claused pertaining to the Bid Price. The clause mentioned in ITB states that bid price should be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract whereas clause under PCC states that all duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract shall be included in the bid price. Kindly confirm the Modality to be followed.	Please refer Addendum & Corrigendum-01A
10	3	8B	14.7	Pg.No.35 of 44	Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.7 above confirms to follow the PCC clause, we understand that GST shall not be included in our bid price. The GST shall be paid extra over and above the quoted bid price at actuals. Kindly confirm our understanding.	GST Shall be paid extra.
11	3	8B	14.7	Pg.No.35 of 44	Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.7 above confirms to follow the PCC clause, kindly confirm whether Excise duty & VAT paid on petroleum products, be reimbursed or shall it be included in the cost. If it shall be included in cost, will client reimburse the variation on account of rates of excise duty and VAT for petroleum products?	Bidder has to consider Excise duty and VAT on petroleum products in his offer No additional payment on this account will be considered.
12	3	8B	14.7	Pg.No.35 of 44	Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.7 above confirms to follow the PCC clause, - Whether client will reimburse the extra tax paid on purchase of input materials which shall not be utilised against output tax? Also, whether client will reimburse the tax for which credit is not available? - Whether GST TDS certificate will be given by client over and above the contract value or will it be deducted from the Contract Value? - Shall the tax exemption be also available on import of plant and machinery for use in the project?	Please follow Bid Conditions
13	1	3	2.4.2 (A)	Page 10/12	Lead Partner requirement **Requirement** / **Single Entity** / **Joint Venture**: All Partners Combined / Each Partner / Lead Partner **A.** Completed Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control: (i) **On-Board Systems of ETCS Level 2** for at least 10 number of On-Board units in a single work. **and** (ii) **Track Side Systems of ETCS Level 2** for at least 10 Route Kms in a single work. Single Entity: Must meet requirement. / Joint Venture: Not applicable / Not applicable / Must meet requirement	We request you to allow bidder to choose the Lead partner of Consortium depending on their bidding strategy, while maintaining the 25% share for the Consortium partner who is bringing the ETCS Level 2 credentials for the qualification.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
14	1	2	4.2	Page 9/33 Part1 /Section 2	BDS Clause ITB 4.2 Add the following after the last sentence of Clause 4.2: In the event that the Contract is awarded to a foreign Bidder, such foreign Bidder shall be required to set up a project office in India in accordance with Applicable Laws in India, and shall be required to submit a proof of having opened a project office in India along with statutory approvals, if any, prior to submitting any interim payment certificate in accordance with the Contract, failing which no payment shall be made to the Contractor by the Employer (in accordance with the Contract) until such requirement has been complied with by the foreign Contractor. The aforesaid condition of establishing a project office in India shall not be applicable in case the selected Bidder is a joint venture between an Indian entity and a foreign entity where Indian partner is lead member. Page	We request you to change the clause as following: Add the following after the last sentence of Clause 4.2: In the event that the Contract is awarded to a foreign Bidder, such foreign Bidder shall be required to set up a project office in India in accordance with Applicable Laws in India, and shall be required to submit a proof of having opened a project office in India along with statutory approvals, if any, prior to submitting any interim payment certificate in accordance with the Contract, failing which no payment shall be made to the Contractor by the Employer (in accordance with the Contract) until such requirement has been complied with by the foreign Contractor. The aforesaid condition of establishing a project office in India shall not be applicable in case the selected Bidder is a joint venture between an Indian entity and a foreign entity ~~where Indian partner is lead member~~ which are Associates of each other	Please refer Addendum & Corrigendum-02A
15	1	3	2.4.1 (b)	Page 8/12 Part 1 /Section 3	Part 1 Section 3: EQC Clause: - 2.4.1(b) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 930 million in the similar work. OR (B) Participation as a contractor or JV partner in Two Single Contracts, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 580 million in each Contract in the similar work. OR (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 465 million in each Contract in the similar work. Similar Work for 2.4.1(b) shall mean: : Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS) Page	Part 1 Section 3: EQC Clause: - 2.4.1(b) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 930 million in the similar work. OR (B) Participation as a contractor or JV partner in Two Single Contracts, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 580 million in each Contract in the similar work. OR (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 465 million in each Contract in the similar work. Similar Work for 2.4.1(b) shall mean: : Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for ~~Metro Railway System~~ Rail Based Transit System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Subsystems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS)	Please refer Addendum & Corrigendum-02A
16	1	3	Notes for Clause 2.4.1 & 2.4.2	Page12/12 Part 1 /Section 3	Part 1 Section 3: EQC Clause: Note 4. Only the work under revenue operation for atleast one year shall be considered for fulfilling the requirements under clause 2.4.1 and 2.4.2, In case of partial revenue operation of a project, the section under revenue operation shall only be considered. The same shall be substantiated by a certificate as specified in Section 4: Bidding Forms EXP-1 and/or EXP-2.	We would like to mention that 1-year revenue service should be required only for Works being considered for fulfilling the requirements under clause 2.4.2.(Specific Key Activities), as the requirement in 2.4.2 is real measure of technical expertise. We request you to change this clause as following: EQC Note 4.1 Only the work under revenue operation for at-least one year shall be considered for fulfilling the requirements under clause ~~2.4.1 and~~ 2.4.2, In case of partial revenue operation of a project, the section under revenue operation shall only be considered. The same shall be substantiated by a certificate as specified in Section 4: Bidding Forms EXP-1 and/or EXP-2. 5	Please refer Addendum & Corrigendum-02A
17	1	3 & 4	EQC:2.3.3 & BF: Form FIN-3, FIN-4	Page 6/12 Part 1 /Section 3 Page 23 & 27/63 Part 1 /Section 4	2.3.3 Financial Resources The Bidder must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its current contract commitments defined in FIN - 4, meet or exceed the total requirement for the Subject Contract of INR 570 Million. Bidding Forms : Form FIN - 1: Historical Financial Performance Form FIN - 3 : Financial Resources	In Form FIN -3 the working capital will be taken from Most recent Working Capital caluclated in Form FIN -1 . Generally in other tenders it is seen that if Working Capital is neative that will be considered Zero and only banking reference letters will be considered . Therefore we request you to add following clause in this requirement of Form FIN-3 : In case the Most Recent Working Capital (as seen from the Audited financial data) is negative, only the Banking references shall be considered. Otherwise the aggregate of the Most Recent Working Capital and submitted Banking references will be considered for working out the Financial resources	Please follow Bid Conditions
18	1	4	Form FIN-3	Part 1 EQC	Generic Clause used for project references	In Form FIN -3 the working capital will be taken from Most recent Working Capital caluclated in Form FIN -1 . Generally in other tenders it is seen that if Working Capital is neative that will be considered Zero and only banking reference letters will be considered . Therefore we request you to add following clause in this requirement of Form FIN-3 : In case the Most Recent Working Capital (as seen from the Audited financial data) is negative, only the Banking references shall be considered. Otherwise the aggregate of the Most Recent Working Capital and submitted Banking references will be considered for working out the Financial resources	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
19	1	2	37.2	Page 30/33	**BDS Clause ITB 37.2** II. The Employer's evaluation of a Bid will exclude and not take into account, (a) in the case of Goods (as defined under Conditions of Contract, Sub-Clause 1.1.44) offered from abroad, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder; and (b) in the case of Goods offered from within the Employer's country, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder. **Preamble to Financial Bid :** This Contract is a Lump Sum price Contract for the works specified in the Bid Document. Bidder shall quote a 'LUMP SUM PRICE' fulfilling all obligations under the Contract inclusive of all taxes, levies, duties and any other charges leviable, including tax deducted at source, statutory deductions etc. excluding the following stated in (a) and (b) below. (a) In the case of Plant (as defined under Conditions of Contract, Sub-Clause 1.1.66) offered from abroad, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder; and (b) In the case of Plant offered from within the Employer's country,Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder	Signaling and Telecommunication projects are being executed as Works contract/Service contract as per GST Law. Invoices are raised by contractor using Service Accounting Code (SAC)of services. Request you to confirm whether GST on entire contract (including Design, Manufacturing, Supply, Installation, Testing, Commissioning, Construction etc) will be excluded from 'LUMP SUM PRICE' . If yes request you to change the clause as following : **BDS Clause ITB 37.2** II. The Employer's evaluation of a Bid will exclude and not take into account, (a) In the case of Goods and Works (as defined under General Conditions of Contract, Sub-Clause 1.1.44 and 1.1.89) offered from abroad, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Goods and Works if the Contract is awarded to the Bidder; and (b) In the case of Goods and Works offered from within the Employer's country, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Goods and Works if the Contract is awarded to the Bidder. **Preamble to Financial Bid :** This Contract is a Lump Sum price Contract for the works specified in the Bid Document. Bidder shall quote a 'LUMP SUM PRICE' fulfilling all obligations under the Contract inclusive of all taxes, levies, duties and any other charges leviable, including tax deducted at source, statutory deductions etc. excluding the following stated in (a) and (b) below. (a) In the case of Goods and Works (as defined under General Conditions of Contract, Sub-Clause 1.1.44 and 1.1.89) offered from abroad, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Goods and Works if the Contract is awarded to the Bidder; and (b) In the case of Goods and Works offered from within the Employer's country, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Goods and Works if the Contract is awarded to the Bidder.	Please refer Addendum & Corrigendum-01A
20	Financial Bid				Financial Bid	For different Cost centres and their respective milestones , Multi currency columns are not provided in financial bid . We request you to add separate colimns for separate currencies in Cost Centres/Milestones also.	Please refer Addendum & Corrigendum-02A
21	3	8B	7.7	Page 25/44 Part 3/Section 8 PCC Part B	Ownership of Plant and Materials Add the following after Sub-Clause 7.7 "However, the Contractor shall continue to bear the risk in respect of such items which continue to remain in his custody."	We request you to define the INCOTERM which will used for Offshore and Onshore material deliveries .	Please refer Addendum & Corrigendum-02A
22	1 & 3	1	14.7	12 of 25 & 35	All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder. AND Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	The Clause mentioned in ITB states that bid price should be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract whereas clause under PCC states that All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract shall be included in the bid price. Kindly confirm the Modality to be followed.	Please refer Addendum & Corrigendum-01A
23	3	8B	14.7	35	Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder	If reply to Query S.No.1 above confirms to follow the PCC clause, we understand that GST shall not be included in our bid price. The GST shall be paid extra over and above the quoted bid price at actuals. Kindly confirm our understanding.	GST Shall be paid extra.
24	1	1	15.1 & 15.2	12	ITB Section 1 clause 15.1 and 15.2 - Currencies of Bid and Payment The currency for this bid is: Indian Rupees (INR) and The currency of quoting of the bid is in INR only and the Accepted contract amount shall also be in INR only. However, the bidders requiring any payment in foreign currency (ies) (in maximum three freely convertible foreign currencies) may stipulate the same in Letter of Price Bid and Annexure- 1, 2 and 3 to Financial Bid.	As per ITB 15.1, currency for this Bid is INR. However, as per ITB 15.2 the bidders requiring any payment in foreign currency (ies) (in maximum three freely convertible foreign currencies) may stipulate the same in Schedule of Payment Currencies Both the clauses are contradictory. Pl. clarify and confirm bidders are allowed to quote in three freely convertible currencies in addition to INR	Please follow Bid Conditions
25	1	1	4	6	ITB Section 1 Clause 4 - Eligible Bidders 4.1 A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture.	We understand that the the term 'Joint Venture means also an Unincorporated JointVenture or a Consortium	Please refer Clause 4.1 b of Section 2 BDS

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
26	1	2	14.7	16	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied.	The Indian bidder understands that the subject contract qualifies as works contract for metro projects and subject to 12% GST Rate. Such GST would be paid at actual extra and is not required to be included in the contract price.	Please refer Addendum & Corrigendum-01A
27	1	2	14.7	16	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied.	For the supply of goods by the foreign bidder, the invoice would be raised by the foreign bidder directly on NCRTC. BCD and Surcharge would be exempt. IGST would be paid in the name of NCRTC and NCRTC shall pay such IGST at actual and is not required to be included in the contract price.	Please refer Addendum & Corrigendum-01A
28	1	2	14.7	16	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied.	For the supply goods by the foreign bidder, the invoice would be raised by the foreign bidder directly on NCRTC. BCD and Surcharge would be exempt. IGST would be paid in the name of NCRTC and NCRTC shall pay such IGST at actual and is not required to be included in the contract price.	Please refer Addendum & Corrigendum-01A
29	1	2	14.7	16	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied.	For the supply of services by the foreign bidder, the invoice would be raised by the foreign bidder directly on NCRTC. GST on import of services are payable by NCRTC under reverse charge. NCRTC shall pay such GST under reverse charge and is not required to be included in the contract price.	Please refer Addendum & Corrigendum-01A
30	1	2	14.7	17	Payment shall be made electronically in the account of the Contractor as per the details provided by the Contractor. In case the Contractor is a Joint Venture, the payment shall be made only in the name of Joint Venture. In case the Contractor is a un-incorporated JV, if requested by the contractor, direct payment to the individual partners of the JV can be made on joint certification by the authorized representatives of individual constituent partners, after making requisite recoveries /deduction from the gross payment. In this case, a notarized Joint Venture Agreement (Section 9: CF) jointly signed by authorized representatives of all the constituent partners of the JV to this effect need to be submitted to the Employer before commencement of the Work. All payments, will be subject to deduction of tax at source in accordance with the provisions of the Indian Income tax Act and any other applicable law, including any Withholding Taxes etc. BOCW Cess shall be applicable on Contract Price. For Tax purpose, Individual partners of JV shall be required to submit individual Tax invoices and TDS deduction certificate. The Contractor / individual partners of JV shall take necessary clearance/exemption and registration certificate for Income Tax/Other Taxes/GST, as applicable.	We understand BOCW cess will be applicable @ 1% of the Services scope of Contract Price . Kindly confirm	Please refer Addendum & Corrigendum-01A

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S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
31	1	2	4.2	9	Eligible Bidders Add the following after the last sentence of Clause 4.2 In the event that the Contract is awarded to a foreign Bidder, such foreign Bidder shall be required to set up a project office in India in accordance with Applicable Laws in India, and shall be required to submit a proof of having opened a project office in India along with statutory approvals, if any, prior to submitting any interim payment certificate in accordance with the Contract, failing which no payment shall be made to the Contractor by the Employer (in accordance with the Contract) until such requirement has been complied with by the foreign Contractor. The aforesaid condition of establishing a project office in India shall not be applicable in case the selected Bidder is a joint venture between an Indian entity and a foreign entity where Indian partner is lead member.	Please amend the last sentene to read as "The aforesaid condition of establishing a project office in India shall not be applicable in case the selected Bidder is a joint venture between an Indian entity and a foreign entity under the same parent company"	Please refer Addendum & Corrigendum-02A
32	1	2	14.7	17	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied. The Goods imported for the project execution are exempt from whole of the duty of customs leviable thereon under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the	As per PCC - Part A cl. 2.4 Employers Financial , it is mentioned that the required funds have been sourced by the Employer. We understand that the funds for the said project have been sourced by the employer from Asian Development Bank and hence the goods imported for the project execution are exempt from the whole of the duty of customs leviable. Kindly confirm our understanding. Also, please provide a copy of the Notification referred in 14.7 which we couldn't find in the documents.	Please follow Bid Conditions
33	3	8B	1.1	3	Definition 1.1.101 "Indirect Taxes" means all forms of taxation, duties, fees, imposts and levies, cess (including building and construction workers cess), deductions and charges or other similar amounts including (but without limitation) Goods and Services Tax, octroi, entry tax, customs and other import and export duties, excise duties and such other transaction taxes levies in India and any interest, surcharge, penalty or fine in connection therewith but does not include any direct taxes.	We understand the BOCW cess will be applicable @ 1% of the Contract Price. Kindly confirm.	Please refer Addendum & Corrigendum-01A
34	3	8B	13.1	28	Changes to any sequence, method or timing of construction, execution, supply, installation, testing and commissioning including Integrated Testing and Commissioning and changes to any part of the Site or access thereto will not constitute a Variation.	We understand that any variations shall not lead to any change/ modification of the scope of works and is limited to quantity variation only. Please confirm.	Please follow Bid Conditions
35	3	8B	14.2.1	31	Advance Payment An interestbearing mobilization advance shall be paid by the Employer to the Contractor in instalments at different stages (as set out below) upon Contractor's request subject to, inter alia, the Contractor submitting's a bank guarantee in accordance with this SubClause	We request the employer to provide an interest free Mobilisation advance	Please follow Bid Conditions
36	3	8B	14.2.4	34	Interest in Case of Delay in Repayment of Advances	We understand that such interest in case of delay in repayment of advances shall not be charged if the delay is attributable to the employer. Please confirm	Please follow Bid Conditions
37	3	8A	14.2.3	3	Repayment of the Advance shall be as per Clause 14.2.4 of PCC.	We understand Repayment of the Advance shall be as per Clause 14.2.3 of PCC Part B. Pl. confirm.	Please refer Addendum & Corrigendum-02A
38	Financial Bid	Annexure 2	Schedule 6		Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM (INCL. DC SUPPLY SYSTEM) FOR EVERY LOCATION, s. 14,	Please clarify, as it is not mention in technical specification. For which facility/ application or functionality it is required?	Please refer Addendum & Corrigendum-02A & 02B
39	Financial Bid				SCADA Incident Management specification not available However, in BoQ there is line item	Kinldy provide the specification for Incident Management system	Please refer Addendum & Corrigendum-02A & 02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
40	Financial Bid				ACIDS BoQ not matching w/ Scope of Supply. Biometric readers there is no specification. Intrusion BoQ not part of BoQ. Boom Barrier specifications missing.	Kindly provide the specification for the same	Please refer Addendum & Corrigendum-02A & 02B
41	Financial Bid	Annexure 1			Annexure -1 1.1.2, 1.2.3, 2.1.3 & 2.2.3 (30RRTS+10MRTS+10MV) Total 50 Trains	As per the Appendix R of Section 6B PS the vehicles are 30 RRTS+10 MRTS +8 MV, Total 48 trains. Please confirm the train Train set quantities	Please refer Addendum & Corrigendum-02A & 02B
42	Financial Bid	Annexure 2	Schedule 7		Financial bid-Anexure2-schedule 7	Request you to provide the quantity for 144 and 24 core fiber cable length	Please follow Bid Conditions
43	3	7				Please specify tax documentation required before releasing payments to foreign entities?	Documents as per statutory provisions shall be required.
44	Financial Bid	Annexure 3	Schedule of Rates-LTE	Annexure-3/ Schedule of Rates-LTE	Schedule 1: Project Management and Interface Management	Project & interface management are both linked to the utilization of resources as per the activity duration. Bidder requests to change this metric to "per man-month" or "per month" basis.	Please follow Bid Conditions
45	Financial Bid	Annexure 3	Schedule of Rates-LTE	Annexure-3/ Schedule of Rates-LTE	Schedule 3:3.3 eNode B 2T2R 2 Sector	Pricing template does not provide to offer any other option for eNode B except 2 Sector site. Request to keep it flexible since the bidder may need to propose 3 Sector sites if needed.	Please refer Addendum & Corrigendum-02A
46	Financial Bid	Annexure 3	Schedule of Rates-LTE	Annexure-3/ Schedule of Rates-LTE	SF2: Interoperability of DGM Corridor with Future Corridors for IXL, RBC and LTE as a minimum	The scope of Demonstrating interoperability is beyond the purview of this bidder today & should not be part of the current tender as they depend on the designs & choices to be made on the future corridors. The interoperability will be achieved through the applicable global standards & it will be a joint responsibility of such OEM's under the direction & instructions of the Employer under the respective contracts. Request you to remove the payment provision against this requirement & request you to introduce it in the contracts of the future corridors	Please follow Bid Conditions
47	Financial Bid	Annexure 3	Schedule of Rates-LTE	Annexure-3/ Schedule of Rates-LTE	SF4: UpgradaHon of LTE infrastructure to FRMCS and any associated changes to RBC (if require) SF5: V&V, ISA for LTE infrastructure to FRMCS and any associated changes to RBC	FRMCS standards are still under finalisation and the Bidder cannot assume the technology, functionalities which will become part of final standards. Request NCRTC to exlcude such upgradation requirements from the purview of this tender & any hardware requirements for enhancements (if needed) & adaptation shall be with mutual agreements. Bidder also wishes to bring to NCRTC's kind attention the Railtel tender for MTRC regarding such requirements.	Please follow Bid Conditions
48	Financial Bid	CC_MA			Financial_Bid/CC_MA/Compliance to IT-Requirements of Employer as detailed in Employer's Requirement for Package-24	Bidder request customer to provide IT Requirement Appendix which is missing in current RFP	Please refer Appendix A of Section 6B
49	Financial Bid	Annexure 1			Financial Bid/Annexure-1/No of vehicles(30 RRTS+10MRTS+ 10 MV)	Maintenance Vehicle Quantity Mismatch between Pricing Schedule & Signalling PS . Please confirm Maintenance Vehicle Qunatity to be considered in total is 8nos or 10 nos..?	Please refer Addendum & Corrigendum-02A & 02B
50	3	8A	Key Dates	10	Section 8: Particular Conditions of Contract Part-A / F. Date of Month for KD-11 will be communicated by Employer’s Representative at the time of Execution.	As Section 8 of PCC KD 11 will be communicated during execution . But as Signalling & Telecom PS there are fixed KD dates mentioned . Bidder assumes that as per PCC the KD-11 will also in D+ x Days. And in Telecom PS there is no KD-11 please clarify .	Please refer Addendum & Corrigendum-02A & 02B
51	1	4A	5(i)	4	Section 4A - Annex to Tech proposal/Clause 5 (i)	Clause 5 (i) - Bidder requests to also allow Self authenticated last two years of failure logs	Please refer Addendum & Corrigendum-02A
52	1	4A	4.1.2	4	4A -Annexure for Technical Proposal / Table on performance of EQU	Need of User certificates and performance data is not consistent with Section 6B - PS - S&TC Clause 4.1.2. Request to refer to Section 6B - PS - S&TC Clause 4.1.2 from Section 4A - Annex to Tech proposal (Table on performance of EQU)	Please refer Addendum & Corrigendum-02A

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
53	1	4A		7	4A -Annexure for Technical Proposal / Personnel - The Project Manager, Design Manager and Testing and Commissioning Engineer (In-charge) should have been employees of the OEM Contractor firm for not less than 5 years.	Bidder assumes above roles should have been employees of JV member on whose credentials of ETCS / LTE, the JV is qualifying and that these roles can be transferred and can continue to work under any other related consortium member.	Please refer Addendum & Corrigendum-02A
54	1	4A		4	Bidding Documents-Part 1 4A -Annexure for Technical Proposal 5. General Requirements Proof of safety report containing detailed analysis of software and hardware together with Proof of Assessment Report from and Independent Safety Assessor.	To comply aforesaid requirement, Bidder will be providing the all the generic product's ISA cerificates which is related to ISA report and product Safety case, Is that enough for the compliancy of this requirement. Please clarify?	Please follow Bid Conditions
55	1	3	2.4 Design and Construction Experience 2.4.1(a) Contracts of Similar Size:		2.4.1(a) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 5230 million in the similar work. Similar Work for 2.4.1(a) shall mean: Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control System with ETCS Level 1 or Level 2 for Rail based Transit System. And/ Or Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control System using radio based CBTC with moving block including CBI ATP, ATO and ATS sub-system for Metro Rail. 2.4.1(b) Contracts of Similar Size: 2.4.1(b) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 930 million in the similar work. Similar Work for 2.4.1(b) shall mean: Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS). Notes for Clause 2.4.1 & 2.4.2: Each Partner other than the Lead Partner must meet at least 15% of the requirement of 2.4.1(a)(A) or 2.4.1(b)(A) in any Contract of Similar Works.	As per the foot note for clause 2.4.1 & 2.4.2 it has been mentioned that each partner in the Joint Venture is also required to meet the eligibility criteria to the tune of 15% of the minimum contract value mentioned. We would like to bring into your kind notice that as per the definition of the similar work it can only be meet by the UNISIG member, who has done similar kind of work. Due to this qualification criteria, local Indian companies will not be at an equal footing and would even loose the prospect to become a JV partner. This will hamper the "MAKE IN INDIA" initiative of the Indian Government as only foreign parties will be able to participate. The indigenization of the technology will not happen nor any local partner, will be developed for later part of maintenance. We would therefore request you to kindly amend the same and allow the Joint Venture/Consortium to jointly meet all the technical qualification criteria.	Please follow Bid Conditions
56	1	3	2.4 Design and Construction Experience 2.4.1(a) Contracts of Similar Size:	7 of 12	2.4.1(a) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 5230 million in the similar work. Similar Work for 2.4.1(a) shall mean: Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control System with ETCS Level 1 or Level 2 for Rail based Transit System. And/ Or Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control System using radio based CBTC with moving block including CBI ATP, ATO and ATS sub-system for Metro Rail. 2.4.1(b) Contracts of Similar Size: 2.4.1(b) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 930 million in the similar work. Similar Work for 2.4.1(b) shall mean: Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS). Notes for Clause 2.4.1 & 2.4.2: Each Partner other than the Lead Partner must meet at least 15% of the requirement of 2.4.1(a)(A) or 2.4.1(b)(A) in any Contract of Similar Works.	As per the foot note for clause 2.4.1 & 2.4.2 it has been mentioned that each partner in the Joint Venture is also required to meet the eligibility criteria to the tune of 15% of the minimum contract value mentioned. We would like to bring into your kind notice that as per the definition of the similar work it can only be meet by the UNISIG member, who has done similar kind of work. Due to this qualification criteria, local Indian companies will not be at an equal footing and would even loose the prospect to become a JV partner. This will hamper the "MAKE IN INDIA" initiative of the Indian Government as only foreign parties will be able to participate. The indigenization of the technology will not happen nor any local partner, will be developed for later part of maintenance. We would therefore request you to kindly amend the same and allow the Joint Venture/Consortium to jointly meet all the technical qualification criteria.	Please follow Bid Conditions
57	1 & 3	1 & 8B	14.7	Pg.No.12 of 25 & Pg.No.35	All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder. AND Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment : All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	The clause mentioned in ITB states that bid price should be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract whereas clause under PCC states that All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract shall be included in the bid price. Kindly confirm the Modality to be followed.	Please refer Addendum & Corrigendum-01A
58	3	8B	14.7	Pg.No.35	Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.1 above confirms to follow the PCC clause, we understand that GST shall not be included in our bid price. The GST shall be paid extra over and above the quoted bid price at actuals. Kindly confirm our understanding.	GST Shall be paid extra.
59	Financial Bid	Annexure 2			8) PA Loudspeakers- Unidirectional/ Ceiling/ Wall Loudspeakers	Speaker type split, should be provided to quote appropriate speaker models	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
60	Financial Bid	Annexure 2			9) PA Loudspeakers- Depot, OCC & BCC Loudspeakers	Speaker type to be mentioned here like Wall/ceiling or Horn etc..	Please follow Bid Conditions
61	1 & 3	1 & 8B	14.7	Pg.No.12 of 25 & Pg.No.35	Part-1, Section-1, ITB 14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder. AND Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	The clause mentioned in ITB states that bid price should be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract whereas clause under PCC states that All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract shall be included in the bid price. Kindly confirm the Modality to be followed.	Please refer Addendum & Corrigendum-01A
62	3	8B	14.7	Pg.No.35	Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.1 above confirms to follow the PCC clause, we understand that GST shall not be included in our bid price. The GST shall be paid extra over and above the quoted bid price at actuals. Kindly confirm our understanding.	GST Shall be paid extra.
63	1	1	19.7	Page 14 of 25	The bid security may be forfeited or the Bid Securing Declaration executed, if the successful Bidder fails to (i) sign the Contract in accordance with ITB 44; (ii) furnish a performance security in accordance with ITB 45; (iii) accept the arithmetical correction of its Bid in accordance with ITB 34; or (iv) furnish a domestic preference security, if so required.	We understand that the failure of the Contractor and Employer to reach a common price (during price negotiation) shall not forfeit the Bid Security of the Contractor. Kindly confirm.	Please follow Bid Conditions
64	1	2	14.7	Page 16 of 33	**Section 2 ITB 14.7** All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied. The Goods imported for the project execution are exempt from whole of the duty of customs leviable thereon under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the special duty of customs leviable under section 68 of the Finance (No. 2) Act 1996 as per the provision of the Notification No. 84/97 dated 11th Nov 1997, as amended time to time. (Copy of Notification attached in PCC for ready reference).	We understand that the Social Welfare Surcharge (vide Ministry of Finance, GoI, Notification No. 11/2018-Customs dated 02.02.2018) applicable on the Customs Duty of items shall also be exmpted by the Employer. Kindly confirm.	Please follow Bid Conditions
65	1	2	18.1	Page 18 of 33	**Section 2 ITB 18.1** The bid validity period shall be 180 days.	We understand that the bid validity period will be from the date of submission of bid. Kindly confirm.	Please refer ITB 18.1 of Section 1 as supplemented by Section 2 BDS.
66	1	2	32.2	Page 25 of 33	**Section 2 ITB 32.2** The qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, Subcontractors shall not be permitted, unless they are the part of the Bidding entity.	We request you to accept the experience of sub-contractor for the qualification experience. Kindly amend the clause.	Please follow Bid Conditions
67	1	1	45.2	Page 25 of 25	**Section 1 ITB 45.2** Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security or execution of the Bid-Securing Declaration. In that event, the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.	We understand that the failure of the Contractor and Employer to reach a common price (during price negotiation) shall not forfeit the Bid Security of the Contractor. Kindly confirm.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
68	3	8A	19.1 & 19.2.3	Page 4 of 11	**Section 8: Particular Conditions of Contract Part-A 19.1 & 19.2.3** Contractor shall produce the evidence of all Insurance policies which are required to effect under the Contract within 14 days and the copy of relevant Insurance Policies within 28 days of Commencement Date for the requisite validity of the Insurances as detailed in the Form of Insurance Requirements available in the Contract Forms. In case currency of Contract/Defect Notification Period is extended, then policy validity is also required to be extended suitably by the Contractor at his own cost.	We understand that if the currency of the contract is extended due to reasons attributable to employer, the Insurance premium for the extended time shall be borne by the Employer or shall be reimbursed by the Employer to the Contractor. Kindly confirm	Please follow Bid Conditions
69	1	1	4.2 A	Page 6 of 25	Section 1: Instructions to Bidders 4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (Eligible Countries)	Request you to provide the eligible country name, as same is missing in section 5 (deleted) or we understand is this is Open to all country , please comfirm.	Please refer Addendum & Corrigendum-02A
70	1	1	5.1	Page 7 of 25	Section 1: Instructions to Bidders 5. Eligible Materials, Equipment and Services 5.1 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2,	Request you allow the all competitive company across the Globe for each Item, As their prices will make the commericial bid more competitive	Please refer Addendum & Corrigendum-02A
71	3	8B	14.2.4	34	Section 8: Particular Conditions of Contract Part- B 14.2.4 Interest in Case of Delay in Repayment of Advances In case of a delay in the progress and/or completion of Work, as a result of which it is not possible for the Employer to recover the advance, before the original date of completion of Works stipulated in the Contract / extended date of completion (not on Contractor's account), then the interest to be charged from the Contractor on the remaining portion of the advance beyond such date, shall be equal to State Bank of India's MCLR applicable for the tenure of 01 year prevailing on the original completion date specified in the Contract plus 3% per annum for INR portion. In case of foreign currency component, recovery shall be made interest rate equal to LIBOR for tenure of six months plus three percent or three percent whichever is higher.	Request you to delete this clause as, bidder is already paying the LD for the delayed portion of work.	Please follow Bid Conditions
72	1	1	19.8	Page 14 of 25	Section 1: Instructions to Bidders 19.8 If the bid security is required as per ITB 19.1, the bid security of a Joint Venture shall be in the name of the Joint Venture that submits the Bid.	Please allow to make bid security on name of Lead bidder in case of Joint Venture. Please confirm.	Please follow Bid Conditions
73	3	8A	4.4 (a)	2	Section 8: Particular Conditions of Contract Part-A 4.4 (a) Maximum allowable accumulated value of work subcontracted (as a percentage of accepted contract amount)-50%	Request you to delete this clause. As because of muliple Subcontractors will resuls in delay of work and will create other hinderance.	Please follow Bid Conditions
74	3	8A	4.19	2	Section 8: Particular Conditions of Contract Part-A 4.19 Period of payment for temporary utilities The Contractor shall be responsible for making his own arrangements at his own cost to obtain supply of water, electricity or gas for the Works. The Employer where feasible may at its discretion assist the Contractor in this respect. No temporary utilities are envisaged to be provided by the Employer.	Request you to provide all the necessary utilities such as water,electricity,or gas etc at the work place or allow the bidder to use the existing utilities at the construction site.	Please follow Bid Conditions
75	3	8A	14.2	3	Section 8: Particular Conditions of Contract Part-A 14.2 Total advance payment Mobilization Advance:- The Employer shall pay on written request by the Contractor an interest bearing Mobilization Advance up to 10% (Ten) percent of the Accepted Contract amount, payable in the currency(ies) and in same proportion as stated in the Accepted Contract amount.The Mobilization Advance Payment shall be released in two instalments as Specified in Clause 14.2 of PCC Part B.	Request you to facilitate the intrest free Mobilisation advance in one installament, such that there should not be any initial financial burden and the cashflow negativity will in a the limit.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
76	1	2	4.1	8 of 33	Section 2: Bid Data Sheet ITB 4.1 4.1 A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture. There is no obligatory requirement to incorporate JV. Throughout the bidding documents, including under Section 1, Section 2, Section 3, and Section 4, the expressions “Joint Venture” or “JV” shall have the same meaning as stipulated under the Conditions of Contract Sub-Clause 1.1.46. Similarly, in the context of Joint Venture, throughout the bidding documents, the word “leader”, as stipulated under the Conditions of Contract Sub-Clause 1.14, is synonymous with the word “Representative” and with the words “lead partner” and with “Lead Partner”; the word “member” is synonymous with the word “partner” and with “Partner”; and the word “members” is synonymous with “partners” and with “Partners”.	We request you to allow participation of Lead bidder along with Consortium. Hence request you to attend the clause as mentioned below: 4.1 A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture/ **Consortium.** There is no obligatory requirement to incorporate JV. Throughout the bidding documents, including under Section 1, Section 2, Section 3, and Section 4, the expressions “Joint Venture or **Consortium**.” or “JV**/ Consortium**.” shall have the same meaning as stipulated under the Conditions of Contract Sub-Clause 1.1.46. Similarly, in the context of Joint Venture **/ Consortium**., throughout the bidding documents, the word “leader”, as stipulated under the Conditions of Contract Sub-Clause 1.14, is synonymous with the word “Representative” and with the words “lead partner” and with “Lead Partner”; the word “member” is synonymous with the word “partner” and with “Partner”; and the word “members” is synonymous with “partners” and with “Partners”.	Please follow Bid Conditions
77	1	2	4.4 (b)	10 of 33	Section 2: Bid Data Sheet ITB 4.4 Any previous contract of the bidder or of any of its constituents had been terminated for contractor’s failure by MoHUA along with any of its attached and subordinate offices or by any metro rail organizations in India at any time starting from 02 years before the deadline for submission of bids. Provided, however, there is no stay order or declaration by any Court against such termination of the Contract or such termination of the Contract has not been revoked.	To promote healthy competition we request you to delete the clause	Please follow Bid Conditions
78	1	2	4.4 (e)	11 of 33	The bidder or its constituent(s) has been declared by MoHUA along with any of its attached and subordinate offices or by any metro rail organizations in India to be a poor performer and the period of poor performance is still in force on the deadline for submission of bids.	To promote healthy competition we request you to delete the clause	Please follow Bid Conditions
79	1	2	14.2	15 of 33	Section 2: Bid Data Sheet ITB 14.2 In case Bidder fails to quote the lumpsum amount in the Financial Bid, in such case the offer of the Bidder shall be considered Non-Responsive and it will be summarily rejected.	We request you to amend the clause as mentioned below : In case Bidder fails to quote the lumpsum amount in the Financial Bid, in such case ~~the offer of the Bidder shall be considered Non-Responsive and it will be summarily rejected~~ **such items shall be available without any cost to Employer**	Please follow Bid Conditions
80	1	2	14.7	17 of 33	Section 2: Bid Data Sheet ITB 14.7 Payment shall be made electronically in the account of the Contractor as per the details provided by the Contractor	We request you to amend the clause as mentioned below for better cashflow of the Lead Bidder: Payment shall be made electronically in the account of the Contractor as per the details provided by the Contractor **within 15 days of receipt of invoice by the Employer.**	Please follow Bid Conditions
81	1	2	45.2	32 of 33	Section 2: Bid Data Sheet ITB 45.2 The selected bidder shall also be disqualified and banned for further business dealings for a period of five years with the Employer.	We request you to amend the clause as mentioned below: The selected bidder shall also be disqualified ~~and banned for further business dealings for a period of five years with the Employer.~~	Please follow Bid Conditions
82	1	2	37.2	30 of 33	Section 2: Bid Data Sheet ITB 37.2 To evaluate the Price Bid, the Employer shall consider the following:	We request you to add the clause as mentioned below: If the L1 bidder is not awarded the contract then L2 bidder shall be awarded to L2 and if L2 bidder refuses the contract the chance for the contract shall be given to all the bidders in order of their increasing commercial proposals bid values.	Please follow Bid Conditions
83	1	1	38	22 of 25	Section 1: Instructions to Bidders 38. Abnormally Low bids	We request you to mentioned the value of the Bid below which the bid shall be considered Abnormally low bid.	Please follow Bid Conditions
84	1	2	Form EXP – 1	33	Bidding Forms Form EXP – 1: Contracts of Similar Size	We request you to add the clause as mentioned below: The Employer shall consider 60% CAPEX works completed certificate from Chartered Accountant/Client of the project.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
85	1	4A		12	Site Organization 4A -Annexure for Technical Proposal However, these personnel shall be deployed at site in advance as per requirement and as directed by the Engineer and the decision of Engineer in this regard shall be final and binding. The Contractor shall submit the CVs of the above key positions to Engineer for his approval within 28 days of issue of letter of Acceptance (LoA).	We understand that the personnel deployed under the contract can be from Lead Bidder partner/subcontractor/OEM which are not part of JV or consortium. Request you consider the same.	Please refer Addendum & Corrigendum-02A
86	1	4A		12	Site Organization 4A -Annexure for Technical Proposal (d) The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section IV, Bidding Forms. The Project Manager, Design Manager and Testing and Commissioning Engineer In-charge should have been employees of the OEM Contractor firm for not less than 5 years.	We request you to amend the clause as mentioned below considering the high attrition rate of skilled manpower: (d) The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section IV, Bidding Forms. ~~The Project Manager, Design Manager and Testing and Commissioning Engineer In-charge should have been employees of the OEM Contractor firm for not less than 5 years.~~	Please refer Addendum & Corrigendum-02A
87	3	8A & 8B		17 of 34	Bidding Documents Part 3 18. ARBITRATION Any dispute, controversy or claim arising out of or relating to this Agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Arbitration and Conciliation Act 1996(Act no 26 of 1996) as amended from time to time. The venue of the arbitration shall be Delhi.	We request you to amend the clause as mentioned below: Any dispute, controversy or claim arising out of or relating to this Agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above **a third party shall be appointed as Arbitrator on mutual agreement of Employer and contractor and the cost of arbitration shall be borne equally between the parties**, it will be settled by arbitration in accordance with the Arbitration and Conciliation Act 1996(Act no 26 of 1996) as amended from time to time. The venue of the arbitration shall be Delhi.	Please follow Bid Conditions
88	3	7	13	31 of 34	Bidding Documents Part 3 13. Survival Contractor agrees that all of its obligations undertaken herein with respect to Confidential Information received pursuant to this Agreement and obligations of indemnity shall survive for a period of 10 years after any expiration or termination of this Agreement.	We request you to amend the clause as mentioned bleow considering the practical senarios and cost implcations of obligations of contractor: Contractor agrees that all of its obligations undertaken herein with respect to Confidential Information received pursuant to this Agreement and obligations of indemnity shall survive for a period of ~~10 years~~ 2 years after any expiration or termination of this Agreement.	Please follow Bid Conditions
89	3	8B		3	Particular Conditions of Contract Mobilization Advance The Employer shall pay on written request by the Contractor an interest bearing Mobilization Advance up to 10% (Ten) percent of the Accepted Contract amount, payable in the currency(ies) and in same proportion as stated in the Accepted Contract amount.	We request Employer to provide interest free advance for better cashflow of contractor: The Employer shall pay on written request by the Contractor an ~~interest bearing~~ Mobilization Advance up to 10% (Ten) percent of the Accepted Contract amount, payable in the currency(ies) and in same proportion as stated in the Accepted Contract amount.	Please follow Bid Conditions
90	3	8B		3	Particular Conditions of Contract Delayed Payment The financing charges shall be calculated at an interest rate equal to bank rate of Reserve bank of India (RBI) plus three percentage for INR portion. In case of foreign currency component, recovery shall be made interest rate equal to LIBOR for tenure of six months plus three percent	We request you to amend the clause as mentioned below: The financing charges shall be calculated at an interest rate equal to bank rate of Reserve bank of India (RBI) plus three percentage for INR portion **for entire duration of delay from 30th day of submission of payment certificate by contractor**. In case of foreign currency component, recovery shall be made interest rate equal to LIBOR for tenure of six months plus three percent	Please follow Bid Conditions
91	3	7	4.13	33	General Conditions 4.13 Rights of Way and Facilities The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site.	Please confirm if the payments made to any relevant government authorities as statutory charges including restoration if levied by the concerned authorities to grant ROW permission shall be reimbursed extra at actual. Also, provide for extension of time in case of delay in obtaining the approvals for reason beyond the control of the Contractor	Please follow Bid Conditions
92	3	7	4.13	33	General Conditions 4.13 Rights of Way and Facilities The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site.	We request Employer to confirm that any delay in achieving milestones due to Right of Way approval beyond the scope of contractor or third party dependencies shall not make contractor liable in any way.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
93	1	1	2	3 of 25	Section 1: Instructions to Bidders 2. Source of Funds The Borrower or Recipient (hereinafter called “Borrower”) indicated in the BDS has applied for or received financing (hereinafter called “funds”) from the Asian Development Bank (hereinafter called “ADB”) toward the cost of the project named in the BDS. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued	We request the Employer to confirm that the funds are available with Employer.Also, we request you to mention the details regarding source of funds and allocation to the project.	Please follow Bid Conditions
94	3	7		35	General Conditions Temporary Utilities The Contractor shall, except as stated below, be responsible for the provision of all temporary utilities, including electricity, gas, telecommunications, water and any other services the Contractor may require for the execution of the Works.	We request Employer to reimburse on actuals with submission of invoices for all temporary utilities, including electricity, gas, telecommunications, water and any other services the Contractor may require for the execution of work. **Also Kindly confirm during the DLP and Manitainence all the recurring charges such as all temporary utilities, including electricity, gas, telecommunications, water and any other services the Contractor shall be reimbursed at actuals monthly on generation of invoices.**	Please follow Bid Conditions
95	1	3	2.2.1	Pg 5 of 12	Section 3: Evaluation and Qualification Criteria Non-performance of a contract a did not occur as a result of contractor default since 1st March, 2015.	We kinldy request you to remove this clause.	Please follow Bid Conditions
96	Financial Bid	Annexure 2		Annexure-2	Financial Bid- Annexure -2 Schedule -3	To meet the tender requirement Please include TFT for concurse and signle sided LED boards for platform in the minimum BoQ	Please refer Addendum & Corrigendum-02A
97	Financial Bid	Annexure 2		Annexure-2	Financial Bid- Annexure -2 Schedule -5 24 Port Industrail Layer-2 Switches complete with all enclosures and accesories	Please change the BoM in line with PS	Please refer Addendum & Corrigendum-02A
98	Financial Bid	Annexure 2		Annexure-2	Financial Bid- Annexure -2 Schedule -7 Layer 3 (min 48 ports) and associated accessories (incl SFP's) for Stations/depots/OCC/BCC as per PS	The PS has distribution L3 switch with 24 ports while in BoM, it seems to be a typo error, please change it to 24 ports as per PS	Please refer Addendum & Corrigendum-02A
99	Financial Bid	Annexure 2		Page 1 of 11	Financial Bid- Annexure -2 Schedule -7 Central Core Switch and associated accessories (incl. specific SFPs etc) for OCC as per PS	Request you to change the description from "OCC" to OCC/BCC.	Please refer Addendum & Corrigendum-02A
100	3	8A			Section 8: Particular Conditions of Contract Part-A Ref Clause - 1.1.27 , Defects Notification Period or “DNP” - 36 Months	In case, Taking Over Certificate of the last section is delayed due to no fault of Bidder, The Defect Liability Period will start from original scheduled completion date as per contract and continue upto **24** months. Similarly , if Taking Over Certificate is delayed 3 months beyond date of commissioning, The Defect Liability Period shall start immdiately after completion of 3 months from date of Commissioning.	Please follow Bid Conditions
101	3	7			General - SLA	Penalties in case of non-availability or in the event of system getting down or breach of availability is not properly defined. Request to clairfy. Also what is the limit of liability/ penalty in case of SLA	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
102	3	7			Assignment Clause	**We propose to include the below clause in the GCC under the relevant section:** "The Contractor shall not, without the express prior written consent of the Employer, assign to any third party the Contract or any part thereof, or any right, benefit, obligation or interest therein or thereunder, except that the Contractor shall be entitled to assign either absolutely or by way of charge any monies due and payable to it or that may become due and payable to it under the Contract to any Financial Institution(s) or Bank(s) or NBFC(s). In the event the Contractor assigns the monies due and payable to it or that may become due and payable to it, under the Contract, to any Financial Institution(s) or Bank(s) or NBFC(s), the Contractor shall acknowledge the intimation letter it may receive from such financial institution(s) or Bank(s) or NBFC (s). If the Contractor does not reply within 15 (Fifteen) days of the receipt of the intimation letter, it can be considered as "acknowledged by Employer". Furthermore the Employer will provide an indicative date by when the funds will be released to the SI as a measure of comfort for the decisions of Financial Institution(s) or Bank(s) or NBFC(s)."	Please follow Bid Conditions
103	3	8A		1	Section 8, Part-A-Contract Data : However shared access for construction of the Works shall be in phased manner as detailed in Employer's Requirement.	The Contractor shall be entitled to extension of time and Costs in the event of any disruptions caused by the other contractors or delay in providing the site access. Please confirm.	Please follow Bid Conditions
104	3	8A		6	Seaction 8, Part-A Contract Data: In the event that the aforesaid two arbitrators are unable to appoint the third and presiding arbitrator, the third and presiding arbitrator shall be appointed by President of Indian Council of Arbitration New Delhi India.	The appointment of presiding arbitrator if not made by the two appointed arbitrators, shall be as per the Act.	Please follow Bid Conditions
105	3	8A		6	Section 8, Part-A: The minimum qualification and experience of the arbitrators which may be appointed by the Parties in accordance with the contract is set out below: i) A working/retired officer (not below E-8 grade in a central public sector undertaking in India, with which the Employer has no direct business relationship), of engineering or accounts/finance discipline, having experience in management of construction contracts; or ii) A retired officer (not below the SAG level in Indian Railways) of any Engineering Services of Indian Railways or Indian Railway Accounts Service, having experience in management of construction contracts;	The minimum qualifications set forth here require the arbitrators to be only technical arbitrators. Howver, there may be questions of law to be adjudicated. Therefore, parties to be given the scope to select a suitable arbitrator depending on the nature of the dispute/claims. Please delete this provision.	Please follow Bid Conditions
106	3	8A	21.6.8	7	Section 8, Part A:21.6.8 The award of the arbitral tribunal shall be binding on the Parties. Where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period, till the date on which the award is made.	This clause disentitles the legal right to be paid interest for late payments until the date of award. Please delete the words in red.	Please follow Bid Conditions
107	3	8B	1.12 & 1.17 (i)	4 and 5	Section 8, Part-B: 1.12 and 1.17 (i) NCRTC's right to audit and examine the records and accounts of the executing and implementing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the Project,	These auditing rights to Employer/ Banks shall be limited to the records of the Project and to check the utilisaiton of any Advance Amount provided by the Employer.	Please follow Bid Conditions
108	3	8B	3.2 (f)	6	Section 8, Part-B: 3.2 (f) Clause 20.1: [Claims]: agreeing extension of time and/or additional payment.	The requirement for prior consent from Employer in case of adjudication of contractor's claims under 20.1 makes the adjudication process biased. Please delete this requirement.	Please follow Bid Conditions
109	3	8B	4.1	6	Section 8, Part-B: Clause 4.1 Contractor's Warranty	Please confirm that the "Other than the warranties expressly provided under this clause, the Contractor disclaims all warranties, guarantees and representations, under contract or law either express or implied including the warranties of merchantability or fit for purpose." Further, please confirm that the Contractor shall be entitled to time and costs in the event of any delays caused by the Employer or its other contractors including force majeure events. This shall be an excpetion for the waiver provided under last para in this clause 4.1 PCC	Please follow Bid Conditions
110	3	8B	4.2.1	9	Section 8, Part-B, Clause 4.2.1 Second Para	To delete "by written notice immediately terminate the Contractor's employment".	Please follow Bid Conditions
111	3	8B	4.4	9	Section 8, Part B, Claue 4.4-Subcontractor as amended in PCC	The orders placed by the Contractor for procurement of supplies, engagement of labour contractors shall not be constured as 'Subcontracting' requiring complaince with this clause. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
112	3	8B	4.6 (b)	11 and 12	Section 8, Part-B, Clause 4.6 (b) - (h) Cooperaiton	The contractor shall however be entitled to extension of time and costs in the event of any delays caused not attributable it during the co-oridnation with the 'other contractors' or delays caused by Designated Contractors.	Please follow Bid Conditions
113	3	8B	4.6	12	Section 8, Part-B, Clause 4.6 last paragraph-Co operation	The liability for 'additional payments' by the contractor for such delays caused directly attributable to the Contractor's delay, shall be considered in levy of the Delay Damages and shall be subjected to the terms thereto. Please confirm.	Please follow Bid Conditions
114	3	8B	4.10 (f)	13	Section 8, Part-B, Clause 4.10 (f)- Use of Site Data	The risk of damage to property in adjacent site due to construction works is constured as limited to the construction works carried out by the Contractor.	Please follow Bid Conditions
115	3	8B	4.25	16	Section 8, Part-B, Clause 4.25 Audit Rights	The Audit Rights provided here shall be subject to the Employer providing prior written notice to conduct iwhtin reaosnable business hours, the auditing documentation access shall only be restricted to that of this Project/Contract. Any third party consultant engaged by the employer including banks shall maintain utmost confidentiality of the process	Please follow Bid Conditions
116	3	8B	6.2	18	Section 8, Part-B, Clause 6.2- Rates of Wages and conditions of labour	Prinicipal employer referred here is constured as "the Employer" under this contract. Further, the indemnity of the contractor provided heruender shalll be to the actual costs incurred by the Employer due to non compliance of applicable laws by the contractor.	Please follow Bid Conditions
117	3	8B	8.5 (d)	26	Section 8, Part-B, Clause 8.5 (d)- Extension of time	The clause under GCC to be retained.	Please follow Bid Conditions
118	3	8B	8.6	27	Section 8, Part-B, Clause 8.6- Authority's delay	this may be too short duration. It shall be as per Contractor;s claims period under 20.1	Please follow Bid Conditions
119	3	8B	8.8	27	Section 8, Part-B, Clause 8.8 PCC- Delay Damages	Please delete applicability of LDs on milestone basis. Further, if milestone LD is applicable, then in the event the contractor achieves the completion date agreed despite delay in a milestone, then the milestone LD s shall be waived/ returned if recovered.	Please follow Bid Conditions
120	3	8B	11.3	28	Section 8, Part-B, Clause 11.3 PCC- Extension in DNP	To delete extension of DNP	Please follow Bid Conditions
121	3	8B	14.2.4	34	Section 8, Part-B, Clause 14.2.4 PCC- Interest in delayed repayment of advances	To delete the sub clause entirely.	Please follow Bid Conditions
122	3	8B	14.7	35	Section 8, Part-B, Clause 14.7 PCC- Payment	To delete: "The Engineer shall have the power to omit from any of the Contractor's requests for payment for the value of any work executed or Materials supplied or services rendered with which he may for the time being be dissatisfied with and for that purpose or for any other reason which seems proper in its sole discretion, may delete, correct or modify the sum(s) previously certified by him as being due to the Contractor.". Once certified, the IPC shall fall due and payable.	Please follow Bid Conditions
123	3	8B	15.2.1	38	Section 8, Part-B, Clause 15.2.1 PCC_ Termination by Employer	Amalgamation and restructing may not be with prior consent of the Employer. Please delete. except for the purpose of amalgamation or reconstruction with the prior written consent of the Employer (who may specify additional conditions for consent	Please follow Bid Conditions
124	3	8B	15.9	40	Section 8, Part-B, Clause 15.9 PCC- Corrupt and Fraudulent Practices	To delete. This shall be exercised only if the Contractor is proven by court of competent auhtority to have engaged in corrupt or fraudulent practice. "subclause (iii)- breach of contract condition during execution" shall be deleted from exercise of this ban.	Please follow Bid Conditions
125	1	2	14.7	3 of 24; 9 of 24	Part 1, Section 2 BDS, ITB 14.7 ; Sl. No. 5 of Addendum 1; Part 3, Section 8, PCC Part A Contract Data, 14.15(g), 2nd Paragraph. SL. No. 14 of the Addendum-1	Whether the Contrator will be entitled to adiditonal costs incurred as a reuslt of foreign currency fluctuations?	Please follow Bid Conditions
126	3	8B	2.4	11 of 24	Sl. 20. of Addendum -1 ; Part 3, Section 8, PCC Part B, Clause 2.4	To retain the clause in PCC. Notice of any usspension of funding is necessary to be given by employer to contractor	Please refer Clause 2.4 of GCC
127	3	8B	16.1	17 of 24	Sl. 27 and 28. of Addendum -1; Part 3, Section 8, PCC Part B, Clause 16.1, 3rd part- Suspension by Contrator	To retain the clauses in PCC. Contractor must have the right to suspend and later terminate- in the event of ancellation or suspension of funding to the Employer.	Please refer Clause 16 of GCC.

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
128	3	9		17 of 34	SECTION 9, PART-III- JOINT VENTURE /CONSORTIUM AGREEMENT	The JV Agreement shall expire also in the event the JV Bidder is not susccessful in the tender or if the LOA is issued to any third party bidder.	Please follow Bid Conditions
129	3	9	NDA	31 of 34	Part-III- Non-Disclosure Agreement	The NDA shall be mutual terms wherein both the Employer and the Bidder/Contractor are disclosing and recipeint parties. Further, the term of the NDA for unsuccessful bidders shall be until the expiry of the bid submitted.	Please follow Bid Conditions
130	3	8	6.2	Pg 42	General Conditions 6.2 - Rates of Wages and Conditions of Labour The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment (including wages and working hours), health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.	Revision of rates of minimum wages is a change in law event and therefore, to be provided. Plz confirm.	Please refer Addendum & Corrigendum-02A
131	3	8B	4.1	Pg 8 of 44	Section 8: Particular Conditions of Contract Part- B CL 4.1 No claim for additional payment or extension of time shall be entertained and/or the Contractor shall not be relieved from any obligation/liability under the Contract, for any delay, suspension, impediment to or adverse effect upon the progress of the Works due to any mistake, inaccuracy, discrepancy or omission in or between the Contractor's definitive Design and the final Design, or any failure by the Contractor to prepare any Design Data or submit the same to the Engineer in due time and the Contractor shall promptly make good any such defect at his own cost.	This shall be except in case of variation in design or delay due to Employer- pls confirm	Please follow Bid Conditions
132	1	2	14.7	16 of 33	Section 2: Bid Data Sheet ITB 14.7 The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied.	Kindly request you mentioned the funds from Asian Development Bank and Asian Infrastructure Investment Bank has been approved and available.	Please follow Bid Conditions
133	1	3	2.4.1 (b)	9 of 12	Section 3: Evaluation and Qualification Criteria 2.4.1(b) Contracts of Similar Size: (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS)	Inorder to make sure well qualified bidders participate in the bidding, we suggest to increase the count of sub-systems. Experience of satisfactory and substantial completion of similar works, as a prime contractor (single entity or lead member of joint venture/consortium) during last 10 years as on date of Bid submission: Similar works would be Design, Supply, Installation, Testing and commissioning of telecommunications works for metro railway station; or other utility infrastructure such as Airport, Stadium, large convention centres etc. with at least **5 (five)** subsystems out of FOTS, Tetra, PABX, CCTV, PAS, PIDS, ACIDS etc	Please follow Bid Conditions
134	1	1	19.5	Page 14 of 25	Section 1: Instructions to Bidders 19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned promptly upon the successful Bidder's furnishing of the performance security pursuant to ITB 45.	The return of bid security of unsucessful bidder should ideally be not linked with the successful bidder furnishing the PBG- pls consider a change till award of LOA or the validity of bid expires, whichever is earlier. Kindly confirm	Please refer Addendum & Corrigendum-02A
135	1	4		6	Bidding Forms (w) We declare and confirm that in the submission of this bid, no agent, middleman or any intermediary has been, or will be engaged to provide any services or any other item of work related to the award and performance of this contract. We further confirm and declare that no agency commission or any payment which may be construed as an agency commission has been, or will be, paid and that the bid price does not include any such amount. We acknowledge the right of the Employer, if he finds to the contrary, to declare our bid to be noncompliant and if the contract has been awarded to declare the contract null and void.	Does this mean that sub-contractors cannot be engaged? Do subcontractors fall under the meaning of agents herein? Request to clarify.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
136	3	8B	4.1	7	Section 8: Particular Conditions of Contract Part- B 4.1 Contractor's General obligation f. The Contractor shall indemnify the Employer against any damage, expense, liability, loss or claim, which the Employer might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause.	Contractor to indeminfy against all such claims pertaining to its Access to Site, if the claims/ costs are arising out of the acts attributable to the Contractor. Please confirm.	Please follow Bid Conditions
137	1	4	Form PER - 1	14 to 15	Section 4: Bidding Forms - Without Prequalification Form PER - 1: Proposed Personnel & Form PER - 2:Resume of Proposed Personnel	Kindly provide Key Personnel List, education qulaification and years of experience	Please follow Bid Conditions
138	1	4	Bid Security	8 to 9	Section 4: Bidding Forms - Without Prequalification Bid Security 11. Notwithstanding anything contained herein: a) Our liability under this guarantee shall not exceed _____ (in words) b) This Bank Guarantee shall be remain valid upto _____ c) We are liable to pay up to the guarantee amount or any part thereof under this Bank Guarantee only and only if you serve upto us a written claim or demand on or before _____	Kindly amend the clause as below: 11. Notwithstanding anything contained herein: a) Our liability under this guarantee shall not exceed _____ (in words) b) This Bank Guarantee shall be remain valid upto _____ c) We are liable to pay up to the guarantee amount only **and only if we receive from you a written claim or demand not later than _____. All your rights as well as our liability under this Bank Guarantee shall stand extinguished unless a written claim or demand is made under this guarantee on _____ not later than _____.**	Please follow Bid Conditions
139	1	3	2.4.1 (b)	8 to 9	Section 3: Evaluation and Qualification Criteria 2.4 Design and Construction Experience 2.4.1(b) Contracts of Similar Size: (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS)	Kindly amend the clause as below: (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS/**FIDS**, MCLK, ACIDS)	Please follow Bid Conditions
140	1	1	4.1	6	Part 1, Section 1 – A. 4.1 Eligible Bidders A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture. In the case of a Joint Venture, (a) all partners shall be jointly and severally liable; and (b) the Joint Venture shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the Joint Venture during the bidding process and, in the event the Joint Venture is awarded the Contract, during contract execution.	1.We understand that consortium and JV has been used interchangeably in the tender documents and all requirements are the same. Please confirm our understanding. 2.We also understand that on award of the contract to successful bidder, consortium can be an unincorporated consortium / JV and JV / Consortium. 3.We understand that registration of Consortium Agreement under Registration Act, 1908 is not mandatory as per the requirement of the tender. Please confirm our understanding.	Please refer ITB 4.1 of Section 2 BDS.

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
141	3	8A & 8B	21.6	43	Part 3, Section 4: 21.6 Arbitration This clause stands amended and restated in its entirety as follows: 21.6.1 Any dispute between the Parties arising out of or in connection with the contract not settled amicably in accordance with Sub-Clause 21.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows: The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act 1996 as amended from time. The seat of arbitration shall be New Delhi and the arbitration tribunal shall consist of 3 members. Each Party shall appoint one arbitrator and such appointed arbitrators shall appoint the third and presiding arbitrator. In the event that the aforesaid two arbitrators are unable to appoint the third and presiding arbitrator, the third and presiding arbitrator shall be appointed by President of Indian Council of Arbitration New Delhi India. The minimum qualification and experience of the arbitrators which may be appointed by the Parties in accordance with the contract is set out below: i) A working/retired officer (not below E-8 grade in a central public sector undertaking in India, with which the Employer has no direct business relationship), of engineering or accounts/finance discipline, having experience in management of construction contracts; or ii) A retired officer (not below the SAG level in Indian Railways) of any Engineering Services of Indian Railways or Indian Railway Accounts Service, having experience in management of construction contracts; The language of arbitration shall be English. This arbitration shall be governed in accordance with the laws of India. 21.6.2 In the event that the Contractor wishes to refer a dispute to arbitration in accordance with this Sub-Clause, it shall be required to serve a notice in this regard to the Managing Director, of the Employer for commencement of arbitration. 21.6.3 Pending the submission of and/or decision on a dispute and until the arbitral award is published, the Parties shall continue to perform their respective obligations under the contract without prejudice to a final adjustment in accordance with such award. 21.6.4 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute. However, Conciliator cannot be present as a witness by either party in the arbitral proceedings. 21.6.5 Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. 21.6.6 Neither party shall be limited in the proceedings before such arbitrators to the evidence or arguments put before the Engineer to obtain his decision. No decision given by the Engineer in accordance with the contract shall disqualify him from being called as a witness and giving evidence before the arbitrators on any	Arbitrators should be independent persons and the Parties should be free to choose Arbitrators of their choice to avoid any kind of bias during the proceedings and interest on delayed payments should be admissible. In this regard, we request you to kindly modify clauses 21.6.1.i, 21.6.1.ii and 21.6 and 21.6.8 by making the deletions as highlighted below: This clause stands amended and restated in its entirety as follows: 21.6.1 Any dispute between the Parties arising out of or in connection with the contract not settled amicably in accordance with Sub-Clause 21.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows: The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act 1996 as amended from time. The seat of arbitration shall be New Delhi and the arbitration tribunal shall consist of 3 members. Each Party shall appoint one arbitrator and such appointed arbitrators shall appoint the third and presiding arbitrator. In the event that the aforesaid two arbitrators are unable to appoint the third and presiding arbitrator, the third and presiding arbitrator shall be appointed by President of Indian Council of Arbitration New Delhi India. The minimum qualification and experience of the arbitrators which may be appointed by the Parties in accordance with the contract is set out below: i) A working/retired officer (not below E-8 grade in a central public sector undertaking in India, with which the Employer has no direct business relationship), of engineering or accounts/finance discipline, having experience in management of construction contracts; or ii) A retired officer (not below the SAG level in Indian Railways) of any Engineering Services of Indian Railways or Indian Railway Accounts Service, having experience in management of construction contracts; The language of arbitration shall be English. This arbitration shall be governed in accordance with the laws of India. 21.6.2 In the event that the Contractor wishes to refer a dispute to arbitration in accordance with this Sub-Clause, it shall be required to serve a notice in this regard to the Managing Director, of the Employer for commencement of arbitration. 21.6.3 Pending the submission of and/or decision on a dispute and until the arbitral award is published, the Parties shall continue to perform their respective obligations under the contract without prejudice to a final adjustment in accordance with such award. 21.6.4 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute. However, Conciliator cannot be present as a witness by either party in the arbitral proceedings. 21.6.5 Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. 21.6.6 Neither party shall be limited in the proceedings before such arbitrators to the evidence or arguments put before the Engineer to obtain his decision. No decision given by the Engineer in accordance with the contract shall disqualify him from being called as a witness and giving evidence before the arbitrators on any matter, whatsoever, relevant to dispute referred to arbitration. 21.6.7 Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works. 21.6.8 The award of the arbitral tribunal shall be binding on the Parties. Where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period, till the date on which the award is made. All arbitration awards shall be in writing and shall state item wise, the sum and detailed reasons upon which it is based. 21.6.9 A Party may apply for correction of any typographical or computational errors or any other error of similar nature occurring in the award of a tribunal and interpretation of specific point of award to tribunal within 60 days of the receipt of the award.	Please follow Bid Conditions

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S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
142	3	7	19.2	96	Part 3, Section 7 – 19.2 Insurance to be provided by the Contractor The Contractor shall provide the following insurances: 19.2.1 The Works The Contractor shall insure and keep insured in the joint names of the Contractor and the Employer from the Commencement Date until the date of the issue of the Taking-Over Certificate for the Works: (a) the Works and Contractor's Documents, together with Materials and Plant for incorporation in the Works, for their full replacement value. The insurance cover shall extend to include loss and damage of any part of the Works as a consequence of failure of elements defectively designed or constructed with defective material or workmanship; and (b) an additional amount of fifteen percent (15%) of such replacement value (or such other amount as may be specified in the Contract Data) to cover any additional costs incidental to the rectification of loss or damage, including professional fees and the cost of demolition and removal of debris. The insurance cover shall cover the Employer and the Contractor against all loss or damage from whatever cause arising until the issue of the Taking-Over Certificate for the Works. Thereafter, the insurance shall continue until the date of the issue of the Performance Certificate in respect of any incomplete work for loss or damage arising from any cause occurring before the date of the issue of the Taking-Over Certificate for the Works, and for any loss or damage occasioned by the Contractor in the course of any operation carried out by the Contractor for the purpose of complying with the Contractor's obligations under Clause 11 [Defects after Taking Over] and Clause 12 [Tests after Completion].	As per clause 19.2 of GCC we understand that following insurances need to be taken up by Bidder for the purpose of this project: 1.Contractor's All Risk Policy/ Erection All Risk Policy for protection Works and Goods brought to Site 2.Professional Indemnity Policy for liability against breach of professional duty 3.Comprehensive General Liability Policy for injury against person and damage to property 4.Workmen's Compensation policy for injury to employees We request you to kindly confirm our understanding.	Please refer Form of Insurance Requirements of Section 9 CF. Please follow bid conditions,
143	3	8B	1.13	4	Part 3, Section 8 - 1.13: Add below Para (b) as: Ignorance of Rules, Regulations and Bylaws by Contractor shall not constitute a basis for any claim at any stage of work. The Contractor shall indemnify the Employer against all penalties and liabilities of every kind of breach of any such enactment, laws, regulations, bye-laws or rules.	We request you to kindly amend clause 1.13 as follows by adding highlighted wordings: Add below Para (b) as: Section IV/ 1.13 Ignorance of Rules, Regulations and Bylaws by Employer and Contractor shall not constitute a basis for any claim at any stage of work. The Employer and Contractor shall indemnify the Employer each other against all penalties and liabilities of every kind of breach of any such enactment, laws, regulations, bye-laws or rules.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
144	3	8B	4.1	7	Part 3, Section 8 – 4.1: Contractor's General Obligations Add the following below the third para: All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank Add the following at the end Contractor's Warranty: a. The Contractor shall be fully responsible, for the suitability, adequacy, integrity, durability and practicality of the Contractor's proposal for which Contractor is required to submit a warranty in Standard Contract Forms as stated in Contract Forms, mentioned as Contractor's Warranty and Sub- Contractor's Warranty. These Warranties should be made available at the time of signing of the Agreement. For Subcontractors (other than Specialist Subcontractor) the warranties should be submitted along with Contractor's proposal for approval. b. The Contractor warrants that the Contractor's Proposals meet the Employer's Requirements and is fit for the purpose thereof. Where there is any inadequacy, insufficiency, impracticality or unsuitability in or of the Employer's Requirements or any part thereof, the Contractor's Proposal shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability at Contractor's own cost. c. The Contractor warrants that the Works have been or will be designed, manufactured, installed and otherwise constructed to the highest standards available using proven up-to-date Engineering good practices.	We request you to kindly amend this clause by deleting highlighted point and para adding highlighted wordings in contractors warranty as indicated below: Add the following below the third para: All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank Add the following at the end Contractor's Warranty: a. The Contractor shall be fully responsible, for the suitability, adequacy, integrity, durability and practicality of the Contractor's proposal for which Contractor is required to submit a warranty in Standard Contract Forms as stated in Contract Forms, mentioned as Contractor's Warranty and Sub- Contractor's Warranty, which shall remain valid till completion of the contract. These Warranties should be made available at the time of signing of the Agreement. For Subcontractors (other than Specialist Subcontractor) the warranties should be submitted along with Contractor's proposal for approval. b. The Contractor warrants that the Contractor's Proposals meet the Employer's Requirements and is fit for the purpose thereof. Where there is any inadequacy, insufficiency, impracticality or unsuitability in or of the Employer's Requirements or any part thereof, the Contractor's Proposal shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability at Contractor's own cost. c. The Contractor warrants that the Works have been or will be designed, manufactured, installed and otherwise constructed to the highest standards available using proven up-to-date Engineering good practices. d. The Contractor warrants that the Works will, when completed, comply with enactments and regulations relevant to the Works e. The Contractor warrants that the design of the Works and the manufacture of plant have taken or will have taken full account of the effects of the intended manufacturing and installation methods, Temporary Works and Contractor's Equipment. f. The Contractor shall indemnify the Employer against any damage, expense, liability, loss or	Please refer Addendum & Corrigendum-02A
145	3	8B	6.5	19	Part 3, Section 8: 6.5 Working Hours The Contractor, if required, shall carry out work during night hours and in shifts, however, at all times subject to compliance with applicable laws and shall be responsible for all necessary safety arrangements with respect to the work being undertaken. However, the Contractor shall not be entitled to any claim for increase in rates or any additional cost and same will be deemed to be included in the Contract price.	We request you to kindly modify clause 6.5 of GCC by making the following deletion as highlighted below: The Contractor, if required, shall carry out work during night hours and in shifts, however, at all times subject to compliance with applicable laws and shall be responsible for all necessary safety arrangements with respect to the work being undertaken. ~~However~~, the Contractor shall ~~not~~ be entitled to any claim for increase in rates or any additional cost and same will be deemed to be included in the Contract price.	Please follow Bid Conditions
146	3	8B	8.5 (d)	26	Part 3, Section 8 - 8.5(d) Extension of Time for Completion Sub-paragraph (d) stands amended and restated in its entirety as follows: Unforeseeable shortage of Goods arising out of an order or notification issued by a competent court or governmental authority.	We request you to kindly modify clause 8.5(d) by making the following addition highighted below: **Sub-paragraph (d) stands amended and restated in its entirety as follows:** Unforeseeable shortage of Goods arising out of an order or notification issued by a competent court or governmental authority or caused **due to epidemic and or pendemic.**	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
147	3	8B	8.14	27	Part 3, Section 8: 8.14 Notwithstanding anything to the contrary contained in this Sub-Clause 1.9 [Errors in the Employers requirement]; 2.1 [Right of Access to the site], 4.7 [Setting out], 4.12 [unforeseeable Physical Conditions], 4.23 [Archeological and Geological Findings] the Contractor shall not be entitled to any extension of time and payment of Cost-plus profit (as set out in the Second paragraph of the Sub-Clause, Last Para of the Sub-Clause 1.9 [Errors in the Employers requirement]; Third Para of the Sub-Clause 2.1 [Right of Access to the site]), Para 4.7.3 of the Sub-Clause 4.7[Setting Out]), Para 4.12.4 of the Sub-Clause 4.12[Unforeseeable Physical Conditions]), Third Para of the Sub-Clause 4.23 [Archeological and Geological findings] if: (a) the cumulative period of delay under Sub-Clause 1.9: Errors in the Employers requirement; Sub-Clauses 2.1: Right of Access to the Site, 4.7: Setting Out, 4.12: Unforeseeable Physical Conditions, 4.23: Archeological and Geological findings do not exceed original KD-11 of Stage-4 during the term of the contract; (b) In case of the delays defined in (a) above, the Engineer may notify the contractor to utilize the resources for undertaking any other part of the Works by redeployment of the resources.	In compliance with FIDIC conditions, Contractor is entitled to cost plus profit under clauses 1.9, 4.7, 4.12, 4.23. In this regard, we kindly request you to delete clause 8.14 which has been added in PCC.	Please follow Bid Conditions
148	3	8B	13.1	28	Part 3, Section 8: 13.1 Right to Vary Add the following texts, after the last para of the GCC Clause 13.1: Changes to any sequence, method or timing of construction, execution, supply, installation, testing and commissioning including Integrated Testing and Commissioning and changes to any part of the Site or access thereto will not constitute a Variation.	In this regard, we request you to kindly delete the added tests after the last para of GCC clause 13.1. Add the following texts, after the last para of the GCC Clause 13.1: ~~Changes to any sequence, method or timing of construction, execution, supply, installation, testing and commissioning including Integrated Testing and Commissioning and changes to any part of the Site or access thereto will not constitute a Variation.~~	Please follow Bid Conditions
149	3	9		19	Part 3 – Section 9: Contractor's Warranty 1.c) The Contractor will replace free of cost to the Employer any defect or failure of equipment/material/ services etc. provided in the Works for a period of 24 months from the date of the Taking Over Certificate in accordance with GCC 1.1.81 and GCC 10;	In compliance with clause 11.2 of GCC, we request you to kindly modify clause 1c) of Contractor's warranty by making the additions as highlighted below: The Contractor will replace free of cost to the Employer any defect or failure of **equipment**/material/ services etc. provided in the Works for a period of 24 months from the date of the Taking Over Certificate in accordance with GCC 1.1.81 and GCC 10, **if and to the extent, the work is attributable to:** **(a) the design of the Works, other than a part of the design for which the Employer is responsible (if any);** **(b) Plant, Materials or workmanship not being in accordance with the Contract;** **(c) improper operation or maintenance which was attributable to matters for which the Contractor is responsible (under Sub-Clause 5.5 [Training], Sub-Clause 5.6 [As-Built Records] and/or Sub-Clause 5.7 [Operation and Maintenance Manuals] or otherwise); or** **(d) failure by the Contractor to comply with any other obligation under the Contract.** **If the Contractor considers that the work is attributable to any other cause, the Contractor shall promptly give a Notice to the Engineer and the Engineer shall proceed under Sub-Clause 3.7 [Agreement or Determination] to agree or determine the cause (and, for the purpose of Sub-Clause 3.7.3 [Time limits], the date of this Notice shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3). If it is agreed or determined that the work is attributable to a cause other than those listed above, Sub-Clause 13.3.1 [Variation by Instruction] shall apply as if such work had been instructed by the Engineer.**	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
150	3	9		19	Part 3 – Section 9: Contractor's Warranty 3. In so far as the copyright or other intellectual property rights in any plans, calculations, drawings, documents, materials, plant, know-how and other information relating to the Works shall be vested in the Contractor, the Contractor grants to the Employer his successors and assigns a royalty free, non-exclusive and irrevocable license (carrying the right to grant sub- licences) to use and reproduce any of the works designs or inventions incorporated and referred to in such documents or materials and any such know-how and information for all purposes relating to the Works including without limitation the design, and commission (including Integrated Testing and Commissioning) reinstatement, extension and the remedy of any defect in the Works. To the extent that beneficial ownership of any such copyright or other intellectual property rights is vested in anyone other than the Contractor, the Contractor shall use best endeavours to procure that the beneficial owner thereof shall grant a like to the Employer. For the avoidance of doubt, any such license granted shall not be determined if the Contractor shall for any reason cease to be employed in connection with Works.	We request you to kindly modify clause 3 of Contractor's warranty by making the deletions and additions highlighted below: 3. In so far as the copyright or other intellectual property rights in any plans, calculations, drawings, documents, materials, plant, know-how and other information relating to the Works shall be vested in the Contractor, the Contractor grants to the Employer his successors and assigns a royalty free, non-exclusive, **non-transferable** and irrevocable license (carrying the right to grant sub- licences) to use and ~~reproduce~~ any of the works designs or inventions incorporated and referred to in such documents or materials and any such know-how and information for all purposes ~~relating~~ limited to performance of the Works including without limitation the design, and commission (including Integrated Testing and Commissioning) reinstatement, extension and the remedy of any defect in the Works **under this Contract only**. To the extent that beneficial ownership of any such copyright or other intellectual property rights is vested in anyone other than the Contractor, the Contractor shall use best endeavours to procure that the beneficial owner thereof shall grant a like to the Employer. For the avoidance of doubt, any such license granted shall not be determined if the Contractor shall for any reason cease to be employed in connection with Works. **The said rights shall be limited to the municipal limites of _____.**	Please follow Bid Conditions
151	3	7	1.15	GCC 20	1.15 Limitation of Liability Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than under: (a) Sub-Clause 8.8 [Delay Damages]; (b) sub-paragraph (c) of Sub-Clause 13.3.1 [Variation by Instruction]; (c) Sub-Clause 15.7 [Payment after Termination for Employer's Convenience]; (d) Sub-Clause 16.4 [Payment after Termination by Contractor]; (e) Sub-Clause 17.3 [Intellectual and Industrial Property Rights]; (f) the first paragraph of Sub-Clause 17.4 [Indemnities by Contractor]; and (g) Sub-Clause 17.5 [Indemnities by Employer]. The total liability of the Contractor to the Employer under or in connection with the Contract, other than: (i) under Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment]; (ii) under Sub-Clause 4.19 [Temporary Utilities]; (iii) under Sub-Clause 17.3 [Intellectual and Industrial Property Rights]; and (iv) under the first paragraph of Sub-Clause 17.4 [Indemnities by Contractor], shall not exceed the sum stated in the Contract Data or (if a sum is not so stated) the Accepted Contract Amount. This Sub-Clause shall not limit liability in any case of fraud, gross negligence, deliberate default or reckless misconduct by the defaulting Party.	Request to modify as follows: 1.15 Limitation of Liability Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract The total liability of the Contractor to the Employer under or in connection with the Contract, other than: (i) NA (ii) NA (iii) under Sub-Clause 17.3 [Intellectual and Industrial Property Rights]; and (iv) NA shall not exceed the sum stated in the Contract Data or (if a sum is not so stated) the Accepted Contract Amount. This Sub-Clause shall not limit liability in any case of fraud, gross negligence, deliberate default or reckless misconduct by the defaulting Party.	Please follow Bid Conditions
152	3	7	4.1	GCC Pg 23	4.1 Contractor's General Obligations The Contractor shall execute the Works in accordance with the Contract. When completed, the Works (or Section or Part or major item of Plant, if any) shall be fit for the purpose(s) for which they are intended, as defined and described in the Employer's Requirements (or, where no purpose(s) are so defined and described, fit for their ordinary purpose(s)).	Request to modify as follows: 4.1 Contractor's General Obligations The Contractor shall execute the Works in accordance with the Contract. When completed, the Works (or Section or Part or major item of Plant, if any) shall be fit for the purpose(s) for which they are intended, as defined and described in the Employer's Requirements.	Please follow Bid Conditions

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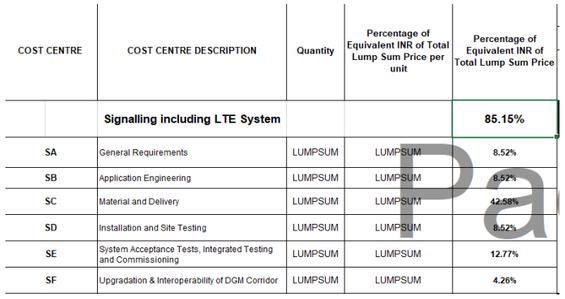
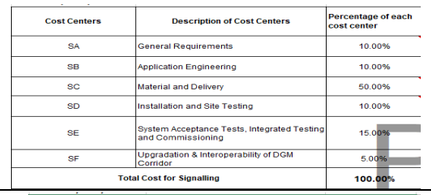
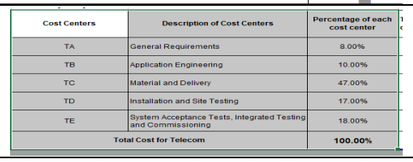
S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
153	3	7	17.4	GCC Pg 92	17.4 Indemnities by Contractor The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all third party claims, damages, losses and expenses (including legal fees and expenses) in respect of: (a) bodily injury, sickness, disease or death of any person whatsoever arising out of or in the course of or by reason of the Contractor's execution of the Works, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; and (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss: (i) arises out of or in the course of or by reason of the Contractor's execution of the Works, and (ii) is attributable to any negligence, wilful act or breach of the Contract by the Contractor, the Contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any of them. The Contractor shall also indemnify and hold harmless the Employer against all acts, errors or omissions by the Contractor in carrying out the Contractor's design obligations that result in the Works (or Section or Part or major item of Plant, if any), when completed, not being fit for the purpose(s) for which they are intended under Sub-Clause 4.1 [Contractor's General Obligations].	Request to modify as follows: 17.4 Indemnities by Contractor The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all third party claims, damages, losses and expenses in respect of: (a) bodily injury, sickness, disease or death of any person whatsoever arising out of or in the course of or by reason of the Contractor's execution of the Works, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; The Contractor shall also indemnify and hold harmless the Employer against all acts, errors or omissions by the Contractor in carrying out the Contractor's design obligations that result in the Works (or Section or Part or major item of Plant, if any), when completed.	Please follow Bid Conditions
154	3	7	18.1	GCC Pg 93	18.1 Exceptional Events	Request to include vandalism	Please follow Bid Conditions
155	3	8A	8.8	PCC Part A Pg 3	8.8 Maximum amount of delay damages	Request to modify to Maximum 5%	Please follow Bid Conditions
156	3	8A	4.25	PCC Part A Pg 16	4.25 [Add new Sub-Clause 4.25 as follows:] Audit Rights	Please include: Audit findings to be treated a sconfidential information.Audit to be conducted not more then once a year.	Please follow Bid Conditions
157	3	8A	5.1	PCC Part A Pg17	5.1 General Design Obligations Add at the end of the Second-last para of Clause 5.1 as follows: The Designer/Design sub-Contractor shall open his design office in Delhi/NCR with required minimum key personnel. Till such time the compliance of above is done, No progress payment with respect to design will be made. Notwithstanding that any design details may be included in the Contract, this shall in no way limit the responsibility on the Contractor to design, manufacture, supply, install, test and commission the Works so that they are fit for the purposes expressed or implied in the Contract.	Request to modify as follows: 5.1 General Design Obligations Add at the end of the Second-last para of Clause 5.1 as follows: The Designer/Design sub-Contractor shall open his design office in Delhi/NCR with required minimum key personnel. Till such time the compliance of above is done, No progress payment with respect to design will be made. Notwithstanding that any design details may be included in the Contract, this shall in no way limit the responsibility on the Contractor to design, manufacture, supply, install, test and commission the Works so that they are fit for the purposes expressed in the Contract.	Please follow Bid Conditions
158	3	8A	8.14	PCC Part A Pg27	8.14 Add a new Clause 8.14 below Clause 8.13 as follows:	Please delete this clause	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
159	3	7		NA	Additional Clause	Please add following clause: INVENTIONS AND INTELLECTUAL PROPERTY No right, title or interest in Contractor Intellectual Property will be transferred to Employer under this Agreement, including Intellectual Property which existed prior to or is created independent of the performance of the Agreement. All Intellectual Property and results of Services, including software, models, designs, drawings, documents, inventions, and know-how ("Inventions"), conceived or developed by Contractor in connection with the Agreement are the sole property of Contractor and Employer has no right or license to the Intellectual Property or Inventions except as granted in the Agreement. Contractor and its suppliers retain all right, title and interest to all Software provided by Sub-contractor, and all modifications and enhancements thereof, and no right, title, or interest in the Software, or any copies thereof, is transferred to Employer. Employer agrees to hold all Software supplied by Contractor in strict confidence and will employ best efforts to not disclose the Software to others. All Software delivered by Contractor is subject to a software license ("License"). If Employer does not agree to a separate software license with Contractor,Employer does not have a license or right to any Software.	Please follow Bid Conditions
160	3	7		NA	Additional Clause	Please add following clause: Notwithstanding anything to the contrary, in light of the COVID-19 pandemic, the effects of which cannot be foreseen, the parties agree that Contractor shall be entitled to an equitable extension of time to deliver or perform its work and appropriate additional compensation to the extent Contractor's delivery or performance, or the delivery or performance of its suppliers and/or subcontractors, is in any way delayed, hindered or otherwise affected by the COVID-19 pandemic.	Please follow Bid Conditions
161	1	4	Form FIN-3	Credit Line (must be substantiated by FIN - 3A) a	Form FIN – 3: Availability of Financial Resources	We understand that it is a solvency certificate to be taken from the Bank & submitted in bid. Please confirm	Please follow Bid Conditions
162	1	3	2.4.1 (b)	pages 8 & 9 of 12	3 Section 3 EQC, Part 1, 2.4.1(b)	2.4.1(b) We understand total project value for the similar works contract to be considered for complying this clause, please confirm Request to modify as follows: 2.4.1(b) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed/ ongoing where the total value of the Bidder's participation exceeds INR 930 million in the similar work. OR (B) Participation as a contractor or JV partner in Two Single Contracts, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed/ ongoing where the total value of the Bidder's participation exceeds INR 580 million in each Contract in the similar work. OR (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed/ ongoing where the total value of the Bidder's participation exceeds INR 465 million in each Contract in the similar work. Similar Work for 2.4.1(b) shall mean: Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS, Command Control Centre) In case of large O&M ongoing projects, 80% CAPEX completion certificate from CA/ Client to be submitted.	Please follow Bid Conditions
163	1	3	2.4.2 (B)	pages 10 of 12	3 Section 3 EQC, Part 1, 2.4.2 B	Request to modify as follows: 2.4.2 Construction Experience in Key Activities Minimum construction experience in the following key activities in last 10 years ending last day of the month previous to the month of bid submission. B. Completed/ ongoing Design, Supply, Installation, Testing, Commissioning and Integration of any 4 Telecommunication Sub- Systems viz. DTS/FOTS, EPABX, CCTV, PIDS, PAS, MCLK, Radio, Access control, Command Control Centre for at least 8 number of stations in rail- based transit systems or Smart cities or City surveillance projects in a single work. In case of large O&M ongoing projects, 80% CAPEX completion certificate from CA/ Client to be submitted.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1							
S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
164	1	3	Notes for Clause 2.4.1 & 2.4.2	pages 10 of 12	3 Section 3 EQC, Part 1, Notes for Clause 2.4.1 & 2.4.2: -	Request to clarify the following clause: Notes for Clause 2.4.1 & 2.4.2: - 4. Only the work under revenue operation for at-least one year shall be considered for fulfilling the requirements under clause 2.4.1 and 2.4.2, In case of partial revenue operation of a project, the section under revenue operation shall only be considered. The same shall be substantiated	Please refer Addendum & Corrigendum-02A
165	1	2	14.7	Page no 16&17	Section 2 / clause no ITB 14.7	As per the clause "The subsequent Interim -certificate shall be processed for payment upon submission of documentary evidence in the form of Challans/GSTR Form-2A as the case maybe towards payment of GST collected on the previous Interim payment certificates to the GST Authorities. However, if subsequent bills are raised before the return submission date of previous Bill period, the documentary evidence towards payment of GST shall be provided within 7 days from the date of such return filling. The Final payment certificate/single payment certificate, payment shall be released on the undertaking by the contractor/supplier for providing evidence within 07 days from the due date of such return filing for final bill based on GST provision for due dates..... We will submit a certificate from CA instead of providing challans /form 2 A or Latest filed return -pl confirm	Please follow Bid Conditions
166	1	2	14.7	Page no 17	Section 2 / clause no ITB 14.7	All payments, will be subject to deduction of tax at source in accordance with the provisions of the Indian Income tax Act and any other applicable law, including any Withholding Taxes etc. BOCW Cess shall be applicable on Contract Price. -Our understanding is that our bid price should be inclusive of BOCW and NCRTC will deduct BOCW from our payment and will deposit to the Government - kindly confrim whether our understanding is correct	Please follow Bid Conditions
167	1	2	14.7	Page no 16	Section 2 / clause no ITB 14.7	It is mentioned as per the clause that "The Goods imported for the project execution are exempt from whole of the duty of customs leviable thereon under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the special duty of customs leviable under section 68 of the Finance (No. 2) Act 1996 as per the provision of the Notification No. 84/97 dated 11th Nov 1997, as amended time to time. Employer will facilitate the Contractor with necessary certificate in this regard. The responsibility to avail the exemption of Custom Duty shall solely rest with the Contractor. The Contractor shall also be solely responsible for custom clearing of the Goods**. Importer on Record can be NCRTC or domestic JV partner.** - As mentioned importer on record would be NCRTC or Domestic JV partner - in view of this whether NCRTC would enter into High seas sale agreement for Imprted material . ? we would also like to inform that this would be works contract and High seas sale transaction is not allowed under works contract . Request you to confirm the modality for this transaction .Pl also confirm for following a) whether bidder can be importer on record b) if answer to a above is yes then whether the bidder can avail custom duty exemption basis the certficate provided by employer as mentioned in the clause	Please follow Bid Conditions
168	3	7	4.2	23	Section 7 /Clause no 4.2 / Performance security	Request you to confirm whether initially we can provide Performance security up to period of 3.5 years along with the letter mentioning that New PBG will be issued for future required period before expiring this BG	Please follow Bid Conditions
169	3	8B	1.17	4&5	Section 8 / particular conditions of contract -Part B /clause no1.1 7	This inspection and audit clause is not acceptable and even if the bank want to audit and inspection then that should be shuld be limited to operations of site activites	Please follow Bid Conditions
170	3	8B	4.25	16	Section 8 / particular conditions of contract -Part B /clause no 4.25/Audit Rights	This clause is not acceptable and even if wmployer want to audit as mentioned in this clause then that should be limited to operations of site activites	Please follow Bid Conditions
171	Financ ial Bid	Appendi x 1		Appendix 1 to Financial Bid	Percentage allocation for Signalling & LTE System and Telecommunication System is prefixed at 85.15% and 14.85% respectively .	We request you to allow bidder to fix the percentage of Signalling & LTE system and Telecommunication system according to their respective bidding strategies .	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
172	Financial Bid	Appendix 1		Appendix 1 to Financial Bid		1. Under Cost Cnetre SF " Upgradation and Interoperability of DGM Corridor " 4.26 % of the total contract price will be held till the commissioning of 2nd and 3rd Corridor . But there is no clear information about commssioning timelines of 2nd and 3rd RRTS corridor . Withholding 4.26% of Contarct Payment for indefinite time is going to hamper conntractor's cash flow badly . We request you to accept the bank guarnatee from bidder in lieu of perfoming the interoperable activities , instead of withholiding the payment under this cost centre. 2. There may be different scenarios for cost centre SF , under which Bidders may or may not require to prove interoparability with other corridors (1 bidder win all 3 corridors/2 Corridors) or perform all activities under this cost centre SF . How those scenarios will be handled ?	Please follow Bid Conditions
173	Financial Bid	Summary CC S & T		Summary CC S & T - Total Cost for Siganlling		1. We request you to delete the cost centre SF " Upgradation & Interoperability of DGM Corridor " , and instead accept Bank Guarantee for this perfromance . 2. Simultaneously we request you to increase the % share of Cost Centre SC "Material and Delivery " to **60%** of the total cost for Signalling System , while reducing the % share of Cost Centre SE " System Acceptance Tests , Integrated Testing and Commissioning" to **10%** of total cost for Signalling isystem	Please follow Bid Conditions
174	Financial Bid	Summary CC S & T		Summary CC S & T - Total Cost for Telecom		1. We request you to increase % share of Cost Centre TC "Material and Delivery " to **55 %** of the total cost for telecom , while reducing the % share of Cost Centre TE " System Acceptance Tests , Integrated Testing and Commissioning" to **10%** of of total cost for telecom .	Please follow Bid Conditions
175	Financial Bid	Preamble	4.1	Preamble to Financial Bid. Clause 4.1	This Contract is a Lump Sum price Contract for the works specified in the Bid Document. Bidder shall quote a 'LUMP SUM PRICE' fulfilling all obligations under the Contract inclusive of all taxes, levies, duties and any other charges leviable, including tax deducted at source, statutory deductions etc. excluding the following stated in (a) and (b) below. (a) In the case of Plant (as defined under Conditions of Contract, Sub-Clause 1.1.66) offered from abroad, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder; and (b) In the case of Plant offered from within the Employer's country,Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder.	We understand that 1. Work done by consortium member who undertake design, supply, commissioning, testing, installation is a works contract and considered as service contract in GST Act. 2. GST on works contract will be extra at actuals as per prevailing rate. GST on works contract is excluded from lump sum contract price. 3. In case of consortium member who supplies only goods or services & does not undertake any erection or installation work will not be covered in works contract. In such case GST will be charged as per appropriate HS Code / Servcie Accounting Code. GST on such supply of goods and servcies will be excluded from the contract price. 4. In case offshore servcies provided by foreign consortium member, RCM GST will be paid & borne by employer. Please confirm our understanding.	Please refer Addendum & Corrigendum-01A

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
176	Financial Bid	Preamble	4,2	Preamble to Financial Bid. Clause 4.2	The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and Financed by Asian Development Bank and Asian Infrastructure Investment Bank. The Plants imported for the project execution are exempt from whole of the duty of customs leviable theron under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the special duty of customs leviable under section 68 of the Finance (No. 2) Act 1996 as per the provison of the Notification No. 84/97 dated 11th Nov 1997, as amended time to time. (Copy of Notification attached in BDS for ready reference). Employer will facilitate the Contractor with necessary certificate in this regard. The responsibility to avail the exemption of Custom Duty shall solely rest with the Contractor. The Contractor shall also be solely responsible for custom clearing of the Plants. Importer on Record can be NCRTC or domestic JV partner. The Contractor shall maintain records of the Plants imported for the project execution and actual utilization of the same for the project execution. The Contractor shall be fully responsible for any loss or misuse of these imported Plants. Employer will facilitate the Contractor with necessary certificate in this regard. The responsibility to avail the exemption of Custom Duty shall solely rest with the Contractor. The Contractor shall also be solely responsible for custom clearing of the Plants. Importer on Record can be NCRTC or domestic JV partner. The Contractor shall maintain records of the Plants imported for the project execution and actual utilization of the same for the project execution. The Contractor shall be fully responsible for any loss or misuse of these imported Plants.	We understand that – 1. Employer will provide necessary documents for claiming exemption from the customs duty (BCD + SWS) for imports of goods rquired for execution of project by contractor and sub-contractor under notification no 84/97. 2. In case of offshore supplies by foreign consortium member, NCRTC will be importer on records. NCRTC's IEC will be used for Imports. 3. In case of offshore service by foreign consortium member, RCM GST will be paid & borne by employer. Please confirm our understanding.	Please refer Addendum & Corrigendum-01A
177	1	2	14.7	Clause ITB 14.7 of BDS. Page 16 of 33	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and for which financing from Asian Development Bank and Asian Infrastructure Investment Bank has been applied. The Goods imported for the project execution are exempt from whole of the duty of customs leviable thereon under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the special duty of customs leviable under section 68 of the Finance (No. 2) Act 1996 as per the provision of the Notification No. 84/97 dated 11th Nov 1997, as amended time to time. (Copy of Notification attached in PCC for ready reference).	We understand that 1. Customs Duty on imported goods intended to use in project by contractor & sub-contractor is excluded from total bid price. 2. Output GST as applicale to works contract, supplies & servcies is excluded from total bid price. 3. In case of offshore supplies by foreign consortium member, goods will be imported in the name of employer.Customs Duties on such supplies is excluded form contract price. 4. In case of offshore services proivded by foreign consortium member, RCM GST will be paid & borne by emplyer. Please confirm the same.	Please refer Addendum & Corrigendum-01A
178	1	2	14.7	Clause ITB 14.7 of BDS. Page 16 of 33	Employer will facilitate the Contractor with necessary certificate in this regard. The responsibility to avail the exemption of Custom Duty shall solely rest with the Contractor. The Contractor shall also be solely responsible for custom clearing of the Goods. Importer on Record can be NCRTC or domestic JV partner. The Contractor shall maintain records of the Goods imported for the project execution and actual utilization of the same for the project execution. The Contractor shall be fully responsible for any loss or misuse of these imported Goods.	We understand that NCRTC will be importer on records for offshroe supplies by foreign consotium member. NCRTC's IEC will be used for imports. Please confirm the same.	Please refer Addendum & Corrigendum-01A

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
179	1	2	14.7	Clause ITB 14.7 of BDS. Page 16 of 33	Payment shall be made electronically in the account of the Contractor as per the details provided by the Contractor. In case the Contractor is a Joint Venture, the payment shall be made only in the name of Joint Venture. In case the Contractor is a un-incorporated JV, if requested by the contractor, direct payment to the individual partners of the JV can be made on joint certification by the authorized representatives of individual constituent partners, after making requisite recoveries /deduction from the gross payment. In this case, a notarized Joint Venture Agreement (Section 9: CF) jointly signed by authorized representatives of all the constituent partners of the JV to this effect need to be submitted to the Employer before commencement of the Work. All payments, will be subject to deduction of tax at source in accordance with the provisions of the Indian Income tax Act and any other applicable law, including any Withholding Taxes etc. BOCW Cess shall be applicable on Contract Price. For Tax purpose, Individual partners of JV shall be required to submit individual Tax invoices and TDS deduction certificate. The Contractor / individual partners of JV shall take necessary clearance/exemption and registration certificate for Income Tax/Other Taxes/GST, as applicable.	We understand that In case of bidding by consortium of Indian & Foreign entity, each consortium member's scope will have clear billing breakup identifying the details of currency wise split for their respective scope as per consortium agreement. Please confirm our understanding	Please refer Addendum & Corrigendum-01A
180	1	2	37.2	Clause ITB 37.2 of BDS. Page 30 of 33	II. The Employer's evaluation of a Bid will exclude and not take into account, (a) in the case of Goods (as defined under Conditions of Contract, Sub-Clause 1.1.44) offered from abroad, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder; and (b) in the case of Goods offered from within the Employer's country, Custom Duty and Goods & Services Tax (GST), applicable in the Employer's country and payable on the Plant if the Contract is awarded to the Bidder.	We understand that 1. Customs Duty on imported goods intended to use in project by contractor & sub-contractor is excluded from total bid price. 2. Output GST as applicale to works contract, supplies & servcies is excluded from total bid price. 3. In case of offshore supplies by foreign consortium member, goods will be imported in the name of employer.Customs Duties on such supplies is excluded form contract price. 4. In case of offshore services proivded by foreign consortium member, RCM GST will be paid & borne by emplyer. Please confirm the same.	Please refer Addendum & Corrigendum-01A
181	3	7	7.7	General Condition of Contract Clause 7.7 Ownership of Plant and Materials Page 48	Each item of Plant and Materials shall, to the extent consistent with the mandatory requirements of the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances: (a) when it is delivered to the Site; (b) when the Contractor is paid the value of the Plant and Materials under Sub-Clause 8.11 [Payment for Plant and Materials after Employer's Suspension]; or (c) when the Contractor is paid the amount determined for the Plant and Materials under Sub-Clause 14.5 [Plant and Materials intended for the Works].	We understand that 1. We unerstand that NCRTC will be importer on records. 2. In case of offshore supplies by foreign consortium member, the ownership of goods will be transferred on CIF basis. Please confirm the same.	Please refer Addendum & Corrigendum-02A
182	3	8B	14.7	Bidding Documents Part 3 Section 8: Particular Conditions of Contract Part- B Page 34 of 44	All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder. The Delhi Ghaziabad Meerut Corridor of Regional Rapid Transit System being Implemented by National Capital Region Transport Corporation Limited, is an approved project by the Government of India and Financed by Asian Development Bank and Asian Infrastructure Investment Bank. The Goods imported for the project execution are exempt from whole of the duty of customs leviable thereon under first Schedule to the Customs tariff Act 1975 (51 of 1975) and the whole of the special duty of customs leviable under section 68 of the Finance (No. 2) Act 1996 as per the provision of the Notification No. 84/97 dated 11th Nov 1997, as amended time to time. (Copy of Notification attached for ready reference).	We understand that 1. Customs Duty on imported goods intended to use in project by contractor & sub-contractor is excluded from total bid price. 2. Output GST as applicale to works contract, supplies & servcies is excluded from total bid price. 3. In case of offshore supplies by foreign consortium member, goods will be imported in the name of employer.Customs Duties on such supplies is excluded form contract price. 4. In case of offshore services proivded by foreign consortium member, RCM GST will be paid & borne by emplyer. Please confirm the same.	Please refer Addendum & Corrigendum-01A

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
183	3	8B	14.7	Bidding Documents Part 3 Section 8: Particular Conditions of Contract Part- B Page 36 of 44	Employer will facilitate the Contractor with necessary certificate in this regard. The responsibility to avail the exemption of Custom Duty shall solely rest with the Contractor. The Contractor shall also be solely responsible for custom clearing of the Goods. Importer on Record can be NCRTC or domestic JV partner. The Contractor shall maintain records of the Goods imported for the project execution and actual utilization of the same for the project execution. The Contractor shall be fully responsible for any loss or misuse of these imported Goods.	We understand that NCRTC will be importer on records for offshroe supplies by foreign consotium member. NCRTC's IEC will be used for imports. Please confirm the same.	Please refer Addendum & Corrigendum-01A
184	3	8B	14.7	Bidding Documents Part 3 Section 8: Particular Conditions of Contract Part- B Page 36 of 44	Payment shall be made electronically in the account of the Contractor as per the details provided by the Contractor. In case the Contractor is a Joint Venture, the payment shall be made only in the name of Joint Venture. In case the Contractor is a un-incorporated JV, if requested by the contractor, direct payment to the individual partners of the JV can be made on joint certification by the authorized representatives of individual constituent partners, after making requisite recoveries /deduction from the gross payment. In this case, a notarized Joint Venture Agreement (Section 9: CF) jointly signed by authorized representatives of all the constituent partners of the JV to this effect need to be submitted to the Employer before commencement of the Work. All payments, will be subject to deduction of tax at source in accordance with the provisions of the Indian Income tax Act and any other applicable law, including any Withholding Taxes etc. BOCW Cess shall be applicable on Contract Price. For Tax purpose, Individual partners of JV shall be required to submit individual Tax invoices and TDS deduction certificate. The Contractor / individual partners of JV shall take necessary clearance/exemption and registration certificate for Income Tax/Other Taxes/GST, as applicable.	We understand that In case of bidding by consortium of Indian & Foreign entity, each consortium member's scope will have clear billing breakup identifying the details of currency wise split for their respective scope as per consortium agreement. Please confirm our understanding	Please refer Addendum & Corrigendum-01A
185	3	7	4.2.1	Pg.24	**GCC, Cl. 4.2.1** **Performance Security, Contractor's obligations** The Contractor shall deliver the Performance Security to the Employer, with a copy to the Engineer, within 28 days after receiving the Letter of Acceptance.	Employer to clarify if multiple Bank Guarantees be issued corresponding to the share of each JV Party?	Please follow Bid Conditions
186	3	7	4.12	Pg.32	**GCC, Cl.4.12** **Unforeseeable Physical Conditions** In this Sub-Clause, "physical conditions" means natural physical conditions and physical obstructions (natural or man-made) and pollutants, which the Contractor encounters at the Site during execution of the Works, including sub-surface and hydrological conditions but excluding climatic conditions at the Site and the effects of those climatic conditions.	If the Works is stopped due to pollution, etc, the Contractor should be entitled to EOT and/or Cost. Employer to confirm.	Please follow Bid Conditions
187	3	7	4.13	Pg.33	**GCC, Cl.4.13** **Rights of Ways and Facilities** The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site. The Contractor shall also obtain, at the Contractor's risk and cost, any additional facilities outside the Site which may be required for the purposes of the Works.	Contractor requests that the Employer be responsible for the Rights of Ways and Facilities. The following edits are proposed: The ~~Contractor~~ Employer shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site. The ~~Contractor~~ Employer shall also obtain, at the Contractor's risk and cost, any additional facilities outside the Site which may be required for the purposes of the Works.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
188	3	7	4.7	Pg.28	**GCC, Cl.4.7** **4.7.1** **Accuracy** The Contractor shall: (a) verify the accuracy of all these items of reference before they are used for the Works; (b) promptly deliver the results of each verification to the Engineer; (c) rectify any error in the positions, levels, dimensions or alignment of the Works; and (d) be responsible for the correct positioning of all parts of the Works, **4.7.2** **Errors** If the Contractor finds an error in any items of reference, the Contractor shall give a Notice to the Engineer describing it: (a) within the period stated in the Contract Data (if not stated, 28 days) calculated from the Commencement Date, if the items of reference are specified in the Employer's Requirements; or (b) as soon as practicable after receiving the items of reference, if they are issued by the Engineer under Sub-Clause 2.5 [Site Data and Items of Reference].	Contractor requests that it cannot be held responsible for the works performed by other contractors at site and hence this clause be amended accordingly.	Please follow Bid Conditions
189	3	7	7.3	Pg. 45	**GCC, Cl.7.3** **Inspection** Contractor requests that the Employer be responsible for the Rights of Ways and Facilities. The following edits are proposed:	Contractor proposes the following edits: "The Employer's Personnel shall then either carry out the examination, inspection, measurement or testing ~~without unreasonable delay~~, or the Engineer shall promptly give a Notice to the Contractor that the Employer's Personnel do not require to do so. If the Engineer gives no such Notice and/or the Employer's Personnel do not attend at the time stated in the Contractor's Notice (or such time as may be agreed with the Contractor), the Contractor may proceed with covering up, putting out of sight or packaging for storage or transport."	Please follow Bid Conditions
190	3	7	8.6	Pg.52	**GCC, Cl.8.6** **Delays Caused by Authorities**	Contractor requests that in case the delay is caused by Authorities on account of pollution, the Contractor should be entitled to EOT and/or costs.	Please follow Bid Conditions
191	3	7	13	Pg.66	**GCC, Cl.13** **Variations & Adjustments**	Contractor requests that the Variations requests by the Employer be limited to 15% of the Accepted Contract Amount.	Please follow Bid Conditions
192	3	7	18	Pg.93	**GCC, Cl.18** **Exceptional Events**	Contractor requests that the present COVID 19 pandemic should be considered as an Exceptional Event.	Please follow Bid Conditions
193	3	8A	19.2.3	Pg.5	**Section 8 - PCC, Part A, GCC Cl. 19.2.3** 1. AOA (any one accident) limit equal to 6% of the total contract value with AOY (any one year) with unlimited occurrences. In the Professional Indemnity Insurance Policy, the deductible amount shall not be more than 5% of claim amount or INR Five Hundred Thousand (INR 500,000/-) whichever is less or as per the requirements of Statutory provisions . 2.The Professional Insurance policy shall be valid for five years after date of issue of 'Performance Certificate'. 3.The policy should cover consequential losses due to professional negligence and errors in the Works.	Contractor requests for the follwing deletion in this clause: 1. AOA (any one accident) limit equal to 6% of the total contract value with AOY (any one year) with unlimited occurrences. In the Professional Indemnity Insurance Policy, the deductible amount shall not be more than 5% of claim amount or INR Five Hundred Thousand (INR 500,000/-) whichever is less or as per the requirements of Statutory provisions . 2.The Professional Insurance policy shall be valid for five years after date of issue of 'Performance Certificate'. ~~3.The policy should cover consequential losses due to professional negligence and errors in the Works.~~	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
194	3	8B	4.1(g)	Pg. 7	**Sec. 8-PCC, Part B- Specific Provisions, Cl.4.1 (g)** The Contractor further specifies and is deemed to have checked and accepted full responsibility 'for the Contractor' s Proposal and warrants absolutely that the same meets the Employer's Requirements: i. Notwithstanding that such design may be or have been prepared, developed or issued by the Employer, any of Contractor's consultants, his sub-contractors and/or his qualified personnel/persons or cause to be prepared, developed or issued by others. ii. Notwithstanding any warranties, guaranties and/or indemnities that may be or may have been submitted by any other person. iii. Notwithstanding that the same have been accepted by the Engineer	Contractors requests that its liability be limited to the designs prepared, developed by it and hence proposes the following deletion: ~~The Contractor further specifies and is deemed to have checked and accepted full responsibility 'for the Contractor' s Proposal and warrants absolutely that the same meets the Employer's Requirements:~~ ~~i. Notwithstanding that such design may be or have been prepared, developed or issued by the Employer, any of Contractor's consultants, his sub-contractors and/or his qualified personnel/persons or cause to be prepared, developed or issued by others.~~ ~~ii. Notwithstanding any warranties, guaranties and/or indemnities that may be or may have been submitted by any other person.~~	Please follow Bid Conditions
195	3	8B	4.4.5	Pg.8-9	Sec. 8-PCC, Part B- Specific Provisions, Cl.4.4.5 The Contractor shall submit a copy of sub-contract along with the all warranty related documents to the Employer with a copy to the engineer, prior to the intended date of commencement of works by such Subcontractor.	Contractor requests that the all warranty related documents to the Employer with a copy to the engineer, should be submitted at the time of Contract signature.	Please follow Bid Conditions
196	3	8B	4.6 (h)	Pg.12	**Sec. 8-PCC, Part B- Specific Provisions, Cl.4.6 (h)** h. It shall be the responsibility of the Contractor to ensure that the full extent of the Works under the Contract and the works to be carried out by Designated Contractors within the Works or other works over the Site are co-ordinated and integrated in their design, manufacture, installation and construction. Such responsibility shall neither be mitigated nor in any other way affected by virtue of similar responsibilities being placed on other contractors. The Contractor shall be deemed to have made adequate allowance in the Contract Price and in the Works Programme in respect of these obligations.	The Contractor proposes the following deletion: h. It shall be the responsibility of the Contractor to ensure that the full extent of the Works under the Contract and the works to be carried out by Designated Contractors within the Works or other works over the Site are co-ordinated and integrated in their design, manufacture, installation and construction. Such responsibility shall neither be mitigated nor in any other way affected by virtue of similar responsibilities being placed on other contractors. ~~The Contractor shall be deemed to have made adequate allowance in the Contract Price and in the Works Programme in respect of these obligations.~~	Please follow Bid Conditions
197	3	8B	4.6 (h)	Pg. 12	**Sec. 8-PCC, Part B- Specific Provisions, Cl.4.6 (h)** If any act or omission of the Contractor whether directly or indirectly results in the delay in the execution of the works of Designated Contractor, and the Employer consider itself entitled to additional payment from the Contractor, Employer may file for a Claim under Sub-Clause 20.1 (a) in respect of the additional payments or Costs to the Designated Contractor in respect of such delay."	Contractor requests that for delays resulting from act or omission of the Contractor which directly or indirectly results in the delay in the execution of the works of Designated Contractor, the Employer claim should be limited to [•] of [•].	Please follow Bid Conditions
198	3	8B	21.6	Pg. 43	**Sec. 8-PCC, Part B- Specific Provisions, Cl.21.6** The minimum qualification and experience of the arbitrators which may be appointed by the Parties in accordance with the contract is set out below: a) A working/retired officer (not below E-8 grade in a central public sector undertaking in India, with which the Employer has no direct business relationship), of engineering or accounts/finance discipline, having experience in management of construction contracts; or b) A retired officer (not below the SAG level in Indian Railways) of any Engineering Services of Indian Railways or Indian Railway Accounts Service, having experience in management of construction contracts;	With respect to the qualification of Arbitrator(s), please allow the Contractor to chose the Arbitrator(s) of its own choice and not confined to the working/retired officer (E8 and above) of CPSEs or a retired officer of Indian Railways (not below the SAG level)	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
199	3	8B	1.5	Pg.3	**Sec. 8-PCC, Part B- Specific Provisions, Cl.1.5** Priority of Documents	Contractor requests that the Response to Pre Bid queries also be made part in the Priority of Documents.	Please follow Bid Conditions
200	3	8B	13.1	Pg. 28	**Sec. 8-PCC, Part B- Specific Provisions, Cl.13.1** Changes to any sequence, method or timing of construction, execution, supply, installation, testing and commissioning including Integrated Testing and Commissioning and changes to any part of the Site or access thereto will not constitute a Variation.	Contractor requests that any changes to sequence be considered a Varioation and therefore proposes the following changes to the clause: "Changes to any sequence, method or timing of construction, execution, supply, installation, testing and commissioning including Integrated Testing and Commissioning and changes to any part of the Site or access thereto will ~~not~~ constitute a Variation."	Please follow Bid Conditions
201	3	8B	8.14	Pg. 27	**Sec. 8-PCC, Part B- Specific Provisions, Cl.8.14** Add the following at the end of the existing **Last Para of Clause 1.9** **Third Para of Clause 2.1** **Sub Clause 4.7.3,** **Sub Clause 4.12.4,** **Third Para of Clause 4.23:** Notwithstanding anything to the contrary contained in this Sub-Clause 1.9 [Errors in the Employers requirement]; 2.1 [Right of Access to the site], 4.7 [Setting out], 4.12 [unforeseeable Physical Conditions], 4.23 [Archeological and Geological Findings] the Contractor shall not be entitled to any extension of time and payment of Cost-plus profit (as set out in the Second paragraph of the Sub-Clause, Last Para of the Sub-Clause 1.9 [Errors in the Employers requirement]; Third Para of the Sub-Clause 2.1 [Right of Access to the site]), Para 4.7.3 of the Sub-Clause 4.7[Setting Out]), Para 4.12.4 of the Sub-Clause 4.12[Unforeseeable Physical Conditions]), Third Para of the Sub-Clause 4.23 [Archeological and Geological findings] if: (a) the period of such delay does not exceed 7 days for each occurrence and the cumulative period of delay under Sub-Clause 1.9: Errors in the Employers requirement; Sub-Clauses 2.1: Right of Access to the Site, 4.7: Setting Out, 4.12: Unforeseeable Physical Conditions, 4.23: Archeological and Geological findings do not exceed 30 days during the term of the contract;	Contractor requests for removal of the restriction of cumulative 30 days period and the Contractor should be allowed to claim for a delay even if it is within the 30 days period.	Please follow Bid Conditions
202	3	8A	17.2(d)	Pg.4/18	Section 8 - PCC, Part-A, Contract Data, Cl.17.2 (d) Liability for Care of the Works- Operation of the Forces of Nature allocated to the Contractor are Floods, Rain, Winds/Storms	Contractor requests that the Liability for Care of the Works- operation of the forces of Nature such as Floods, Rain, Winds/Storms should be allocated to the Employer.	Please follow Bid Conditions
203	3	8B	4.1	Pg. 7	**Section 8 - PCC, Part-B, Specific Provisions, Cl.4.1** Contractor's Warranty c. The Contractor warrants that the Works have been or will be designed, manufactured, installed and otherwise constructed to the highest standards available using proven up-to-date Engineering good practices	Contractor proposes the following edits to this clause : c. The Contractor warrants that the Works have been or will be designed, manufactured, installed and otherwise constructed ~~to the highest standards available using proven up-to-date Engineering good practices~~ as per the specifications of the Contract.	Please follow Bid Conditions
204	3	8B	4.6 (g)	Pg.12	**Section 8 - PCC, Part-B, Specific Provisions, Cl.4.6 (g)** Co-operation: g. If the Contractor shall suffer delay by reason of failure by any Designated Contractor to meet the specified installation interfacing and co-ordination, completion dates, which delay shall be caused otherwise than by fault of the Contractor, or, if compliance with sub-clause (f) herein shall involve the Contractor in delay beyond that which could be reasonably foreseen by an experienced contractor at the time of tender, then the Engineer shall take such delay into account in determining any extension of time to which the Contractor is entitled under the Contract.	Contractor requests for the deletion of this sub clause 4.6 (g) ~~g. If the Contractor shall suffer delay by reason of failure by any Designated Contractor to meet the specified installation interfacing and co-ordination, completion dates, which delay shall be caused otherwise than by fault of the Contractor, or, if compliance with sub-clause (f) herein shall involve the Contractor in delay beyond that which could be reasonably foreseen by an experienced contractor at the time of tender, then the Engineer shall take such delay into account in determining any extension of time to which the Contractor is entitled under the Contract.~~	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
205	3	8B	4.6 (c)	Pg.12	**Section 8 - PCC, Part-B, Specific Provisions, Cl.4.6 (c)** Co-operation:The Contractor shall provide within the Site, staging, storage and unloading areas for the use of Designated Contractors, if any, who are undertaking trackwork, fare collection system, supply, testing and commissioning of Rolling Stock, escalators, lifts, signalling and telecommunications and traction power installation works, etc. Separate locations shall be provided for each such contractor. The exact size and location of these staging, storage and unloading areas, and the commencement date shall be co-ordinated and agreed during the design interface period with each Designated Contractor.	Contractor requests that the responsibility of providing within site, staging, storage and unloading areas for the use of Designated Contractors should lie with the Employer.	Please follow Bid Conditions
206	3	9		Pg.19/34	Section 9: Contract Forms, Format of Contractor's Warranty d) The Contractor agrees that should any design modification be required to any section or component due to any defect, the period of 24 months shall recommence from the date when the modified part is commissioned into service, and such modification shall be carried out free of cost to the Employer in all sub-systems and systems for all sections, and	Contractor requests for a sunset warranty provision (24 months) for any design modification that may be required to any section or a modified part is commissioned into service.	Please follow Bid Conditions
207	3	8B	4.4.5	Pg.9	**Section 8 - PCC, Part-B, Specific Provisions, Cl. 4.4.5** The Contractor shall submit a copy of sub-contract along with the all warranty related documents to the Employer with a copy to the engineer, prior to the intended date of commencement of works by such Subcontractor.	Contractor requests for the below edits: The Contractor shall submit an un-priced copy of sub-contract along with the all warranty related documents to the Employer with a copy to the engineer, prior to the intended date of commencement of works by such Subcontractor.	Please follow Bid Conditions
208	3	8B	10.3	Pg. 28	**Section 8 - PCC, Part-B, Specific Provisions, Cl.10.3** Interference with Tests on Completion Insert "without reasonable justification," in the Fourth line of the First Paragraph after "is responsible"	Contractor requests for deletion of the proposed incorporation of 'without reasonable justification'.	Please follow Bid Conditions
209	3	8B	6.24	Pg. 23	**Section 8 - PCC, Part-B, Specific Provisions, Cl.6.4** **New Sub-Clause 6.24: Workers' Organisations** In countries where the relevant labour laws recognize workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.	Contractor requests for the deletion of this incorporation: ~~New Sub-Clause 6.24: Workers' Organisations~~ ~~In countries where the relevant labour laws recognize workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.~~	Please refer Addendum & Corrigendum-02A
210	3	8B	15.2.1	Pg.38	**Section 8 - PCC, Part-B, Specific Provisions, Cl.15.2.1** For Indian Contractors the additional requirement is as follows: A petition for the winding up of the Contractor has been admitted and a liquidator or provisional liquidator has been appointed or any petition has been admitted against the Contractor under the Insolvency and Bankruptcy Code, 2016, or an order of bankruptcy or an order for the winding up or dissolution of the Contractor has been made by a Court of competent jurisdiction, except for the purpose of amalgamation or reconstruction with the prior written consent of the Employer (who may specify additional conditions for consent).	Contractor requests the following changes in this clause: "For Indian Contractors the additional requirement is as follows: A petition for the winding up of the Contractor has been admitted and a liquidator or provisional liquidator has been appointed ~~or any petition has been admitted against the Contractor under the Insolvency and Bankruptcy Code, 2016,~~ or an order of bankruptcy or an order for the winding up or dissolution of the Contractor has been made by a Court of competent jurisdiction, except for the purpose of amalgamation or reconstruction with the prior written consent of the Employer (who may specify additional conditions for consent)."	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
211	Financial Bid	Annexure 3		Annexure - 3	Annexure - 3	The price sheet format in Annexure 3 of Financial Bid is unclear. For e.g. line items 3.1 and 3.2 seem redundant, the term "per unit" is unclear, items requested in 3.2 shall be quoted basis the number of sites/devices (provided in latter line items) and not per "length KM". This requires further clarity & a format revision.	Please refer Addendum & Corrigendum-02A
212	3	8A	14.15	4 of 11 (SEC-8)	Section 8 -PCC Part A- Ref. GCC/14.15: Currency of Payment- 3 freely convertible foreign currencies in addition to the local currency.	Please confirm: (i) Bidder is entitled to quote for Supplies in USD (or EURO as the case may be); and (ii) CURRENCY for release of PO and the Payment shall be in the same currency as quoted by Buyer (e.g. USD or EURO etc, as the case may be); (iii) Separate POs may be released, as requested by Bidder, in foreign currency on their offshore subsidiary/parent company for Supply and Indian entity for Services.	Please follow Bid Conditions
213	3	8A	14.15 (g)	4 of 11 (SEC-8)	Section 8 -PCC Part A- Ref. GCC/14.15(g): RATES OF EXCHANGE: The rates of exchange shall be the reference rates 28 days prior to the latest deadline for submission of bids as per the web site of Financial Benchmark India Private Limited (FBIL) as recommended by RBI.	It is mentioned in Clause 14.15 that Currency of Payment is - 3 freely convertible foreign currencies in addition to the local currency. If the CURRENCY for release of PO for Supplies shall be same as quoted by the Bidder and the Payment shall be made by Buyer in the same currency e.g. USD or EURO, then what is the purpose of specifying the Rate of Exchange. Where is the Rate of Exchange applicable?	Please follow Bid Conditions
214	3	8A	14.15 (g)	4 of 11 (SEC-8)	Section 8 -PCC Part A- Ref. GCC/14.15(g): RATES OF EXCHANGE: The rates of exchange shall be the reference rates 28 days prior to the latest deadline for submission of bids as per the web site of Financial Benchmark India Private Limited (FBIL) as recommended by RBI.	If at all RATES OF EXCHANGE is applicable for the purposes of release of Purchase Order (PO), it should be the 'reference rate 01 day prior to the date of issuance of PO by Buyer on the successful Bidder. Reason: Reference rates "28 days prior to the latest deadline for submission of bids" has no meaning. Ref Rate, if at all to be used, should be linked to PO Date or INVOICE Date; and not 28 days prior to BID SUBMISSION DATE. Please confirm.	Please follow Bid Conditions
215	3	7	11	59	GCC Clause 11 : Defects after Taking Over	The defects, if any, in Supplies from OEMs are covered under OEM standard Warranty Period of 12 months. Warranty Period is not explicitly mentioned anywhere in the documents. We request to include "Warranty Period for all Supplies shall be earlier period of 12 months from the date of taking Over or 15 Months from the date of delivery for Supplies", for abundant clarity.	Please follow Bid Conditions
216	3	8A	1.1.27	1 of 11 (SEC-8)	GCC Clause 1.1.27: Defects Notification Period or "DNP" = 36 Months	DNP has been increased from ONE Year from date of Taking Over as specified in GCC, to 36 Months from date of Taking Over in PCC Part A (Contract Data). It is too long a period which shall result in loading of the Bid unnecessarily. Please maintain this period as ONE Year as specified in the GCC Section 1.1.27.	Please follow Bid Conditions
217	1	4A	Annexure for Technical Proposal	Page: 7	Section 4A Annexure for Technical Proposal : The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section 4, Bidding Forms. The Project Manager, Design Manager and Testing and Commissioning Engineer (In-charge) should have been employees of the OEM Contractor firm for not less than 5 years. For Experience and qualification please refer table given in Site Organization	Site Organisation: Same document There is a conflict in the two the site organisation requirement says the Contractor to provide the CV of the Key personnels within 28day of LOA whereas it is part of bid document in Bid Forms (The above categories of key positions shall be minimum required for successful completion of the work which shall be deployed at different points of time as per the progress and requirement of work. Prior approval needs to be taken from Engineer/Employer before deploying key personal. However, these personnel shall be deployed at site in advance as per requirement and as directed by the Engineer and the decision of Engineer in this regard shall be final and binding. The Contractor shall submit the CVs of the above key positions to Engineer for his approval within 28 days of issue of letter of Acceptance (LoA).	Please refer Addendum & Corrigendum-02A
218	1	4A	Annexure for Technical Proposal	Page 2	The Bidder's Technical Proposals shall comply or, subject to reasonable development, be The Bidder's Technical Proposals shall comply or, subject to reasonable development, be capable of complying with the Employer's Requirements in all respects. The Bidder's Technical Proposals shall establish the intended design and manufacturing technology.	Please note that OEMs for LTE are offering standard commercially available solution. Please clarify what kind of developmental work is envisaged for meeting the intended RFP Specification.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
219	1	4A	Annexure for Technical Proposal	Page 4	General Requirement: Para 5 i (ii) The Bidder shall submit: • Evidence of Generic Project Safety Case and Generic Application Safety case • Last two years failure logs of similar working systems dually authenticated by the concerned Metro/Employer in ENGLISH.	We understand that this clause is not applicable for LTE. Please confirm.	Please refer Addendum & Corrigendum-02A
220	3	8B	4.1	Page 7 of Part B, Specific Provisions (4.1 2nd last para)	Apart from the submission of Contractor's and Sub-Contractor's Warranty, a Contractor's Designer warranty shall also be required to be submitted in Standard Contract as stated in Contract Forms, and should be made available at the time of signing of the contract.	We understand that this clause is not applicable for LTE. Please confirm. If not, then kindly further elaborate on the "Contractor's Designer warranty".	Please follow Bid Conditions
221	3	7	11.2	60	11.2 Cost of Remedying Defects	Contractor's liability and obligations shall be limited to rectification of the defects if any until the end of the DLP period. Please confirm.	Please follow Bid Conditions
222	3	8A	8.8	3	8.8 Maximum amount of delay damages - 10 % (Ten Percent) of the Contract Price.	Request you to modify the maximum amount of delay damages to: 10% (ten percent) of the Contract Price of the undelivered portion of the contract.	Please follow Bid Conditions
223	1	3	2.1.6	4 of 12	2.1.6 Blacklisting/Debarred by any Sovereign Government - Bidder/ Specialist sub-contractor should not have been debarred, blacklisted or banned from having business dealings with/by any Sovereign Government anywhere in the world due to security reasons, in last three years ending last day of the month previous to the Bid submission.	1. We understand that the term "Bidder/Specialist sub-contractor" implies applicability to both Bidder and Specialist Sub-contractor(s). Please confirm. 2. We understand that "any Sovereign Government" refers to Government Departments anywhere in the world, that is, blacklist/ban anywhere in the world. Please confirm. 3. We additionally request that the blacklist period be extended from "last three years" to "last eight years". Please confirm.	Please follow Bid Conditions
224	1	3	2.4.2	12 of 12	2.4.2 (9) *The requirements under Clause 2.4.2 (C) and 2.4.2 (D) shall be met by the same JV member / same specialist Sub-Contractor.	We understand that Non-OEMs of LTE equipment cannot be considered as LTE Specialist Subcontractors, and that Bidder needs to offer both RAN and EPC from the same LTE OEM. Please confirm.	Please follow Bid Conditions
225	1	3	2.4.1	Bidding Documents Part 1 Section 3: Evaluation and Qualification Criteria **9 of 12**	S2.4.1(b) Contracts of Similar Size: Similar Work for 2.4.1(b) shall mean: Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS)	**1.** In the mentioned subsystems, please include Command & Control Centre as a subsystem. **2**. Also, kindly reduce the minimum requirement to at least 3 subsystems instead of at least 4. The above requests are inline with recent telecom tender requirements.	1. Please follow Bid Conditions. 2. Please refer Addendum & Corrigendum-02A
226	1	3	2.4.2	Bidding Documents Part 1 Section 3: Evaluation and Qualification Criteria **10 of 12**	2.4.2 Construction Experience in Key Activities B. Completed Design, Supply, Installation, Testing, Commissioning and Integration of all Telecommunication Sub-Systems viz. DTS/FOTS, EPABX, CCTV, PIDS, PAS, MCLK, Radio for at least 8 number of stations in rail-based transit systems in a single work.	Proposed Clause: B. Completed Design, Supply, Installation, Testing, Commissioning and Integration of at least 3 Telecommunication Sub-Systems out of DTS/FOTS, EPABX, CCTV, PIDS, PAS, MCLK, Command & Control Centre, Radio for Metro Rail/ High Speed Rail/ Light Rail Transport Projects or large public utility infrastructure project like Airport or Smart Cities.	Please refer Addendum & Corrigendum-02A

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
227	1	3	2.4.1	Bidding Documents Part 1 Section 3: Evaluation and Qualification Criteria **8 of 12**	2.4.1(b) (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 465 million in each Contract in the similar work.	Proposed Clause: (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 345 million in each Contract in the similar work.	Please follow Bid Conditions
228	1	4A	Site Organization	9	Part 1, Section 4A, Site Organization Project Manager - 20 years S&TC experience, should have been Project Head in at least one Project and Employee of Lead Partner since last 5 years at Equivalent Post. Design Manager (S&TC) 10 years S&TC design experience out of which 5 yrs. on ETCS employee (should have been) of the JV member at Equivalent Post on whose credentials of ETCS L2, the JV is qualifying. Testing and Commissioning Engineer In-charge (S&TC) 10 years S&TC experience out of which 5 yrs. In ETCS employee (should have been) of the JV member at Equivalent Post on whose credentials of ETCS L2, the JV is qualifying	Kindly amend the clause as follows: Project Manager - Min. 15 Years of which 5 years should be on ETCS/CBTC/ATP Project Work . Design Manager (S&TC) - Min. 10 Years of which 5 years should be in the design of ETCS/CBTC/ATP/TPWS works. Testing and Commissioning Engineer In-charge (S&TC) - Min. 10 Years of which 5 year should be on ETCS/CBTC/EI/ATP/CTC/TPWS works	Please follow Bid Conditions
229	Financial Bid				Financial Bid	In the financial bid, since the apportionment to the cost centres and the milestone is fixed, so, kindly confirm whether Signalling including LTE system total price in the Appendix 1 to Financial Bid should be equal to sum of Total price in Annexure 1 & Annexure 2 or not. Similarly, kindly confirm whether Telecom total price in he Appendix 1 to Financial Bid should be equal to total price in Annexure 3 or not.	Please follow Bid Conditions
230	3	8A		3	Part 3: Section 8 Particular Conditions of Contract Part-A - Contract Data, The Employer shall pay on written request by the Contractor an **interest bearing** Mobilization Advance up to 10% (Ten) percent of the Accepted Contract amount	Kindly provide interest free mobilization advance as this is in line with the requirements in Mass Transit tenders	Please follow Bid Conditions
231	1	3	Notes for Clause 2.4.1 & 2.4.2	Page 11 of 12	Bidding Documents Part 1 Section 3: Evaluation and Qualification Criteria - Notes for Clause 2.4.1 & 2.4.2 point no. 3	The tender currently seeks that the bidder must have completed one Contract of Design, Supply, Installation Testing and Commissioning of ETCS Level 2 EITHER outside the country of its incorporation OR in INDIA. (Bidding Documents Part 1 Section 3: Evaluation and Qualification Criteria - Notes for Clause 2.4.1 & 2.4.2 point no. 3 – Page 11 of 12) We do not understand the necessity of this clause. Firstly, no supplier has done ETCS Level 2 works in India. Secondly, these requirements are commonly seen in metro projects to keep incompetent suppliers away. However, since you have already included the UNISIG membership clause, there is no room for incompetent suppliers to participate and we request removing the 'outside the country of incorporation' requirement. Also, under the COVID-19 scenario, it is difficult to arrange for so many customer certificates, as sought by the tender, and this relaxation would reduce one of the many.	Please follow Bid Conditions
232	1	3	1.9	Page 3 of 12	Bidding Documents Part 1 Section 3: Evaluation and Qualification Criteria 1.9 Joint Venture Participation	Our understanding of a Joint Venture is a consortium setup between bidding entities without any new entity required to be legally incorporated. Kindly confirm.	Please refer ITB 4.1 of Section 2 BDS.
233	1	4A	Site Organization	4A- Annexure for technical Proposal Page 8	Site Organization	Qualification criteria given for T&C Incharge (S&TC) are very stringent and need to be relaxed as there is no prior ETCS L2 project done in India. Experience of CBTC, ATO, UTO in metro should be considred.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
234	3	8A	19.1 & 19.2.3	Page 4 of Section IV	PCC Part A, GCC 19.1 & 19.2.3	14 days is too short for finalizing the insurance particulars. The text may kindly be changed to following: "Contractor shall produce the evidence of all Insurance policies which are required to effect under the Contract within 45 days and the copy of relevant Insurance Policies within 60 days of Commencement Date for the requisite validity of the Insurances as detailed in the Form of Insurance Requirements available in the Contract Forms. In case currency of Contract / Defect Notification Period is extended, then policy validity is also required to be extended suitably by the Contractor at his own cost."	Please follow Bid Conditions
235	3	8B	4.4.5	Page 9 of Section IV	PCC Part B, GCC 4.4.5	Subcontracts are finalized within the ambit of mutual confidentiality protections. The price schedule need to be excluded from this provision. "The Contractor shall submit a copy of sub-contract along with the all warranty related documents excluding the pricing schedules to the Employer with a copy to the engineer, prior to the intended date of commencement of works by such Subcontractor."	Please follow Bid Conditions
236	3	8B	8.3	Page 26 of Section IV	PCC Part B, GCC 8.3	7 days is too short a time to mobilize and make a feasible plan. The same is requested to increase it to 14 days. *"The Contractor shall submit an Initial Programme to the Employer with a copy to the Engineer within* ***14*** *days of commencement of works."*	Please follow Bid Conditions
237	3	8B	8.14	Page 27 of Section IV	PCC Part B, GCC 8.14	Third para states "(a) the cumulative period of delay…. Do not exceed KD-11 of Stage 4"… Does it mean that the given clauses cannot be referred for request for extension??	Please follow Bid Conditions
238	3	8A	Table 2 Note A	Page 10 of Section IV	PCC Part A, Table 2 Note A	Key Dates will be considered achieved on substantial completion of the activities i.e when the activities is sufficiently completed to suffice the intended purpose. Please clarify if the understanding is correct?	Please follow Bid Conditions
239	3	7	1.15	GCC 20	1.15 Limitation of Liability Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than under: (a) Sub-Clause 8.8 [Delay Damages]; (b) sub-paragraph (c) of Sub-Clause 13.3.1 [Variation by Instruction]; (c) Sub-Clause 15.7 [Payment after Termination for Employer's Convenience]; (d) Sub-Clause 16.4 [Payment after Termination by Contractor]; (e) Sub-Clause 17.3 [Intellectual and Industrial Property Rights]; (f) the first paragraph of Sub-Clause 17.4 [Indemnities by Contractor]; and (g) Sub-Clause 17.5 [Indemnities by Employer]. The total liability of the Contractor to the Employer under or in connection with the Contract, other than: (i) under Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment]; (ii) under Sub-Clause 4.19 [Temporary Utilities]; (iii) under Sub-Clause 17.3 [Intellectual and Industrial Property Rights]; and (iv) under the first paragraph of Sub-Clause 17.4 [Indemnities by Contractor], shall not exceed the sum stated in the Contract Data or (if a sum is not so stated) the Accepted Contract Amount. This Sub-Clause shall not limit liability in any case of fraud, gross negligence, deliberate default or reckless misconduct by the defaulting Party.	Request to modify as follows: 1.15 Limitation of Liability Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract The total liability of the Contractor to the Employer under or in connection with the Contract, other than: (i) NA (ii) NA (iii) under Sub-Clause 17.3 [Intellectual and Industrial Property Rights]; and (iv) NA shall not exceed the sum stated in the Contract Data or (if a sum is not so stated) the Accepted Contract Amount. This Sub-Clause shall not limit liability in any case of fraud, gross negligence, deliberate default or reckless misconduct by the defaulting Party.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1							
S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
240	3	7	4.1	GCC Pg 23	4.1 Contractor's General Obligations The Contractor shall execute the Works in accordance with the Contract. When completed, the Works (or Section or Part or major item of Plant, if any) shall be fit for the purpose(s) for which they are intended, as defined and described in the Employer's Requirements (or, where no purpose(s) are so defined and described, fit for their ordinary purpose(s)).	Request to modify as follows: 4.1 Contractor's General Obligations The Contractor shall execute the Works in accordance with the Contract. When completed, the Works (or Section or Part or major item of Plant, if any) shall be fit for the purpose(s) for which they are intended, as defined and described in the Employer's Requirements.	Please follow Bid Conditions
241	3	7	17.4	GCC Pg 92	17.4 Indemnities by Contractor The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all third party claims, damages, losses and expenses (including legal fees and expenses) in respect of: (a) bodily injury, sickness, disease or death of any person whatsoever arising out of or in the course of or by reason of the Contractor's execution of the Works, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; and (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss: (i) arises out of or in the course of or by reason of the Contractor's execution of the Works, and (ii) is attributable to any negligence, wilful act or breach of the Contract by the Contractor, the Contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any of them. The Contractor shall also indemnify and hold harmless the Employer against all acts, errors or omissions by the Contractor in carrying out the Contractor's design obligations that result in the Works (or Section or Part or major item of Plant, if any), when completed, not being fit for the purpose(s) for which they are intended under Sub-Clause 4.1 [Contractor's General Obligations].	Request to modify as follows: 17.4 Indemnities by Contractor The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all third party claims, damages, losses and expenses in respect of: (a) bodily injury, sickness, disease or death of any person whatsoever arising out of or in the course of or by reason of the Contractor's execution of the Works, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; The Contractor shall also indemnify and hold harmless the Employer against all acts, errors or omissions by the Contractor in carrying out the Contractor's design obligations that result in the Works (or Section or Part or major item of Plant, if any), when completed.	Please follow Bid Conditions
242	3	7	18.1	GCC Pg 93	18.1 Exceptional Events	Request to include vandalism	Please follow Bid Conditions
243	3	8A	4.25	PCC Part A Pg 16	4.25 [Add new Sub-Clause 4.25 as follows:] Audit Rights	Please include: Audit findings to be treated as confidential information. Audit to be conducted not more then once a year.	Please follow Bid Conditions
244	3	8A	5.1	PCC Part A Pg17	5.1 General Design Obligations Add at the end of the Second-last para of Clause 5.1 as follows: The Designer/Design sub-Contractor shall open his design office in Delhi/NCR with required minimum key personnel. Till such time the compliance of above is done, No progress payment with respect to design will be made. Notwithstanding that any design details may be included in the Contract, this shall in no way limit the responsibility on the Contractor to design, manufacture, supply, install, test and commission the Works so that they are fit for the purposes expressed **or implied** in the Contract.	Request to modify as follows: 5.1 General Design Obligations Add at the end of the Second-last para of Clause 5.1 as follows: The Designer/Design sub-Contractor shall open his design office in Delhi/NCR with required minimum key personnel. Till such time the compliance of above is done, No progress payment with respect to design will be made. Notwithstanding that any design details may be included in the Contract, this shall in no way limit the responsibility on the Contractor to design, manufacture, supply, install, test and commission the Works so that they are fit for the purposes expressed in the Contract.	Please follow Bid Conditions
245	3	8A	8.14	PCC Part A Pg27	8.14 Add a new Clause 8.14 below Clause 8.13 as follows:	Please delete this clause	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
246	3	7		NA	Additional Clause	Please add following clause: INVENTIONS AND INTELLECTUAL PROPERTY No right, title or interest in Contractor Intellectual Property will be transferred to Employer under this Agreement, including Intellectual Property which existed prior to or is created independent of the performance of the Agreement. All Intellectual Property and results of Services, including software, models, designs, drawings, documents, inventions, and know-how ("Inventions"), conceived or developed by Contractor in connection with the Agreement are the sole property of Contractor and Employer has no right or license to the Intellectual Property or Inventions except as granted in the Agreement. Contractor and its suppliers retain all right, title and interest to all Software provided by Sub-contractor, and all modifications and enhancements thereof, and no right, title, or interest in the Software, or any copies thereof, is transferred to Employer. Employer agrees to hold all Software supplied by Contractor in strict confidence and will employ best efforts to not disclose the Software to others. All Software delivered by Contractor is subject to a software license ("License"). If Employer does not agree to a separate software license with Contractor,Employer does not have a license or right to any Software.	Please follow Bid Conditions
247	3	7		NA	Additional Clause	Please add following clause: Notwithstanding anything to the contrary, in light of the COVID-19 pandemic, the effects of which cannot be foreseen, the parties agree that Contractor shall be entitled to an equitable extension of time to deliver or perform its work and appropriate additional compensation to the extent Contractor's delivery or performance, or the delivery or performance of its suppliers and/or subcontractors, is in any way delayed, hindered or otherwise affected by the COVID-19 pandemic.	Please follow Bid Conditions
248	1	3	2.4.1 (b)	pages 8 & 9 of 12	3 Section 3 EQC, Part 1, 2.4.1(b)	2.4.1(b) We understand total project value for the similar works contract to be considered for complying this clause, please confirm Request to modify as follows: 2.4.1(b) (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed/ ongoing where the total value of the Bidder's participation exceeds INR 930 million in the similar work. OR (B) Participation as a contractor or JV partner in Two Single Contracts, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed/ ongoing where the total value of the Bidder's participation exceeds INR 580 million in each Contract in the similar work. OR (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed/ ongoing where the total value of the Bidder's participation exceeds INR 465 million in each Contract in the similar work. Similar Work for 2.4.1(b) shall mean: Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS, Command Control Centre) In case of large O&M ongoing projects, 80% CAPEX completion certificate from CA/ Client to be submitted.	Please follow Bid Conditions
249	1 & 3	1 & 8B	14.7	Pg.No.12 of 25 & Pg.No.35	Part-1, Section-1, ITB 14.7 and Part-3, Section-8Part-1, Section-1, ITB 14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder. AND Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	The clause mentioned in ITB states that bid price should be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract whereas clause under PCC states that All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract shall be included in the bid price. Kindly confirm the Modality to be followed.	Please refer Addendum & Corrigendum-01A

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
250	3	8B	14.7	Pg.No.35	Part-3, Section-8Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.1 above confirms to follow the PCC clause, we understand that GST shall not be included in our bid price. The GST shall be paid extra over and above the quoted bid price at actuals. Kindly confirm our understanding.	GST Shall be paid extra.
251	Financial Bid	Annexure 2	Schedule 6		Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM (INCL. DC SUPPLY SYSTEM) FOR EVERY LOCATION, s. no. 14, Blue Light indicator qty . 12	Pls clarify, as it is not mention in technical specification. For which facility/ application or functionality it is required?	Please refer Addendum & Corrigendum-02A
252	1	3	2.4.1 (b)		**Contracts of Similar Size:** (A) Participation as a contractor or JV partner in One Single Contract, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 930 million in the similar work. OR (B) Participation as a contractor or JV partner in Two Single Contracts, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 580 million in each Contract in the similar work. OR (C) Participation in Three Single Contracts as a contractor or JV partner, within the last Ten years ending last day of the month previous to the month of bid submission, that has been completed where the total value of the Bidder's participation exceeds INR 465 million in each Contract in the similar work. Similar Work for 2.4.1(b) shall mean: Design, Supply, Installation, Testing, Commissioning and Integration of Telecommunication Systems executed for Metro Railway System or Other Utility Infrastructure. (Other Utility Infrastructure shall mean projects for Smart Cities/ Airport centres having at least 4 (four) Sub-systems out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS) Smart	Smart city projects normally address individual system requirements. It is requested to confirm, whether multiple projects experience having one or two systems in each can be considered, meeting the overall criteria of 4 (four) sub-systems experience out of DTS/FOTS, Radio, EPABX, CCTV, PAS, PIDS, MCLK, ACIDS.	Please follow Bid Conditions
253	1	3	2.4.2 (B)		**Construction Experience in Key Activities:** Completed Design, Supply, Installation, Testing, Commissioning and Integration of all Telecommunication Sub-Systems viz. DTS/FOTS, EPABX, CCTV, PIDS, PAS, MCLK, Radio for at least 8 number of stations in rail-based transit systems in a single work.	It is requested to consider multiple projects experience of Other Utility Infrastructure domain like Smart Cities with integrated or standalone systems using IP technology, rather than limiting to Rail based transit systems in a single network. Also request to consider SCADA systems deployed for TVS / ECS & MEP works in rail based systems.	Please follow Bid Conditions
254	Financial Bid	Annexure 3		Annexure - 3	Annexure - 3	The price sheet format in Annexure 3 of Financial Bid is unclear. For e.g. line items 3.1 and 3.2 seem redundant, the term "per unit" is unclear, items requested in 3.2 shall be quoted basis the number of sites/devices (provided in latter line items) and not per "length KM". This requires further clarity & a format revision.	Please refer Addendum & Corrigendum-02A
255	3	8A	14.15	4 of 11 (SEC-8)	Section 8 -PCC Part A- Ref. GCC/14.15: Currency of Payment- 3 freely convertible foreign currencies in addition to the local currency.	Please confirm: (i) Bidder is entitled to quote for Supplies in USD (or EURO as the case may be); and (ii) CURRENCY for release of PO and the Payment shall be in the same currency as quoted by Buyer (e.g. USD or EURO etc, as the case may be); (iii) Separate POs may be released, as requested by Bidder, in foreign currency on their offshore subsidiary/parent company for Supply and Indian entity for Services.	Please follow Bid Conditions
256	3	8A	14.15 (g)	4 of 11 (SEC-8)	Section 8 -PCC Part A- Ref. GCC/14.15(g): RATES OF EXCHANGE: The rates of exchange shall be the reference rates 28 days prior to the latest deadline for submission of bids as per the web site of Financial Benchmark India Private Limited (FBIL) as recommended by RBI.	It is mentioned in Clause 14.15 that Currency of Payment is - 3 freely convertible foreign currencies in addition to the local currency. If the CURRENCY for release of PO for Supplies shall be same as quoted by the Bidder and the Payment shall be made by Buyer in the same currency e.g. USD or EURO, then what is the purpose of specifying the Rate of Exchange. Where is the Rate of Exchange applicable?	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
257	3	8A	14.15 (g)	4 of 11 (SEC-8)	Section 8 -PCC Part A- Ref. GCC/14.15(g): RATES OF EXCHANGE: The rates of exchange shall be the reference rates 28 days prior to the latest deadline for submission of bids as per the web site of Financial Benchmark India Private Limited (FBIL) as recommended by RBI.	If at all RATES OF EXCHANGE is applicable for the purposes of release of Purchase Order (PO), it should be the 'reference rate 01 day prior to the date of issuance of PO by Buyer on the successful Bidder. Reason: Reference rates "28 days prior to the latest deadline for submission of bids" has no meaning. Ref Rate, if at all to be used, should be linked to PO Date or INVOICE Date; and not 28 days prior to BID SUBMISSION DATE. Please confirm.	Please follow Bid Conditions
258	3	7	11	59	GCC Clause 11 : Defects after Taking Over	The defects, if any, in Supplies from OEMs are covered under OEM standard Warranty Period of 12 months. Warranty Period is not explicitly mentioned anywhere in the documents. We request to include "Warranty Period for all Supplies shall be earlier period of 12 months from the date of taking Over or 15 Months from the date of delivery for Supplies", for abundant clarity.	Please follow Bid Conditions
259	3	8A	1.1.27	1 of 11 (SEC-8)	GCC Clause 1.1.27: Defects Notification Period or “DNP” = 36 Months	DNP has been increased from ONE Year from date of Taking Over as specified in GCC, to 36 Months from date of Taking Over in PCC Part A (Contract Data). It is too long a period which shall result in loading of the Bid unnecessarily. Please maintain this period as ONE Year as specified in the GCC Section 1.1.27.	Please follow Bid Conditions
260	1	4A		Page: 7	Section 4A Annexure for Technical Proposal : The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section 4, Bidding Forms. The Project Manager, Design Manager and Testing and Commissioning Engineer (In-charge) should have been employees of the OEM Contractor firm for not less than 5 years. For Experience and qualification please refer table given in Site Organization	Site Organisation: Same document There is a conflict in the two the site organisation requirement says the Contractor to provide the CV of the Key personnels within 28day of LOA whereas it is part of bid document in Bid Forms (The above categories of key positions shall be minimum required for successful completion of the work which shall be deployed at different points of time as per the progress and requirement of work. Prior approval needs to be taken from Engineer/Employer before deploying key personal. However, these personnel shall be deployed at site in advance as per requirement and as directed by the Engineer and the decision of Engineer in this regard shall be final and binding. The Contractor shall submit the CVs of the above key positions to Engineer for his approval within 28 days of issue of letter of Acceptance (LoA).	Please refer Addendum & Corrigendum-02A
261	1	4A		Page 2	The Bidder’s Technical Proposals shall comply or, subject to reasonable development, be The Bidder’s Technical Proposals shall comply or, subject to reasonable development, be capable of complying with the Employer’s Requirements in all respects. The Bidder’s Technical Proposals shall establish the intended design and manufacturing technology.	Please note that OEMs for LTE are offering standard commercially available solution. Please clarify what kind of developmental work is envisaged for meeting the intended RFP Specification.	Please follow Bid Conditions
262	1	4A		Page 4	General Requirement: Para 5 h(iv) Proof of safety report containing detailed analysis of software and hardware together with Proof of ssessment Report from and Independent Safety Assessor.	We understand that this clause is not applicable for LTE. Please confirm.	Please refer Addendum & Corrigendum-02A
263	1	4A		Page 4	General Requirement: Para 5 i (ii) The Bidder shall submit: • Evidence of Generic Project Safety Case and Generic Application Safety case • Last two years failure logs of similar working systems dually authenticated by the concerned Metro/Employer in ENGLISH.	We understand that this clause is not applicable for LTE. Please confirm.	Please refer Addendum & Corrigendum-02A
264	3	7	11.2	60	11.2 Cost of Remedying Defects	Contractor's liability and obligations shall be limited to rectification of the defects if any until the end of the DLP period. Please confirm.	Please follow Bid Conditions
265	3	8A	8.8	3	8.8 Maximum amount of delay damages - 10 % (Ten Percent) of the Contract Price.	Request you to modify the maximum amount of delay damages to: 10% (ten percent) of the Contract Price of the undelivered portion of the contract.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
266	1	3	2.1.6	4 of 12	2.1.6 Blacklisting/Debarred by any Sovereign Government - Bidder/ Specialist sub-contractor should not have been debarred, blacklisted or banned from having business dealings with/by any Sovereign Government anywhere in the world due to security reasons, in last three years ending last day of the month previous to the Bid submission.	1. We understand that the term "Bidder/Specialist sub-contractor" implies applicability to both Bidder and Specialist Sub-contractor(s). Please confirm. 2. We understand that "any Sovereign Government" refers to Government Departments anywhere in the world, that is, blacklist/ban anywhere in the world. Please confirm. 3. We additionally request that the blacklist period be extended from "last three years" to "last eight years". Please confirm.	Please follow Bid Conditions
267	1	3	2.4.2	12 of 12	2.4.2 (9) *The requirements under Clause 2.4.2 (C) and 2.4.2 (D) shall be met by the same JV member / same specialist Sub-Contractor.	We understand that Non-OEMs of LTE equipment cannot be considered as LTE Specialist Subcontractors, and that Bidder needs to offer both RAN and EPC from the same LTE OEM. Please confirm.	Please follow Bid Conditions
268	1	4	Form ELI - 2	21	Form ELI - 2: Joint Venture Information Sheet	We understand that, as the title of the form suggests, the Form ELI 2 "Joint Venture Information Sheet" shall need to be submitted by the Bidder ONLY in case of participation as a Joint Venture entity, and NOT if participating as Single Entity. Please confirm.	Instructions given in the Form are self explanatory. Please follow Bid Conditions.
269	1	4	Form ELI - 2	21	Form ELI - 2: Joint Venture Information Sheet	We understand that the Bidder must declare in its bid only 1 Specialist Subcontractor (who is the OEM) for each category (e.g. LTE, etc.) i.e. Bids with multiple Specialist Subcontractors for the same category (e.g. LTE, etc.) shall not be allowed. Please confirm.	Please follow Bid Conditions
270	1	3	2.4.2	10 of 12	2.4.2 Construction Experience in Key Activities - Criteria/Requirements C. and D.	We understand that for the Specialist Subcontractors, the global experience of the parent company/subsidiary companies of the Specialist Subcontractors shall also be considered for the Eligibility Qualification. Please confirm.	Please follow Bid Conditions
271	1	3	2.4.2	10 of 12	2.4.2 Construction Experience in Key Activities - Criteria/Requirements C. and D.	The documents requested in the tender to be submitted by the Bidder for fulfilling Criteria C. and D. include Form EXP-2 as well as Form-SCON (Subcontractor's EPC RAN Interoperability Information). The LTE Specialist Subcontractor only needs to meet the criteria/requirements C. and D., both of which are substantiated in Form-SCON and hence we believe that Form EXP-2 is applicable to criteria/requirements A. and B. only. Please confirm.	Please follow Bid Conditions
272	1	4	Form: Specialist Subcontractor's (SCON)	60	Form-SCON: Specialist Subcontractor's EPC RAN Interoperability Information Sheet	The OEM is not permitted by its existing NDAs with its customers to disclose their names or to furnish any Interoperability Test (IOT) or Multi-Vendor Verification (MVV) Reports. Thus we request that the OEM does not need to specify the customer's name, and only needs to mention those other OEMs with whom it has achieved interoperability, through a self-certificate duly certified by a Board-of-Directors (BoD) level authority. Please confirm.	Please refer Addendum & Corrigendum-02A
273	Financial Bid	Annexure 3			Annexure 3	As there are no separate price heads/line items for HW and SW, we understand that Contractor needs to quote consolidated prices. Kindly confirm.	Please refer Addendum & Corrigendum-02A
274	Financial Bid	Annexure 2		Financial Bid/ Annexure-2/ Schedule of Rates-Telecom	Schedule 1: Project Management and Interface Management	Project & interface management are both linked to the utilization of resources as per the activity duration. Bidder requests to change this metric to "per man-month" or "per month" basis. This	Please refer Addendum & Corrigendum-02A
275	Financial Bid	Annexure 2		Financial Bid/ Annexure-2/ Schedule of Rates-Telecom	Schedule 2: Design & Engineering	Design & engineernig activities linked to the utilization of resources as per the activity duration. Bidder requests to change this metric to "per man-month" or "per month" basis.	Please refer Addendum & Corrigendum-02A
276	Financial Bid	Annexure 2	Schedule 6		Financial BID, Annexure 2, Schedule 6: Supply and Delivery of Telephone System Blue Light indicator qty . 12	Please explain the use case /functionaliity along with the location for blue light indicators, as it is not mentioned in Technical Specification.	Please refer Addendum & Corrigendum-02A

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
277	1 & 3	1 & 8B	14.7	Pg.No.12 of 25 & Pg.No.35	Part-1, Section-1, ITB 14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder. AND Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	The clause mentioned in ITB states that bid price should be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract whereas clause under PCC states that All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract shall be included in the bid price. Kindly confirm the Modality to be followed.	Please refer Addendum & Corrigendum-01A
278	3	8B	14.7	Pg.No.35	Part-3, Section-8, Particular Conditions of Contract Part- B, 14.7 - Payment All duties, taxes [except Custom Duty, Goods and Services Tax (GST)], royalties, cess and other levies payable by the Bidder under the Contract, or for any other cause, as of 28 days prior to the deadline for submission of bids, shall be included in the rates and the total Bid Price submitted by the Bidder.	If reply to Query S.No.1 above confirms to follow the PCC clause, we understand that GST shall not be included in our bid price. The GST shall be paid extra over and above the quoted bid price at actuals. Kindly confirm our understanding.	GST Shall be paid extra.
279	Financial Bid	Annexure 3	Section 6B_Particular Specification _Signalling and Train Control	410	Appendix P Quantity of spares for the dispatcher system is mentioned as 2 Financial_bid Template - Annexure-3	It is not getting clear that two complete dispatcher systems are required as spares or no spares are requried, because in the Financial Bid Template Annexure 3 total quantity of dispatcher server is 2 with 10 clients. Please clarify	Please refer Addendum & Corrigendum-02B
280	Financial Bid	Annexure 3	Section 6B_Particular Specification _Signalling and Train Control	Excel file	Financial_bid Template - Annexure-3	Units of Description requested for many of activities, items are per vehicle/per depo and can't be quantified as in schedule for LTE portion. (e.g. Project management, Prel.Design, Detailed design.... as Per vehicle or per depo..) considering the LTE/radio scope. Request to amend them to quantifiable units or per section/Phase	Please follow Bid Conditions
281	1	3	2.4.2 (C)	Page 10 OF 12	Section 3(Evaluation & Qualification Criteria)/2.4.2(C)	We represent a organization which is market leader in GSM-R worldwide and have the best LTE solution targeting the railways core requirements.As we all know LTE has not been implemented in Railways environment anywhere in the world we would request you to consider Railtel eligibilty criteria: "LTE sub-contractor shall be LTE OEM and participation shall be direct by OEM or through subsidiary/associate firm or sole authorised partner of the OEM Company. and Execution of LTE or GSM-R Work of Value=0.35*0.1*V where V=Advertised value of respective package of work , through single contract anywhere in the world. Here we would like to add our EPC is interoperable with 2 other telecom OEM RAN	Please follow Bid Conditions
282	1	3	2.4.2 (D)	Page 10 OF 12	Section 3(Evaluation & Qualification Criteria)/2.4.2(D)	We shall demonstrate radio interoperability tests between our LTE equipment and the RAN equipment of the LTE vendor selected for the other lines as and when the LTE vendor for the other Lines are selected and are ready for the tests as per the internationally accepted standards.	Please follow Bid Conditions
283	1	1	5.1	7	Part 1 Section 1: For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.	We request NCRTC to elaborate this Clause so as to have better understanding for all equipment/ sub- system requirements	Please refer Addendum & Corrigendum-02A

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
284	1	2	4.2	9	Part 1 Section 2: Bid Data Sheet : In the event that the Contract is awarded to a foreign Bidder, such foreign Bidder shall be required to set up a project office in India in accordance with Applicable Laws in India, and shall be required to submit a proof of having opened a project office in India along with statutory approvals, if any, prior to submitting any interim payment certificate in accordance with the Contract, failing which no payment shall be made to the Contractor by the Employer (in accordance with the Contract) until such requirement has been complied with by the foreign Contractor. The aforesaid condition of establishing a project office in India shall not be applicable in case the selected Bidder is a joint venture between an Indian entity and a foreign entity where Indian partner is lead member.	We request NCRTC to amend this Clause suitably foreign Bidder in line with Local bidder	Please refer Addendum & Corrigendum-02A
285	1	3	2.1.6	12	Section 3,2.1.6 Blacklisting/Debarred by any Sovereign Government - Bidder/ Specialist sub-contractor should not have been debarred, blacklisted or banned from having business dealings with/by any Sovereign Government anywhere in the world due to security reasons, in last three years ending last day of the month previous to the Bid submission.	1. We understand that the term "Bidder/Specialist sub- contractor" implies applicability to both Bidder and Specialist Sub- contractor(s). Please confirm.	Please follow Bid Conditions
286	1	3	2.4.2	12	Part I Section 3 - EQC 2.4.2 Construction Experience in Key Activities - Criteria/Requirements C. and D.	We understand that for the Specialist Subcontractors, the global experience of the parent company/subsidiary companies of the Specialist Subcontractors shall also be considered for the Eligibility Qualification. Please confirm.	Please follow Bid Conditions
287	1	3	2.4.2	12	Section 3 - EQC 2.4.2 Construction Experience in Key Activities - Criteria/Requirements C. and D.	The documents requested in the tender to be submitted by the Bidder for fulfilling Criteria C. and D. include Form EXP-2 as well as Form-SCON (Subcontractor's EPC RAN Interoperability Information). The LTE Specialist Subcontractor only needs to meet the criteria/requirements C. and D., both of which are substantiated in Form-SCON and hence we believe that Form EXP-2 is applicable to criteria/requirements A. and B. only. Please confirm.	Please follow Bid Conditions
288	1	4	Form ELI - 2	21	Form ELI - 2: Joint Venture Information Sheet	We understand that, as the title of the form suggests, the Form ELI 2 "Joint Venture Information Sheet" shall need to be submitted by the Bidder **ONLY** in case of participation as a Joint Venture entity, and NOT if participating as Single Entity. Please confirm.	Instructions given in the Form are self explanatory. Please follow Bid Conditions.
289	1	4	Form: Specialist Subcontractor's (SCON)	60	Form-SCON: Specialist Subcontractor's EPC RAN Interoperability Information Sheet	The OEM is not permitted by its existing NDAs with its customers to disclose their names or to furnish any Interoperability Test (IOT) or Multi-Vendor Verification (MVV) Reports. Thus we request that the OEM does not need to specify the customer's name, and only needs to mention those other OEMs with whom it has achieved interoperability, through a self-certificate duly certified by a Board-of-Directors (BoD) level authority. Please confirm.	Please refer Addendum & Corrigendum-02A
290	1	4A		1	Clause 5 - General Requirements - (g) - Details of safety integrity level in accordance with the standards mentioned in the Works Requirements for each sub system.	As per our understanding, details regarding SIL is required only for ETCS related sub-system and not for other sub system (LTE, CCTV, SCADA, etc.). Kindly confirm our understanding.	Please refer Addendum & Corrigendum-02A
291	1	4A		2	Clause 5 - General Requirements - (i) - Submission of a high-level overall design and system architecture with locations of all major subsystems and redundancy arrangement for various subsystems. The proposed architecture shall be proven in revenue service as defined in Employer's Requirement or Section 3: EQC. The Bidder shall submit: • Evidence of Generic Project Safety Case and Generic Application Safety case • Last two years failure logs of similar working systems dually authenticated by the concerned Metro/Employer in ENGLISH.	As per our understanding, "proposed architecture" of this Project will not be same as our earlier executed Project. Our earlier executed Project under revenue service will be having different architecture to meet that Project requirement and not **NCRTC** Project requirement. Based on same logic, there is no point is submitting last two years failure log of earlier System, as requirements and architecture may be totally different for different Systems. We request NCRTC to suitably amend this Clause so as to have better understanding.	Please refer Addendum & Corrigendum-02A
292	1	4A		3	COMPOSITION OF THE BIDDER - (2) - The Bidder shall confirm that the broad scope split of work amongst the JV members shall be as hereunder:	We request NCRTC to delete this sub-clause. In case of JV, responsibility split should be decided by participating partners so as to have smooth execution of the Project. Such binding requirement may impose restrictions amongst partners and will add to complications during execution.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
293	1	4A		5	Part 1 Section 4A -Annexure for Technical Proposal - Personnel - The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section 4, Bidding Forms. The Project Manager, Design Manager and Testing and Commissioning Engineer (In- charge) should have been employees of the OEM Contractor firm for **not less than 5 years.** For Experience and qualification please refer table given in Site Organization.	We request NCRTC to remove "not less than 5 years" requirements. The employee can on OEM Contractor's role should be sufficient.	Please follow Bid Conditions
294	1	4A		7	The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section 4, Bidding Forms. The Project Manager, Design Manager and Testing and Commissioning Engineer (In-charge) should have been employees of the OEM Contractor firm for not less than 5 years. For Experience and qualification please refer table given in Site Organization	Site Organization: Same document There is a conflict in the two the site organization requirement says the Contractor to provide the CV of the Key personnel within 28day of LOA whereas it is part of bid document in Bid Forms (The above categories of key positions shall be minimum required for successful completion of the work which shall be deployed at different points of time as per the progress and requirement of work. Prior approval needs to be taken from Engineer/Employer before deploying key personal. However, these personnel shall be deployed at site in advance as per requirement and as directed by the Engineer and the decision of Engineer in this regard shall be final and binding. The Contractor shall submit the CVs of the above key positions to Engineer for his approval within 28 days of issue of letter of Acceptance (LoA).	Please refer Addendum & Corrigendum-02A
295	1	4A		2	The Bidder's Technical Proposals shall comply or, subject to reasonable development, be The Bidder's Technical Proposals shall comply or, subject to reasonable development, be capable of complying with the Employer's Requirements in all respects. The Bidder's Technical Proposals shall establish the intended design and manufacturing technology.	Please note that OEMs for LTE are offering standard commercially available solution. Please clarify what kind of developmental work is envisaged for meeting the intended RFP Specification.	Please follow Bid Conditions
296	1	4A		4	General Requirement: Para 5 h(iv) Proof of safety report containing detailed analysis of software and hardware together with Proof of assessment Report from and Independent Safety Assessor.	We understand that this clause is not applicable for LTE. Please confirm.	Please refer Addendum & Corrigendum-02A
297	1	4A		4	General Requirement: Para 5 i (ii) The Bidder shall submit: • Evidence of Generic Project Safety Case and Generic Application Safety case • Last two years failure logs of similar working systems dually authenticated by the concerned Metro/Employer in ENGLISH.	We understand that this clause is not applicable for LTE. Please confirm.	Please refer Addendum & Corrigendum-02A
298	3	7	11	59	GCC Clause 11 : Defects after Taking Over	The defects, if any, in Supplies from OEMs are covered under OEM standard Warranty Period of 12 months. Warranty Period is not explicitly mentioned anywhere in the documents. We request to include "Warranty Period for all Supplies shall be earlier period of 12 months from the date of taking Over or 15 Months from the date of delivery for Supplies", for abundant clarity.	Please follow Bid Conditions
299	3	8A	1.1.27	11	GCC Clause 1.1.27: Defects Notification Period or "DNP" = 36 Months	DNP has been increased from ONE Year from date of Taking Over as specified in GCC, to 36 Months from date of Taking Over in PCC Part A (Contract Data). It is too long a period which shall result in loading of the Bid unnecessarily. Please maintain this period as ONE Year as specified in the GCC Section 1.1.27.	Please follow Bid Conditions
300	3	7	11.2	60	11.2 Cost of Remedying Defects	Contractor's liability and obligations shall be limited to rectification of the defects if any until the end of the DLP period. Please confirm.	Please follow Bid Conditions
301	3	7	11.2	60	11.2 Cost of Remedying Defects	Contractor's liability and obligations shall be limited to rectification of the defects if any until the end of the DLP period. Please confirm.	Please follow Bid Conditions
302	3	8A	14.15	11	Part A- Ref. GCC 14.15: Currency of Payment- 3 freely convertible foreign currencies in addition to the local currency.	Please confirm: (i) Bidder is entitled to quote for Supplies in USO (or EURO as the case may be); and (ii) CURRENCY for release of PO and the Payment shall be in the same currency as quoted by Buyer (e.g. USO or EURO etc., as the case may be); (iii) Separate POs may be released, as may be released, as requested by Bidder, in foreign currency on their offshore subsidiary/parent company for Supply and Indian entity for Services.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
303	3	8A	14.15 (g)	11	Part A- Ref. GCC/14.15(g): RATES OF EXCHANGE: The rates of exchange shall be the reference rates 28 days prior to the latest deadline for submission of bids as per the web site of Financial Benchmark India Private Limited (FBIL) as recommended by RBI.	It is mentioned in Clause 14.15 that Currency of Payment is - 3 freely convertible foreign currencies in addition to the local currency. If the CURRENCY for release of PO for Supplies shall be same as quoted by the Bidder and the Payment shall be made by Buyer in the same currency e.g. USO or EURO, then what is the purpose of specifying the Rate of Exchange. Where is the Rate of Exchange applicable?	Please follow Bid Conditions
304	3	8A	14.15 (g)	**11**	PCC Part A- Ref. GCC/14.15(g): RATES OF EXCHANGE: The rates of exchange shall be the reference rates 28 days prior to the latest deadline for submission of bids as per the web site of Financial Benchmark India Private Limited (FBIL) as recommended by **RBI.**	If at all RATES OF EXCHANGE is applicable for the purposes of release of Purchase Order (PO), it should be the 'reference rate 01 day prior to the date of issuance of PO by Buyer on the successful Bidder. Reason: Reference rates "28 days prior to the latest deadline for submission of bids" has no meaning. Ref Rate, if at all to be used, should be linked to PO Date or INVOICE Date; and not 28 days prior to BID SUBMISSION DATE. Please confirm.	Please follow Bid Conditions
305	3	8A	8.8	3	**PCC Part A** 8.8 Maximum amount of delay damages - 10 % (Ten Percent) of the Contract Price.	Request you to modify the maximum amount of delay damages to: 10% (ten percent) of the Contract Price of the undelivered portion of the contract.	Please follow Bid Conditions
306	Financial Bid	Schedule 5		Annexure-2	Schedule -5 24 Port Industrial Layer-2 Switches complete with all enclosures and accessories	Please change the BoM in line with PS	Please refer Addendum & Corrigendum-02A
307	Financial Bid	Schedule 7		Annexure-2	Schedule -7 Layer 3 (min 48 ports) and associated accessories (incl **SFP's) for** Stations/depots/OCC/BCC as per **PS**	The PS has distribution L3 switch with 24 ports while in BoM, it seems to be a typo error, please change it to 24 ports as per PS	Please refer Addendum & Corrigendum-02A
308	Financial Bid	Schedule 7		Annexure-2	Schedule -7	Please clarify, the BoM of 24 port Access Switches for stations/OCC/BCC/ Depots?	Please follow Bid Conditions
309	Financial Bid	Annexure 3		Annexure - 3	Annexure - 3	The price sheet format in Annexure 3 of Financial Bid is unclear. For e.g. line items 3.1 and 3.2 seems redundant, the term "per unit" is unclear, items requested in 3.2 shall be quoted on basis o the number of sites/devices (provided in latter line items) and not per "length KM". This requires further clarity & a format revision.	Please refer Addendum & Corrigendum-02A
310	Financial Bid	Annexure 3		Annexure 3	Annexure 3	As there are no separate price heads/line items for HW and SW, we understand that Contractor needs to quote consolidated prices. Kindly confirm.	Please refer Addendum & Corrigendum-02A
311	1	3	2.4.2 & Notes for Clause 2.4.1 & 2.4.2		Part 1 - Section 3: Evaluation and Qualification Criteria 2.4.2 Construction Experience in Key Activities Actual requirement "A. Completed Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control: (i) On-Board Systems of ETCS Level 2 for at least 10 number of On-Board units in a single work. and (ii) Track Side Systems of ETCS Level 2 for at least 10 Route Kms in a single work." Notes for Clause 2.4.1 & 2.4.2	New requirement "A. Completed Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control: (i) On-Board Systems of ETCS Level 2 for at least 10 number of On-Board units in a single work. and/or (ii) Track Side Systems of ETCS Level 2 for at least 10 Route Kms in a single work." Notes for Clause 2.4.1 & 2.4.2 New note " 10. In the event the UNISIG member meets only (i) or (ii) as per clause 2.4.2 A, ETCS L2 products accepted by a reputated Railway Administration, by means of having an ETCS L2 interoperability certification (NOBO) and equipment installed in at least one project, shall be accepted to complete (i) and (ii)"	Please refer Addendum & Corrigendum-02A

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
312	1	3	2.3.2		Part 1 - Section 3: Evaluation and Qualification Criteria - 2.3.2 Average Annual Construction Turnover Actual requirement "Minimum average annual construction turnover of INR 3500 Million calculated as total certified payments received for contracts in progress or completed, within the last 05 (Five) years"	New requirement "Minimum average annual construction turnover of INR 3500 Million calculated as total percentage of completion turnover for contracts in progress or completed as per international financial reporting standards, within the last 05 (Five) years"	Please follow Bid Conditions
313	2	6E	(SHE), Clause 3.3.2	Page 5	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 3.3.2 - Contractor shall aim to achieve and complete ISO certification for ISO 45001:2018 as well as 14001:2015 within eight (08) months from the date of LOA. The mobilization date will be finalized by the Employer. Contractor may also adopt Integrated Management System (IMS) certification which shall be specific to contract/project as awarded by Employer. However, contractor shall ensure that their existing Occupational Safety & Health as well as Environment Management System should be in line with the requirements of Employer and applicable International requirements i.e ISO 45001 and ISO 14001.	Organisation's IMS Certification on ISO 45001:2018 & ISO 14001:2015 shall be acceptable	Please refer Addendum & Corrigendum-02B
314	2	6E	(SHE), Clause 6.4.1	Page 8	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 6.4.1 - Contractor shall not engage SHE manpower from any outsourcing agencies in which case the effectiveness would be lost. All SHE manpower shall be on the payroll of the main contractor only and not on the payroll of any subcontractor or outsourcing manpower agencies etc. This condition does not apply to positions like traffic marshals/security guards who are engaged almost on a daily requirement basis.	Full Time Equivalent (FTE) Employees shall be allowed.	Please refer Addendum & Corrigendum-02B
315	2	6E	(SHE), Clause 10.1	Page 11	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 10.1 - Contractor shall setup all necessary arrangement like training room, projector, PPEs as well as other equipment for demonstration etc. The room should be hygienic, well ventilated, and spacious enough to accommodate at least 30 persons at a time.	We understand that the activities performed in telecommunication package does not constitute high risk.Hence, This clause is not applicable for communication package. Hence request you to delete the clause. However , Site Office will have conference room available for Training.	Please refer Addendum & Corrigendum-02B
316	2	6E	(SHE), Clause 10.1	Page 13	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 10.1 - Apart from the SHE training to employee/workers, contractor shall also organized SHE awareness programmes for general public on regular basis i.e at least one SHE awareness programme a month at different localities/areas of their work stretch. The report of the same should be submitted to Employer.	We understand that the activities performed in telecommunication package does not constitute high risk.Hence, This clause is not applicable for communication package. Hence request you to delete the clause.	Please refer Addendum & Corrigendum-02B
317	2	6E	(SHE), Clause 12.1.1	Page 14	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 12.1.1 - Contractor shall initiate the process of external SHE audits within Eight (08) weeks from the date of award of contract and proposal of the same involving auditor CV/credentials, methodology etc. should be submitted to Employer for review/approval of auditors of the agency. All these exercises shall be completed with the stipulated time frame as mentioned above.	We understand that the activities performed in telecommunication package does not constitute high risk.Hence, This clause is not applicable for communication package. Hence request you to delete the clause. However, external audit process shall be allowed after site activity starts or about to start.	Please refer Addendum & Corrigendum-02B
318	2	6E	(SHE), Clause 17.3	Page 18	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 17.3 - Contractors shall have tie-up with the super-speciality or multi-speciality hospitals and fire stations located in the neighbourhood.	We understand that the activities performed in telecommunication package does not constitute high risk.Hence, This clause is not applicable for communication package. Hence request you to delete the clause.	Please refer Addendum & Corrigendum-02B
319	2	6E	(SHE), Clause 17.4	Page 18	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 17.4 - Contractor shall have one Ambulance on their role till completion of the project. Contractor shall increase the required number of ambulance as deemed fit by the Employer based on the site location and connectivity.	We understand that the activities performed in telecommunication package does not constitute high risk.Hence, This clause is not applicable for communication package. Hence request you to delete the clause.	Please refer Addendum & Corrigendum-02B
320	2	6E	(SHE), Appendix III (7)	Page 118	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Appendix III (7) - (i) One Construction Medical Officer along with required nurse shall be mobilise within four weeks of time from LOA in both day and night shift. (ii) He should be mobilise on full time basis. However, when a small work is awarded and limited to single station/depot/boundary wall, medical officer on part time basis may be mobilise.	We understand that the activities performed in telecommunication package does not constitute high risk.Hence, This clause is not applicable for communication package. Hence request you to delete the clause.	Please refer Addendum & Corrigendum-02B
321	2	6E	(SHE), Clause 6.3.2	Page 8	EMPLOYER's REQUIREMENT ON SAFETY, HEALTH & ENVIRONMENT (SHE), Clause 6.3.2 - The key positions like Chief SHE Manager, Traffic Manager, Occupational Health Officer, Labour Welfare Officer, Sr. Electrical (SHE) Manager shall be mobilized within four (04) weeks of time from LOA with prior approval from Employer. The other position shall be filled up as the site activities progress but there should be minimum SHE manpower as per Appendix – III be deployed at each site before taken up any work at respective site.	Communication package requires appointment of Chief SHE Manager within 4 weeks of receiving LOA and deployment of Safety Steward based on progress and volume of activities. Understand Appendix III key positions are superceded by this comment.	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
322	2	6B	Drawings	Drawings	Drawings	1. We request you to share Auto CAD drawings which will expedite the Bid preparation . 2. File (NCRTC-DMGC-AIA-MA-BM-00002_CAD BIM Standards_) looks corrupt , please provide correct file 3. Track plans (ESP) including chainage details, Turnout types, Gradients, Curves, cant. 4. Buffer stop and siding details clear information required in ESP. 5. Indoor / outdoor cable route, cable duct details. 6. Track conditions and Neutral sections if any	Please refer Addendum & Corrigendum-02B
323	2	6F		1	Section 6F_Employers Requirements Reference Documents_ Drawing and other Documents	Bidder request customer to provide Auto Cad GAD drawing file with clear indication/details of Chainage , curves etc.. for Preparation of Scheme Plan & Head Way simulation	Please refer Addendum & Corrigendum-02B
324	2	6B	2.3.2	14	As a contingent measure there could be a temporary IBL constructed on some elevated Station, which shall be removed once final depot is commissioned. Signalling plan and associated works shall be modified accordingly	Please provide tentative Track Layout details expected & also please confirm at how many places temporary IBL will be constructed	Please refer Addendum & Corrigendum-02B
325	2	6B	2.3.5	14	Temporary Operation Control Centre shall be provided at same station for the train operation requirement.	Please confirm whether Temp OCC will be same like main OCC in terms of functionality / hardware like Jangpura OCC.	Please refer Addendum & Corrigendum-02B
326	2	6B	2.3	14		If contigency plan is executed , please confirm whether installed equipments at Temp IBL can be reused to install at permant works or not	Please refer Addendum & Corrigendum-02B
327	2	6B	2.3	14		Bidder assumes if contigency plan is executed , key dates & realted milestone will be changed/moved . Please confirm our Understanding	Please Follow bid conditions
328	2	6B	3.2.12	18	Operation Control Centre (OCC)/Backup Control Centre (BCC): There will be an Integrated Operation Control Centre which will come at Jangpura (DELHI), while the Backup Control Centre will be at DUHAI Depot (or any other location decided by Employer) of D-G-M Corridor	Please confirm that BCC will be in Duhai depot or other location . Please provide tentative other planned location .	Please Follow bid conditions
329	2	6B	5.43	93	Asset Protection Systems	Bidder request customer to confirm at how many places in Mainline & Depot HABD sensors are planned to be installed .	Please Follow bid conditions
330	2	6B		290	ROLLING STOCK PERFORMANCE REQUIREMENT	Please provide Rolling stock Performance requirements for Engineer Trains , Accident , Relief Trains	Please refer Addendum & Corrigendum-02B
331	2	6B	16. S&T VS MAINTENANCE VEHICLE CONTRACTOR	308	16. S&T VS MAINTENANCE VEHICLE CONTRACTOR	Bidder request Employer to confirm below points:- 1. Type of Onboard Architecture 2. Who will be responsible to provide Train Lines . Who is responsible to provide Cubicle Enclosure for Signalling Equipment 4. Train battery voltage 110vdc or 72vdc ..etc 5. Train Characterstics 6. Driver Identification reader applicable for Maintenance Vehicle 7. Onboard Digital Counter applicable for Maintenance Vehicle. 8. ATO& ATP applicable for Maintenance Vehicle or only ATP 9. Prototype Test Date 10. Onboard Equipment delivery dates 11. The Purpose of Maintenance Vehicles	Please refer Addendum & Corrigendum-02B
332	2	6B	APPENDIX R	409	APPENDIX R – SECTIONS/08 (RRV, CMV and RGM)	Please confirm whether each type vehicle is of 8nos or total 8nos of trains including ("RRV,CMV and RGM)	Please refer Addendum & Corrigendum-02B
333	2	6B	APPENDIX V	413	KEY & ACCESS DATES/1.5 Key Date 4 (KD4): Deliver ATC Equipment at Delhi NCR	Onboard equipments to be delivered to NCR or Rolling Stock Facility . Please confirm .Bidder request customer to confirm location of Rolling Stock Facility with Delivery schedule.	Please Refer Addendum & corrigendam- 01B
334	2	6B	APPENDIX V	419	KEY DATES FOR MISCELLANEOUS MILESTONE/Compliance to IT-Requirements of Employer as detailed in Employer's Requirement for Package-24	Appendix E IT-Requirement not Present in "Section 6B_Particular Specification _Signalling and Train Control 14042020 1811"	Please refer to: Part-II Section 6F and Section 6B - Appendix A
335	2	6B	3.4.2.8	20	Furniture for OCC at Jangpura shall be supplied by the Signalling contractor considering 3 Corridors of phase -1 of NCRTC.	The scope of providing furniture in OCC for future 2 corridors is beyond the purview of this bidder today & should not be part of the current tender as they depend on the designs & choices to be made on the future corridors.Requesting customer to remove this requirement.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
336	2	6B	Appendix S, Clause 1.1.1	411 of 420	The facilities shown in the Contract Drawings will be provided by the Employer to the Contractor for the on-site work on the dates set out in the Particular Conditions of Contract and Appendix V. In the event that the Contractor wishes to use such facilities he shall take into account the dates of availability of such facilities as set out below in his programming and planning of the Works	. *Are these facilities limited to providing the area for Storage and site office?* Please confirm	Please follow bid conditions
337	2	6B	Appendix S, Clause 1.2.1	411 of 420	The Signalling and Telecom Contractor will be provided a space of about 1200 sqm and 600 Sqm at suitable places for constructing site offices and storage facilities for contractor. The contractor will construct the site office and storage facility within 4 months of possession of land given by NCRTC. The space will be available to the Contractor till end of maintenance contract.	*Query - Please confirm if the area mentions 1200 sqm and 600 sqm area is total or at each depot*	Please refer Addendum & Corrigendum-02B
338	2	6B	Appendix S, Clause 1.2.7	411 of 420	Contractor shall provide and maintain the following requirements for employer as well	*Query - We understand that Employer office to be provided by contractor is at one location - Please confirm*	Please refer Addendum & Corrigendum-02B
339	2	6B	Appendix S, Clause 1.2.7. (b)	411 of 420	Rooms of 15 sqm area each for DY. HODS	*Query: PLease conmfirm the number of DY.HODS* rooms	Please refer Addendum & Corrigendum-02B
340	2	6B	Appendix S, Clause 1.2.7. (d)	412 of 420	1 hall of area 50 sqm for seating of supervisors and storage of documents	*Query - Please confrim the seating Capacity and Storage requirements*	Please refer Addendum & Corrigendum-02B
341	2	6B	Appendix S, Clause 1.2.7. (d)	412 of 420	1 hall of area 50 sqm for seating of supervisors and storage of documents apart from toilet and pantry. This area shall be furnished and air-conditioned	. *Query: We understand that the furnishing means, Provdiing Furniture like work stations and chairs - Please confirm*	Please refer Addendum & Corrigendum-02B
342	2	6B	Appendix S, Clause 1.2.7 (e)	412 of 420	1 Meeting room of 25 sqm area.	*Query: Does this meeting room also have to be provided with the furniture (chairs) ?*	Please refer Addendum & Corrigendum-02B
343	2	6B	11.2.9.2	131 of 420	The Employer will provide defined storage locations for the support of First, Second- and Third-Line Maintenance.	*Query -* *Please confirm the area and location of storage facility that will be provided* *Bidder assumes maintenance period is to be read as DNP Period. Please confirm*	Please follow Bid conditions
344	2	6B	Appendix A	253 of 420	7. S&T (Signalling) Vs DEPOT 26. The S&T contractor will be provided a space of about 1500 sqm at suitable places for constructing permanent site offices and storage facilities for contractor as well as employer's engineer in each depo	*Please confirm if this is in additoon to the area mentioned in Appendix S, Clause 1.2.1*	Please refer Addendum & Corrigendum-02B
345	2	6B	Appendix O 7.7	394 of 420	The Wayside ATP equipment i.e RBC shall be located at a centralized location.	Does "centralize location" means OCC or is it a generic location? In case it is the OCC, shall the ATP equipment (i.e. RBC) be duplicated a the the BCC?	Please follow Bid Conditions
346	2	6B	5.43	93 of 420	Asset Protection System (all chapter)	Bidder understanding is that the role of the signalling system is limited to transfer the HABD data from the peripheral sites to the OCC and to display them. All typical HABD functions (i.e. parametrization of alarms, correlation temperature-axle, etc.) are in the scope of the HABD contractor. Please confirm	Please follow Bid conditions. Please refer to Appendix A
347	2	6B	5.43	93 of 420	Asset Protection System (all chapter)	Bidder understanding is that points from 5.43.1 to 5.43.6 are an HABD description and not requirements for the Signalling System.Please confirm	Please follow Bid conditions
348	2	6B	5.43.7.	93 of 420	An An alarm from HABD shall result in a revoking/shortening of MA, manually if required.	Requirement to be clarified. It is not clear: 1.- the requested SIL level. 2- the involved signalling subsytem (TMS, CBI, ETCS). 3- if the reaction, when requested, is only manually performed by the operator or could be performed automatically by the system.	Please refer Addendum & Corrigendum-02B
349	2	6B	5.43.9.	93 of 420	A diagnostic workstation shall be provided to display the detected values.	Please confirm Who is in charge to provide this HABD diagnostic workstation? Where shall it/them be present? OCC/BCC, Station, ...	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
350	2	6B		271 of 420	Executive coach in RRTS shall have different configuration of doors. Contractors shall interface keeping in consideration current location and future location of executive coach (considering 6 cars to 9 cars conversion) while interfacing for PSD.	1) Bidder understandig is that Bussiness coaches are present only in RRTS 6-cars and 9-cars trains. Is our understandig correct? 2)Bidder understandig is that Bussiness coaches have 2 doors, while Economic coaches heve 3 doors. Is our understandig correct? 3) Are Bussiness coaches only the driving coaches (head and tail) or each coach could be Bussiness or Economic. Note: if each coach could have 2 or 3 doors and there is no limit to the number of bussiness coaches for PSD management and driver Entry, 585 different configuration are possible: 1 for 3-cars, 64 for 6-cars and 512 for 9-cars.	Please refer Addendum & Corrigendum-02B
351	2	6B	3.2.2.1 (8)	18 of 420	Decommissioning, removal and/ or disposal of Temporary Works	please provide the clear details about Contingency plan and temporary works.	Please refer Addendum & Corrigendum-02B
352	2	6B	4.4.2.3. (2)	25 of 426	The 15 minutes for train detection equipment;	Please confirm, this clause is not applicable for Wheel sensor replacement.	Please follow bid conditions
353	2	6B	4.8.5	28 of 420	The time necessary to the initialization of a sub-system (trackside ATC, trainborne ATC, interlocking, track to train transmission, train detection) shall be as short as possible and no greater than 40 seconds.	40 Sec is not individual system start up requirement. Please confirm.Kindly provide some more details	Please refer Addendum & Corrigendum-02B
354	2	6B	5.3.6.1	40 of 420	Point machine on the main line shall be electric, shall conform to IRS S-24 or any other international standard and shall be already proven type in railway environment.	Main Line Point machines required as per the IRS S-24 or International standards, there is no 3Phase operating point machines in IRS S-24 spec. please confirm	Please refer Addendum & Corrigendum-02B
355	2	6B	5.3.6.2	40 of 420	Depot points, where speed does not exceed 25 kmph, shall be preferably trailable.	Please confirm the Depot Point machines required as per IRS S-24 is non-trailable as there is no mention of trailable in the specifications.	Please refer Addendum & Corrigendum-02B
356	2	6B	5.3.6.9	41 of 420	Provision shall be made for individual manual operation of each point. Electrical power shall get disconnected from the point drive under manual (crank handle) operation	Crank Handles will be placed in respective SCR's. please confirm.	Please follow Bid Conditions
357	2	6B	5.3.7.2	41 of 420	(Addendum 1B dtd 11-May-20) All Main line Axle counters shall be duplicated. Indoor and Outdoor Axle counter equipment shall be provided in a complete redundant configuration	1. In normal operating System which is a is fixed virtual block based ETCS L3 Hybrid system, a single point failure (for e.g. fault of a single axle counter) has no impact on the system performance. Duplicated axle counter equipment will offer no incremental benefit. There is significant increase in the axle counting hardware resulting in high deployment & maintenance costs which may not be desirable for the Employer. 2. If Redundacy is required then: -->Bidder assumes that wheel sensors need to be duplicated only for critical track sections like points (in Mainline excluding loop lines) Is this understanding OK & acceptable to NCRTC ? -->For indoor equipment – bidder assumes that redundancy of key LRU's is sufficient since the system is SIL4 & has 2oo2 architecture	Please follow Bid Conditions
358	2	6B	5.3.8.3	42 of 420	However, at least four sets of mainline interlocking logic master unit must be provided for D-G-M corridor	please provide the mainline and depot IXL hardware U installation locations.	The System Architecture is part of the Contractor Design proposal.
359	2	6B	5.3.8.4	42 of 420	Each CBI shall be provided with VDU workstations which will be provided at the SCRs of stations with points and crossing. These VDUs shall be used as a backup in case of failure of TMS.	There will be One VDU for one CBI & there is no SIL requirement for VDU Please confirm	Please Follow bid conditions
360	2	6B	5.3.9.6	43 of 420	Contractor shall provide auto-contact jam detection and contact bounce elimination function for all relays to ensure proper operation of the system.	Relays will be provided with RDSO approval. There is no special requirement of contact jam and contact bounce requirement. Please confirm.	Please Follow bid conditions
361	2	6B	5.11.1.1	47 of 420	Line side signals shall be installed on the Main lines and depot entry/exit with marker board	please provide the requirement of Loop line signals.	Please refer Addendum & Corrigendum-02B
362	2	6B	5.11.1.6	47 of 420	Line side signal on Main Lines and Depot arrival and departure tracks shall be provide adequate sighting distance.	please provide the requirement of Sighting distance. Or min and maximum sighting distance ranges. For Mainline and Depot and block section	Please follow bid conditions
363	2	6B	5.11.1.7	47 of 420	All signals shall be rugged, reliable, of reputed make, aesthetic, matching best industrial quality, of proven design and high-performance LED type in accordance with Indian Railway Standards and sourced from an Indian supplier	please confirm which spec need to follow RDSO_SPN_199 or RDSO-SPN-153.	Please follow bid conditions
364	2	6B	5.11.2.1	47 of 420	The mainline line side signal aspect shall be used in fallback ETCS Level 1 and degraded modes as under.	please provide which colour aspect required for Mainline and Depots.	To be finalised during design stage.

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
365	2	6B	5.11.2.5	48 of 420	Lamp proving shall be provided for all line side signals, buffer stop signals and Shunt Signals.	please provide the route indicator requirements.	Please refer Addendum & Corrigendum-02B
366	2	6B	6.7.4.1	99 of 420	CER and SER equipment & Control room equipment : Shall be capable of working in a non - air conditioned environment up to 40°C without any degradation in RAMS and MTBSAF requirements of the Contract	This clause, mentions that an up to 40°C but Appendix - N 3.6 is asking -10 to +70. please confirm actual requirement.	Please follow bid conditions
367	2	6B	11.7	136 of 420	Predictive maintenance tool: Predictive maintenance tool shall be provided at all Interlocking stations and at remote locations, to detect anomalous behaviour of field gears before the complete failure of field devices.	please provide the details of IXL locations and remote locations, where predictive maintenance tool to be provided.	Please follow bid conditions
368	2	6B	Appindix D 4 © (e)	342 of 420	Opposing route signals display a restrictive aspect. & Origin of route signal shall be replaced to danger and disengaged as a precondition to route release.	As per the contract there is restrictive aspect. Opposite main line Signal will be in Blank position. Please confirm	To be finalised during design stage.
369	2	6B	Appindix D 11.1	349 of 420	Separate Interlocking shall be provided for the depot and test track	Depot and Test track will be controlled from same interlocking. Please confirm.	Please refer Addendum & Corrigendum-02B
370	2	6B	Appindix D	354 of 420	5 Axle counter Reset	please provide the details of reset required for mainline, depot.	Please refer Addendum & Corrigendum-02B
371	2	6B	Appendix A	269 of 420	For trains in Depots-– S&T Contractor shall provide wi-fi coverage for TCMS and Automated wayside wheel profile measurement. S&T contractor shall provide a link between TCMS and TCMS server in depot.	Please clarify what does it mean that the S&T Contractor has to provide "Automated wayside wheel profile measurement" in each of the 2 depots.	Please refer Addendum & Corrigendum-02B
372	2	6B	Appendix A	297 of 420	For trains in Depots-– S&T Interlock Override Signal: The Interlock Override switch is required to be activated by an authorized Person at the Platform's Local Control Panel as the case may be when the internal monitoring of the PSD/PSG locked status has failed and that all doors have been manually verified and confirmed in safe status by the station staff.	Could yo specify what is the "Platform's Local Control Panel"? - is it in the scope of the PSD Contractor? - what are its functions? - is it realized with mouse/monitor or is it realized with lamps and physical buttons? - where is it located? (i.e. platform, Station Control, Room)	Please follow Bid Conditions
373	2	6B	Appendix C	337 of 420	CER at OCC/BCC	What is in term of functionality the difference between the following 2 wokplaces? - Maintenance MMI - Diagnostic and maintenance Workstation	Please refer Addendum & Corrigendum-02B
374	2	6B	Appendix C	337 of 420	CER at OCC/BCC	Do you confirm that the HABD contractor will be in charge of the HABD workstation?	Please refer Addendum & Corrigendum-02B
375	2	6B	Appendix C	337 of 420	CER at OCC/BCC	What is the functionality of the "CATC system development" workplace?	Please refer Addendum & Corrigendum-02B
376	2	6B	Appendix C	335 of 420	OCC Theatre	Shall the train CCTV have dedicated monitors or could it be integrated in the whole system CCTV?	Please refer Addendum & Corrigendum-02B
377	2	6B	Appendix C	338 of 420	SMR of IXL	What is the functionality of this "TMS Workstation" in the room of the maintenance staff? Is not needed a Local Diagnostic and Maintenance workplace here?	Please Follow bid conditions
378	2	6B	10.1.4 (6)	123 of 420	Appropriate fixed means of access shall be provided for easy and safe maintenance of Trackside equipment such as signals, route indicators	please confirm which side signals to be installed. is it allowed between 2 tracks in block section	Please refer Addendum & Corrigendum-02B
379	2	6B	Appendix-R 1.4	409 of 420	Station where facilities for Intermediate turnback shall be provided: 1) At all RRTS stations with point and crossings 2) Meerut South Station 3) Modipuram Depot	please confirm, in main line shunt signals required wherever turnback is provided.	Please follow bid conditions
380	2	6B	2.3.5.	20	Temporary Operation Control Centre shall be provided at same station for the train operation requirement	We understand the scope of this OCC is to manually monitor and control during testing and the equipment can be reused in final system. Please confirm.	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
381	2	6B	5.33.4. & 5.33.4.1.	86	5.33.4. This room shall be adjacent/near to the OCC/BCC whose design will be provided at later stage. In crisis room, S&T contractor shall provide, 2 high resolution projector system with display TV whose size shall not be less than 100 inches, and shall be capable of displaying Operational Overview of the entire corridor and may be used as per requirement of CCTV images. These projector systems shall be of latest technology available at that time Contractor will take prior approval for these projector systems with accessories before procurement and installation. 5.33.4.1. The Crisis room shall also be equipped with Display system of train CCTV.	Please clarify the display provision in crisis room. 2 high resolution displays with overview of D-G-M corridor. The CCTV images on this are the train CCTV? How this display switching is foreseen? Additional display for train CCTV, please provide size of dispaly	Please refer Addendum & Corrigendum-02B
382	2	6B	5.34.1.4.	86	In stations it is preferable to have full line overview Facility	As the station workstations are driven from the LTMS as per architecture, the overview will be of that sector only. Please confirm	Please follow Bid conditions
383	2	6B	11.7	136 of 420	Predictive maintenance tool: Predictive maintenance tool shall be provided at all Interlocking stations and at remote locations, to detect anomalous behaviour of field gears before the complete failure of field devices	please provide list of field gears to be monitored.	Please refer Addendum & Corrigendum-02B
384	2	6B	5.4/ 5.4.5.	44	Temporary speed restrictions shall be capable of being imposed over any track segment which shall not be more than 250m. For point track segment it shall be possible to impose speed restriction separately for straight movement and diversion movement.	Maximum Single TSR Length should be 250m? Contracding with requirement 5.19.8.2 (7)	Please refer Addendum & Corrigendum-02B
385	2	6B	3.7/3.7.1.	341	The size and location virtual track Sections for determining the virtual blocks shall be designed for meeting the headway requirements based on the characteristics of the vehicles to be furnished & the track geometry. The back-up signalling (in ETCS Level 1 and Degraded mode) shall use the specification for Rolling stock is as given in Appendix A of this PS. The signal designer must co-ordinate with the rolling stock supplier to fine-tune the block design based on the braking characteristics and tractive effort of the actual vehicles furnished. Acceptance tests of the signal system will use the actual vehicles supplied.	The back-up signalling (in ETCS Level 1 and Degraded mode) shall use the specification for Rolling stock is as given in Appendix A of this PS In Appendix A, we cant find Specifications for Rolling Stock?	Please refer Addendum & Corrigendum-02B
386	2	6B	13	350/420	Interoperability	Contractor is asked to achieve Interoperability, following the interface matrix in chapter 13. as a minimum. Regarding 1.TMS - ATO TRK: Draft Subset 141 (line 8) 2.RBC - ATO-TRK: Draft Subset 131 (line 13) We would like to put Customer attention on: 1.The interface document for TMS - ATO TRK is called X2Rail-131. There is no official delivery currently, neither a draft version. 2.There is no interface between RBC - ATO-TRK 3. The Subset-141 describes the Engineering Rules related to ATO deployment	Please Follow bid conditions
387	2	6B	3.2.2	340/420	It shall be possible to add, modify or remove a Temporary speed restriction in a safe manner from both Operation control centre and local control depending on the existing level of control. The temporary speed restriction application, modification and removal shall be done in a safe manner in both ETCS L1 and L2	please provide the details about TSR function during ETCS-L1 mode	To be finalised during design stage.
388	2	6B	12.8.4.2 (15)	140/420	The simulator should be capable of being used for simulations for fault analysis and for software and configuration parameters modifications. The simulator shall have the capability to test whether any printed circuit board/sub-module is defective or not. This shall be achieved for all type of printed circuit boards/sub-modules of CBI, object controller, wayside signal, point machine (depot as well as mainline),Train detection, Trackside & Onboard ATP, TMS, Data communication system (including EPC, EUTRAN, UEs, Dispatchers etc.), Radio access point, antennas, network elements (switches, routers etc), power supply modules etc	please confirm simulation is virtual environment or real hardware	Please refer Addendum & Corrigendum-02B
389	2	6B	Appendix V	417/420	Key & Access dates / Schedule of Key dates / KD-1	Considering the amount of expectation in terms of functionalities in NCRTC , the provided Preliminary design submission and approval duration D+91 days is not sufficient to complete activity. Min D+180 days required	Please refer Addendum & Corrigendum-02B
390	2	6B	Appendix V	417/420	Key & Access dates / Schedule of Key Dates / KD-2	Considering the amount of expectation in terms of functionalities in NCRTC, the provided Detail design submission duration D+210 days is not sufficient to complete activity. Min D+365 Days required	Please refer Addendum & Corrigendum-02B
391	2	6B	Appendix V	417/420	Key & Access dates / Schedule of Key Dates / KD-4	On board equipment requirement details (Schedule) required from Rolling stock contractor to align procurement and delivery of SIG onboard equipment to rolling stock contractor place.Kindly provide delivery details	Please refer Addendum & Corrigendum-01B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
392	2	6B	Appendix V	417/420	Key & Access dates / Schedule of Key Dates / KD-7 & 8	Rolling stock delivery details required to align integrated testing and commissioning	Please Follow bid conditions
393	2	6B	Appendix V	415/420	Key & Access dates / Schedule of Key Dates / KD- 10	Testing details required for Employer operational trial Run.	Please Follow bid conditions
394	2	6B	Appendix V	416/420	Key & Access dates / 2. Access dates / 2.1 Access to Equipment rooms at Depot /Station /OCC	Clarity required on which stage rooms will be handed over. Partial access or final access. E.g Floor painting, Wall finish painting, cable trays, False ceiling & floor, Dust free environment completion	Please Follow bid conditions
395	2	6B	Appendix V	415/420	Key & Access dates / Schedule of Key Dates / KD-8, 9 & 10	Clarity required on KD-8,9 & 10. These KDs are start milestone or finish milestones???	Please refer Addendum & Corrigendum-02B
396	2	6B	Appendix V	415/420	Key & Access dates / Schedule of Key Dates / KD-11	Bidder requests to amend KD-11 to also reflect the D+day methodology as it done for all other KD's . KD11 is dependent on the preceding KD's and any impact on start date & intermittent KD's will also impact on KD-11 which needs to accordingly adjusted .	Please Follow bid conditions
397	2	6B	5.34.1.4.	86	In stations it is preferable to have full line overview Facility	As the station workstations are driven from from the LTMS as per architecture, the overview will be of that sector only. Please confirm	Please follow Bid Conditions
398	2	6B	5.3.6.1	40 of 420	The contractor shall submit the point machine specifications & design and one sample machine of each type for approval of the Employer.	Please confirm the purpose of delivering sample Point Machine .	Please follow bid conditions
399	2	6B		249 of 420	6. S&T Vs Track Works Contractor./ 19. The S&T contractor shall be required to interface with Track contractor and shall supervise installation of first mock up of turnout assembled on the precast slabs in precast factory and confirm fixing arrangements are as per approved design & drawing. S&T contractor shall interface with track contractor regarding procurement of PSC sleepers also and shall provide requisite drawings for procurement of PSC sleepers required for turnouts	Please confirm Mockup will be performed just before start of installation of stage-1. Bidder assume that Point machine supplied for mockup can be reused as Spare for DLP/T&C	Please refer Addendum & Corrigendum-02B
400	2	6B	12.8.4, 12.8.4.1 "… & 12.8.4.2	139 of 420	12.8.4 Troubleshooting and Maintenance Simulator 12.8.4.1 "… & 12.8.4.2 The simulator shall include supply and installation of all sub-systems of Train Control & Signalling including LTE system in minimum configuration ..." 12.8.4.2 all points	Could you clarify if your expectation for the Trouble shooting an Maintenance Simulator is limited to a set of test beches able to test the hardware for maintenance reasons or if you want a simulation environment, more similar to a V&V lab, in which almost all the signalling hardware (i.e. Central IXL, RBC, etc.) is present and more complex test scenario shall be performed?	Please refer Addendum & Corrigendum-02B
401	2	6B	13	350 of 420	13 INTEROPERABILITY Table: row 9 PSD<=>ETCS-OB	Could you confirm that for ensuring the interoperability with the existing ETCS standards and physical interfaces, the communication between the ETCS-OB and the PSD shall be realized through the RBC?	Please Follow bid conditions
402	2	6B	5.34.1.4.	86	In stations it is preferable to have full line overview Facility	As the station workstations are driven from the LTMS as per architecture, the overview will be of that sector only. Please confirm	Please follow Bid conditions
403	2	6B	4.13	37	EMC test	All the way side Signalling equipment's (TMS) are to be tested and certified for EMC as per 50121-1,2,4. Please confirm	Please Follow bid conditions
404	2	6B	11.5.5	141	Electronic manual	Please confirm whether Electronic manual include Audio /Video Training Aids is to provided or not.	Please refer Addendum & Corrigendum-02B
405	2	6B	12.8.4.2 (15)	146	The simulator should be capable of being used for simulations for fault analysis and for software and configuration parameters modifications. The simulator shall have the capability to test whether any printed circuit board/sub-module is defective or not. This shall be achieved for all type of printed circuit boards/sub-modules of CBI, object controller, wayside signal, point machine (depot as well as mainline),Train detection, Trackside & Onboard ATP, TMS, Data communication system (including EPC, EUTRAN, UEs, Dispatchers etc.), Radio access point, antennas, network elements (switches, routers etc), power supply modules etc.	Simulator capability to detect the PCB level failure is to be removed from Contract clause as this is not possible with the Simulator asked	Please Follow bid conditions
406	2	6B	13.4.2.1	149	The Employer may sponsor some of his Engineers for Transfer of Technology. The Contractor shall deploy these personnel during the Contract Period in all areas, such as Design, Manufacture, Factory Acceptance Tests at the Manufacturer's/ sub-contractors Works Offshore and in India. The travel expenses, salary and allowances, boarding and lodging expenses of these sponsored personnel shall be borne by the Employer but the Contractor shall provide other facilities required for the purpose of performing their duties. The sponsored personnel shall be under the technical and administrative control of the Contractor	Contractor shall provide other facilities for performing their duties : what are other facilities ?	Please Follow bid conditions
407	2	6B	9.11. 4 4	354	Hardware and Software shall conform to the requirement equivalent to standard SIL 2.	TMS is purely SW based system and it is in built in to COTS items , SIL2 to be confined to SW product of TMS	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
408	2	6B	5.19.10.2 (5)	68	The TMS sub-system component of Category 2 shall be composed of WAN, Local Redundant LAN at OCC, Redundant server and Operator workstation. Will make use of optical fibre cables as detailed in PS 5.42. TMS at Central also communicate with external sub-systems like IXL, ATO, RBC & ON BOARD	TMS communicating with the on board system via IXL, in the platform. Please confirm.	Please follow bid conditions
409	2	6B	2.2.3.2.1	357	All cables shall be flame retardant and shall comply with the requirements of IEC 331 and for bunched cables of IEC 332: Part 1 & 3 and for flame propagating criteria of US IEEE-383 with a minimum test short circuit time of five minutes	Relevant standards for Flame retardant are IEC332: Part1 & 3 , whereas IEC 331 refers for test method for Circuit integrity test under Fire condition which is not relevant US IEEE 383 is US standard , equivalent European standard for Fire propagation IEC 332: part 1 and Part3 will be met. Request customer to update requirement accordingly	Please Follow bid conditions
410	2	6B	2.2.3.3.2	357	All cable materials shall meet requirements of the US National Bureau of Standard Smoke Chamber Test, used to evaluate plaque materials of constant thickness. (NFPA 258 Smoke Generation of Solid Materials 1982)	The mentioned NFPA258 are US applicable standards , request customer to relax requirement to suitable international standard or european standard	Please Follow bid conditions
411	2	6B	3.1.4	358	Employer shall also choose four random samples for each type of cable and send it for Independent Testing from a Government approved Testing Lab. The Contractor shall coordinate the testing and bear all the costs therein.	Kindly confirm Each type of Cables refers to category like Power cables, Signaling cable or Each Item?	Please Follow bid conditions
412	2	6B		363	5. Cable Sealing System	Scope refers to protect fire or smoke from spreading out from one room to other room or one floor to another floor through these voids and openings , kindly confirm equipment cabinets can go for alternate fire proof system other than EPDM System	Please refer Addendum & Corrigendum-02B
413	2	6B	3.6.	376	The system shall be capable for working in non-air-conditioned environment and ambient temperature range between -10°C to 70°C and Relative Humidity up to 95% at 40°C.	Non Air Condition and Ambient Temparature are two different aspect, need information on both separately, Server Operating Temperature is 10° to 35°C with Operating humidity 8% to 90% non-condensing Workstation operating temperature is 10°C to 35°C with operating humidity at 30% to 90%, non-condensing Please revisit and confirm on operating temperature & relative humidity requirement & ammend the clause accordingly	Please Follow bid conditions
414	2	6B	5.2.1.	379	The control terminal with VDU displays (Workstation) shall consist of: i. Colour VDU monitor of 30 inches LED, and a suitable equipment to drive the VDU.	With increase in the display market demand all the 30inch monitor are now at 4K (as commercial TV of 32' has become a major threat to 30inch professional displays) and it's a expensive solution for the application, a 24 or 27inch display still be perfect suit for this application. Please revisit requirement & reconfirm if 24 or 27 inch monitor is ok or not..	Please refer Addendum & Corrigendum-02B
415	2	6B		343	SCR of IXL stations VDU 1*32'	With increase in the display market demand all the 30inch monitor are now at 4K (as commercial TV of 32' has become a major threat to 30inch professional displays) and it's a expensive solution for the application, a 24 or 27inch display still be perfect suit for this application Please revisit requirement & reconfirm if 24 or 27 inch monitor is ok or not..	Please Follow bid conditions
416	2	6B		343	DCC (All Depots) VDU 2*32'	With increase in the display market demand all the 30inch monitor are now at 4K (as commercial TV of 32' has become a major threat to 30inch professional displays) and it's a expensive solution for the application, a 24 or 27inch display still be perfect suit for this application. Please revisit requirement & reconfirm if 24 or 27 inch monitor is ok or not..	Please Follow bid conditions
417	2	6B	3.2.2.1 (3)	18 of 420		"Assist and furnish all information, documents required by Independent Safety Assessor (ISA), if appointed by NCRTC;" ---- Please clarify whether ISA will be appointed by NCRTC/Employer or by the contractor	Please refer Addendum & Corrigendum-02B
418	2	6B		420 of 420	KEY DATES FOR MISCELLANEOUS MILESTONE	SME3 - System safety case & assessment report of independent safety assessor after upgradation to FRMCS including internal ISA, verification & validation------Please clarif What are the roles of internal ISA; Who will appoint internal ISA is it by the contractor or by NCRTC/Employer	Please refer Addendum & Corrigendum-02B
419	2	6F	(BIM) 1.1	1 of 19	NCRTC_EIR-EPC_BIM / 1.1 BIM Goals/ Objectives	Please eleborate on Asset Information Management requirments & scope for signalling on same	Please Follow bid conditions
420	2	6F	(BIM) 3.1	2 of 19	NCRTC_EIR-EPC_BIM / 3.1. BIM Uses	Please confirm that the 4D simulation & Quantity take off/cost estimation scope is applicable only for EPC DDC and not for signalling	Please Follow bid conditions
421	2	6F	(BIM) 3.1	2 of 19	NCRTC_EIR-EPC_BIM / 3.1. BIM Uses	NCRTC is in process of finalizing software/s applications for internal use for BIM based quantity extraction, cost-estimation, 4D & 5D BIM, Facility and Asset management works. In case any deliverable is needed in the format not specified above, then that shall be specified at a later stage and the consultant is required to provide the same to NCRTC unless technically not possible. Any cost incurred in purchase of any plug-in or application to perform this task, shall be borne by the consultant. However, NCRTC believes in the philosophy of Open BIM and while selecting any software application, priority shall be given to the software application which is vendor neutral. Please confirm the requirements of plug-in / applications as this will become the basis for the estimation of the cost associated software need.	Please Follow bid conditions
422	2	6F	(BIM) 3.2	5 of 19	NCRTC_EIR-EPC_BIM / 3.2.Software platforms	Please confirm if the training on new CDE (WRENCH) to be provided by EPC DDC / NCRTC	Please refer Addendum & Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
423	2	6A	10.7.1	GS, 10-4 of 5		Clause 10.7.1 - Bidder request employer to drop software customization from ToT in view of proprietary tools and processes and in addition safety processes to be respected in order to deploy the SW change.	Please Follow bid conditions
424	2	6B	2.6.6	16 of 420		Clause 2.6.6 - Please elaborate on freight traffic. Does this traffic constitutes same equipped train types?	Please Follow bid conditions
425	2	6B	Clause 3.2 point 19	18 of 420		Does BCC need to be physical replica of OCC or only operationally.	Please follow bid conditions
426	2	6B	5.8.3.2 -	46 of 420	All cars shall be provided with redundant independent ATO and ATP equipment	Bidder request request employer to confirm it is all **Trains** and not “All cars”.	Please refer Addendum & Corrigendum-02B
427	2	6B	Appendix V	417 of 420	Schedule of Key Dates	In view of Nonstandard ETCS deployment, new functionalities and interfaces, Bidder requests NCRTC to extend Prelim design duration by 3 months and Final design by 5 month until Installation start of Phase 1.	Please refer Addendum & Corrigendum-02B
428	2	6B	Appendix V	417 of 420	Schedule of Key Dates	Bidder requests NCRTC to allow staged commissioning of ATO by Stage 2 with separate set of dates for ATP and ATO commissioning.	Please refer Addendum & Corrigendum-02B
429	2	6B	Appendix N / Clause 3.6	370 of 420		The temperature rating to be made consistent as in clause 6.7.4.1 (3)	Please Follow bid conditions
430	2	6B	Appendix V	417 of 420	Schedule of Key Dates	Please confirm MRTS (10 nos) will be part of which stage . Above information is required for planning material delivery and for T&C Planning	Please Follow bid conditions
431	2	6B	Appendix V	420 of 420	Schedule of Key Dates/SF	The scope of Demonstrating interoperability is beyond the purview of this bidder today & should not be part of the current tender as they depend on the designs & choices to be made on the future corridors. The interoperability will be achieved through the applicable global standards & it will be a joint responsibility of such OEM's under the direction & instructions of the Employer under the respective contracts. Request you to remove the payment provision against this requirement & request you to introduce it in the contracts of the future corridors	Please Follow bid conditions
432	2	6A	9.4.4.5	GS, 9-6 of 16		Inclusion of contingency plans in Partial Acceptance Test Plan: please explain in which phase you consider necessary the definition of a Contingiency plan.	Please follow bid conditions
433	2	6A	9.4.4.5	GS, 9-6 of 16		"The DVT does not relieve the Contractor of any other requirements of the Specification in relation to design review, Verification, Validation, conformance or planning" Please clarify	Please follow bid conditions
434	2	6B	6.3.3.2 (6)	95 of 420	The assessment report of Independent Safety Assessor of the Generic product safety case and Generic Application safety case as required by the relevant CENELEC standards for both Hardware and Software	Instead of ISA reports, ISA certificates of the relevant Hardware / Software / System will be provided as proof of ISA acceptance for relevant Cenelec standard, also ISA reports will be available for Engineer's scrutiny/audit inside Alstom premises only, as these documents are copyright protected. please clarify?	Please Follow bid conditions
435	2	6B	8.15.4	121 of 420	The above list is not exhaustive, and it is the responsibility of the contractor to perform and submit additional tests, required to prove and achieve interoperability between various subsystems	For Interoperablility test, Is the additional tests are as per 6.2.5 of TSI CCS "COMMISSION REGULATION (EU) 2016/919 and its amendment COMMISION IMPLEMENTING REGULATION (EU) 2019/776 " ?	Please Follow bid conditions
436	2	6B	8.15.1	120 of 420	The contractor shall provide Lab certificate for interoperability issued by European Commission Notified Body or from the ERTMS accredited Test Lab of ETCS	Please clarify if the system shall be covered by NoBo interoperability certificate versus the current TSI (Technical specification for Interoperability "COMMISSION REGULATION (EU) 2016/919 and its amendment COMMISION IMPLEMENTING REGULATION (EU) 2019/776 ") BL3 MR2?	Please Follow bid conditions
437	2	6B	Appendix - V	420 of 420	KEY DATES FOR MISCELLANEOUS MILESTONE	line no 19 and 20, By the mentioned time of both items system will be in revenue service and what is the significance of these metioned safety cases? In comparison with section 15.4 (3), it is indicated that FRMCS update will be till End of 2024 but in Appendix V KEY DATES FOR MISCELLANEOUS MILESTONE item 19 is asking for FRMCS update after 3years of stage 4 revenue service. please clarify?	Please refer Addendum & Corrigendum-02B
438	2	6B	5.19.21.7.2.	67 / 420	A facility shall be provided for the setting of arrival time difference for interchange stations, duration of interchange matching required and the matching of interchange stations for a particular period.	The requirement is not clear. Kindly provide more details	Please refer Addendum & Corrigendum-02B
439	2	6B	Appendix V	419/420	KEY DATES FOR MISCELLANEOUS MILESTONE/SMB1/DLP Support (including DLP Plan) for Stage 1 & Stage 2.	Bidder request to clarify requirement of this KD. As it shows completion by (Stage-4 KD-11.) after completion of Stage 4. When to start DLP support for stage-1 & 2. DLP support is 36 Months after completion of each stage.	Please refer Addendum & Corrigendum-02B
440	2	6B	Appendix V	419/420	KEY DATES FOR MISCELLANEOUS MILESTONE/SME1/ DLP Support (including DLP Plan) for Stage 3 & Stage 4.	Bidder request to clarify requirement of this KD. As it shows completion by (After 3 Yrs. Of Stage-4 KD11) 3years after completion of Stage 4. When to start DLP support for stage-3. DLP support is 36 Months after completion of each stage.	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
441	2	6B	Appendix V	419/420	KEY DATES FOR MISCELLANEOUS MILESTONE/SMC1/ Delivery of spares to Site for DGM-Corridor.	Bidder request to clarify requirement of this KD. As it shows completion by (Stage-4 KD-11.) after completion of Stage 4. So there is no requirement of spares during stage-1,2 & 3	Please refer Addendum & Corrigendum-02B
442	2	6B	Appendix V	419/420	KEY DATES FOR MISCELLANEOUS MILESTONE/SMA1 / Training of Employer's personnel, overseas in Contractor/ SubContractor's Works and MRTS.	Bidder request to clarify requirement of this KD. As it shows completion by (Stage-2 KD-11.) after completion of Stage 2. So there is no requirement of Training of personnel after stage-1 completion	Please refer Addendum & Corrigendum-02B
443	2	6E	(SHE)/21.0	20/148	SAFETY, HEALTH & ENVIRONMENT (SHE)/21.0 Site surveillance/Monitoring	To comply aforesaid requirement, Bidder will provide CCTV at project office entrance and exit areas only . As a system contractor cannot provide CCTV Cameras at station areas, via duct, tunnel etc,.	Please refer Addendum & Corrigendum-02B
444	2	6B		265/420	10. S&T, PSD Vs Rolling Stock	Please clarify what is the purpose of W-Fi Access points, what is the data throughput requirement, who provides Trackside Wi-Fi Radio access points, and backbone for Wi-Fi	Please refer Addendum & Corrigendum-02B
445	2	6B	Appendix D / 1.	339/420	The Signaling & Train Control system shall use ETCS based ATP system which will be fixed virtual block based ETCS Level 3 Hybrid (to accommodate more trains in one axle counter section).	Please confirm that the single axle counter section mentioned in the requirement has to be intended solely as the block section between two adjacent stations, while in station minimum block section is intended as the interlocking route from signal to signal.	Please refer Addendum & Corrigendum-02B
446	2	6B	5.3.4.1	39/420	The Train Control and Signalling System shall ensure that no train or part of the train stops within the neutral zones (or Air gap). The Lineside signals and Train detection system boundary shall also be located suitably.	Please confirm that the requirement is valid for nominal train operation, while under degraded conditions (sudden emergency stop) train can stop everywhere due to actual breaking curve.	Please Follow bid conditions
447	2	6B	5.12.3	48/420	Fixed Balises shall be installed in such a way to make release speed close to zero. (Preferably zero).	Please clarify the meaning to use location of balise groups to allow a very small release speed, as usually release speed is based on lenght of the Supervised Location and on the actual position of the train adjusted by odometric error.	Please Follow bid conditions
448	2	6B	5.4, 5.4.5	44 of 420	and Temporary speed restrictions shall be capable of being imposed over any track segment which shall not be more than 250m. For point track segment it shall be possible to impose speed restriction separately for straight movement and diversion movement.	Please confirm Maximum Single TSR Length should be 250m? This requirment was contradictory with requirement 5.19.8.2 (7)	Please refer Addendum & Corrigendum-02B
449	2	6B	8,8.6 and 8.6	345 of 420	When a train is in operation (depot or mainline) and the trainborne detects that it is no longer able to receive authorities from the trackside, the train is automatically brought to stop within the ATP safety speed profile. Upon restoration of data communications with the local ETCS trackside, dialog between the trainborne ETCS and ETCS trackside shall resume in order to establish the correct actual train location along with its updated movement authority.	Please provide maximum waiting time for trainborne to detect the authorities from trackside?	Please Follow bid conditions
450	2	6B	8, 8.8	355	Failures which prevent the local trackside ETCS from advancing the movement authority to a train include elementary track portion train detection failures, or unexpected track portion occupancy, point and crossing status failures, or unexpected point and crossing status change, and failures to receive updated location reports from the train ahead. Under these failure modes, the trackside ETCS shall pullback the movement authority limit to a train to the location of the failure, if necessary.	Please modify the requirement by including CBI and ETCS system pullback the movement autority limit to a train location of the failure. ETCS system indiviually need to get authority from CBI to pullback the authority.	Please Follow bid conditions
451	2	6B	4.6.3.1, 4.6.3.1. & 4.6.3.2.	27 of 420	The Train Control and Signalling System shall provide for the safe operation of the all train types including, (1) EMU consists (2) Empty rakes (3) Engineer's trains, Tower Wagons, Light locomotives, RGM,CMV etc. (4) Accident Relief Train/ RRV 4.6.3.2. All above mentioned train types shall be equipped with ETCS onboard equipment	Please confirm all the train types should be equipped with ATP/ATO equipement with Reduncacy?	Please refer Addendum & Corrigendum-02B
452	2	6B	4.1.7	27 of 420	This headway shall be measured on the line using the respective EMU performance for 6-car trains with 30-second dwells at intermediate stations and a minimum 2-minute layover at the terminal stations. The headway calculation will include PSD operation time.	Please confirm the PSD operation time for Headway Stimulation?	Please refer section 6G

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
453	2	6B	5.3.10.2. , 5.3.10.3 & 5.3.10.4	44 OF 420	A logic shall be built inTMS system of The Train Control and Signalling System, which shall regulate train movement as described in Appendix A. This shall be achieved for ATP and ATO mode of working. In case the distance between two underground stations is long, there may be additional ventilation shafts in between two stations. If this presents a problem in achieving required headway, the Contractor shall immediately notify the same to the Engineer. 5.3.10.3. It shall be possible for the controller from OCC to remove and restore the above restriction section by section. 5.3.10.4. The Train control & Signalling System shall provide an alarm to the SCADA system controlling the tunnel ventilation system	Requirments duplicated in Emergency Management 5.25. Please remove 5.3.10.2, 5.3.10.3 and 5.3.10.4	Please follow bid conditions
454	2	6B	5.39.2.1.	89 of 420	The Rolling Stock Project Contractor shall provide a data log to record all train borne Train Control and Signalling System faults. All train borne System faults shall be transmitted to the train for recording in this log. In addition, the train borne log shall be transmitted in real time to OCC/SCC/DCC through RBC.	Transmission of complete train borne logs to OCC/SCC/DCC through RBC is not possible as per UNISIG Subset. Please remove RBC in requirment and allow to use external medium to transfer.	Please refer Addendum & Corrigendum-02B
455	2	6B	5.40.1.2.	91 of 420	Movements within the Depots beyond the entrance interlocking shall be controlled by lineside shunting signals and stop signals, where necessary.	Please confirm, clearing of shunting signals within Depot area will allow train to move only in Shunting mode(packet 80)?	Please follow bid conditions
456	2	6B	5.40.1.3.	91 of 420	The Train Control and Signalling System shall be designed to allow for the extension of the Depot in future. This shall include consideration of the interfaces required for the extension.	please provide the percentage of extension planned in Future to design the train control and signalling system?	Please follow bid conditions
457	2	6B	5.40.2.2.	91 of 420	The border between manual and ATP areas shall be at the depot workshop lines.	Please confirm the mode transaction from ATP mode to manual mode will be before entering of Workshop lines or after entering the workshop lines?	Please follow bid conditions
458	2	6B	8 & 8.2	344 of 420	The secondary train detection shall be based on Axle counter, which will be remote fed with minimum equipment on the trackside.	Axle counter will be the primary train detection for ETCS Level 2 System and train integrity information will be used during the operation of trains in Fixed virtual block. In station area, Interlocking will use Axle counter to detect the presence of train. In Block area, RBC will send the status of Virtual section with the help of train integrity information from OnBoard to interlocking.	Please refer Addendum & Corrigendum-01B
459	2	6B	3.3. 3.3.1.	384 of 420	3.3 ATC Wayside Function The ATC wayside equipment shall acquire and communicate in a vital way, information about the track, which is needed on board to calculate the safe speed-distance curves. The information to be transmitted to the train as a minimum, but not limited to are: (1) Track profile (Curves, gradient etc.), speed restrictions, switch/ Point locations and signal locations and any other necessary information. (2) Signalling status: train location, point position, signal status, overlap status etc. (3) Train regulation Commands.	Requirement as in Urban As per unisig Subset, ATC wayside will send only Track profiles like (Gradient, Speed profile, movement authority, and track conditions) defined in UNISIG Subset 026. please modify the requirement.	Please follow bid conditions
460	2		3.3	340 of 420	and Reverse Running It shall be possible to operate trains in the reverse direction at the same speed as in normal direction running. Full protection shall be provided for reverse running on all main tracks. Civil speed restrictions shall be enforced when trains operate in the reverse direction. Headways for the reverse direction shall be based on the block boundaries established for normal direction operation without any additional optimisation. It shall be possible to run in ATO and ATP/FS mode in the reverse direction.	As per UNISIG Subset 026 chapter 4, Reversing movement is only allowed for the train to escape from a dangerous situation and to reach as fast as possible a “safer” location. It is unsafe to have movement at the same speed as in normal direction. Kindly modify the requirement to have Bi-directional running in normal mode of operation.	Please refer Addendum & Corrigendum- 02B
461	2		5.1.7.2	43 of 420	Coupling of trains for call-on or push-out shall normally be performed in Restricted Manual	Please confirm Couplling of train for Call-on and Push-out will be in which Restricted Manual mode(Preferbly SR Mode) ?	Please follow Bid Conditions
462	2		3 & 3.1	340 of 420	and The design shall be based on a theoretical headway of 120 secs in order to permit trains to operate on a sustained headway of 180 secs under normal operations as described in the Technical Specification.	please provide below inputs to have accurate headway stimuation report 1) Track plans (ESP) including chainage details, Turnout types, Gradients, Curves, cant. 2) Track conditions and Neutral sections	Please refer Addendum & Corrigendum-02B
463	2		2.6 & 2.6.6.	16 of 420	RRTS Corridor is envisioned to accommodate freight traffic (during the off-peak hours of passenger services).	Please confirm the Freight train configuration and freight traffic details which impacts Headway stimulation?	Please follow Bid Conditions
464	2		Appendix O: 3.2.2	383 of 420	Train control system shall work on the principle of ETCS Hybrid Level 3 based fixed virtual block system with cab signalling and shall continuously supervise the safe running of train and, in case of danger warn the train operator and also apply brakes, if necessary, after a predetermined interval of time. ETCS Hybrid Level 3 system shall be based on 16E042 version 1A, Principles of Hybrid ERTMS/ETCS Level 3 or latest issued.	Kindly clarify the reference 16E042.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
465	2		4.6.3.1.	27 of 420	The Train Control and Signalling System shall provide for the safe operation of the all train types including, (1) EMU consists (2) Empty rakes (3) Engineer's trains, Tower Wagons, Light locomotives, RGM,CMV etc. (4) Accident Relief Train/ RRV	What are the possible train configuration other than 3-Cars, 6-Cars and 9-Cars?	Please refer Addendum & Corrigendum-02B
466	2	6B	4.8.1	28 of 420	The response time for all equipment, except for point machines, irrespective of the location shall not generally be greater than 500 ms.	Cycle time of 500ms can be achieved. Kindly remove other constraints as is open ended and it depends on each equipment.	Please Follow bid conditions
467	2	6B	4.8.3	28 of 420	Response time in this context is time taken for the equipment to process the commands (or input) and generate a signal at the output (or user display).	System design and performance requirements for ensuring inteoperability is defined by UNISIG Subset -041. Hence, kindly remove this requirement and refer to the subset document for ensuring interoperability.	Please Follow bid conditions
468	2	6B	4.9.3.1.	29 of 420	If the Train stops within safety conditions for door opening authorisation (generally, -0.7m, +1m from the train stopping position), the train control & signalling system will provide the door enable signal to the train operator to open the doors manually on the correct side of the platform. If the train does not stop within the door opening authorisation window defined above, the Train Control and signalling system shall not provide the door enable signal to the train operator to open the doors manually on the correct side of the platform.	Does it mean that stopping accuracy can be relaxed for train door opening?	Please Follow bid conditions
469	2	6B	4.9.3.2. (1)	29 of 420	To attempt, in ATP/FS mode, to reposition the train in case the train stops short of stopping position subject to a maximum creeping speed of 10 Km/h.	ETCS does not have any function called as "Creeping Speed". This requirement can achieved by configuring danger point and release speed in the MA. Kindly confirm if it is alright for NCRTC.	Please Follow bid conditions
470	2	6B	4.10.1.	29 of 420	In the event of failure of one operating mode, there shall be graceful degradation to another mode, which shall optimise service capacity while maintaining safety.	ETCS can adher with mode transistion defined in UNISIG Subset-026. In some cases, there will be speed reduction and driver intervention will be required. Kindly modify the requirement to make reference to subset documents.	Please Follow bid conditions
471	2	6B	5.1.1.	35 of 420	The Train Control and Signalling System shall provide the following modes of train operation as a minimum. The remaining modes shall be finalized as per SRS 3.6.0 Baseline 3 Release 2 or latest issued during the design stage.	Kindly specify only one version of UNISIG baseline as it is a huge task to migrate to 'latest' baseline when the project works are on-going.	Please Follow bid conditions
472	2	6B	5.1.1.	35 of 420	(1) ATO Mode	There is no specific ATO mode in current UNISIG baseline. ETCS working in FS mode and ATO driving the train can be considered as ATO mode. Kindly confirm.	Please Follow bid conditions
473	2	6B	5.1.2.1.	35 of 420	In ATO mode, the train shall operate without intervention by the train operator except when starting from a station stop. ATO mode shall operate under the supervision & controls of ATP functions.	Driver must pefrom SoM when the mission starts. It is as per UNISIG requirements. Kindly confirm.	Please Follow bid conditions
474	2	6B	5.1.2.2.	35 of 420	ATO mode shall be the normal mode of operation.	Opearaional procedures are not available to fully analyse the requirement. Kindly provide an outline for the expected operational procedures.	Please Follow bid conditions
475	2	6B	5.1.2.5. (4)	35 of 420	In ATO Mode, the Train Control and Signalling System shall: (4) provide all indications necessary to operate the train;	Kindly specifiy the required indication in operation point of view.	Please Follow bid conditions
476	2	6B	5.1.2.5. (5)	36 of 420	determine continuously the Maximum Safe Speed (MSS) and Limit of Movement Authority (LOMA);	MSS and LOMA are not a common terminology in ETCS context. However, it commonly used in the NCRTC specification document. It may kindly be reworded as equivalent ETCS terms such as "Most Restricted Speed Profile" and "Movement of Authority".	Please Follow bid conditions
477	2	6B	5.1.2.5. (8)	36 of 420	(8) Prevent the train from starting if train doors are not detected closed.	Kindly confirm if we can do the traction power cut-off to prevent the train movement upon detecting from that train doors are opened through TCMS interface?	Please Follow bid conditions
478	2	6B	5.1.2.9.	36 of 420	The train operator shall have the capability of taking over control of the train any time while degrading the mode appropriately	Kindly confirm if we shall install a by-pass switch for disabling ATO function? What is the operational procedure expected for the manual take over?	This shall be finalized during design stage.
479	2	6B	5.1.7.1. & 5.1.7.2.	37 of 420	The Train Control and Signalling System shall allow for call-on or push-outs to be safely performed in the event of operational need to rescue a failed train using a functional train. Coupling of trains for call-on or push-out shall normally be performed in Restricted Manual Mode.	Kindly confirm if Staff Responsible mode can be used for call-on or push-outs operation?	Please Follow bid conditions
480	2	6B	5.2.1.	37 of 420	The Train Control and Signalling System shall allow the train to transfer from Restricted Manual Mode to ATP mode automatically without stopping the train while it should be possible to select the Restricted Manual Mode only at standstill. The Train Control and Signalling System shall allow the train operator to transfer from ATO to ATP modes and vice versa.	ETCS system shall follow mode transistion requirments of UNISIG Subet-026 chapter 4.6. Kindly confirm if it is alright for NCRTC.	Please refer Addendum & Corrigendum-02B
481	2	6B	5.3.2.2.	39 of 420	If the actual speed exceeds the permitted speed, a warning must be given to the train operator to enable him to react and avoid intervention from train borne ATC equipment at least 2 sec. before the intervention of the full service brake until the actual speed is reduced to the permitted speed, then the train operator must be capable of selecting release of full service braking. The warning must continue until actual speed is reduced to the permitted speed. The full-service brake intervention and emergency brake intervention must be recorded. If the full-service brake fails or is not adequate to stop the train at the target point, the trainborne equipment must apply the emergency brake.	Full service brake will be released as soon as the current speed is reduced to permitted speed. It is as per UNISIG requirements. Our system is complaint with Subset-026 and ERA DMI Specification ERA_ERTMS_015560. Kindly confirm if it is alright for NCRTC.	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
482	2	6B	5.3.2.3.	39 of 420	Station stopping Monitoring and Supervision The ATC system should provide advisory indications on the Driver's MMI to help the train operator to stop correctly the train in station. If necessary, the ATC triggers the Full-Service Brake (FSB) in case the train operator has not correctly followed these indications. Intervention: The ATC gives a few seconds to the train operator to react after warning. If not, the ATC triggers the FSB.	ETCS DMI is complaint with specification ERA_ERTMS_015560. Kindly confirm if it is alright for NCRTC.	Please Follow bid conditions
483	2	6B	5.7.2.1, 5.7.2.2, & 5.7.2.3.	45 of 420	An enable doors signal shall be provided for train doors, indicating left-side, right-side or both-side, as appropriate for the station, when both the following conditions are met: The train is stopped within the performance limits; and Train speed is lower than 1 km/h.	Kindly confirm if train door shall be opened after ensuring that the train is standing still \ no motion is detected.	Please Follow bid conditions
484	2	6B	5.7.2.6	46 of 420	Provision shall be made for the train operator to prevent door opening in ATO Mode.	Kindly confirm if the ATO must be disable for manual operation of doors.	Please Follow bid conditions
485	2	6B	5.39.2.6.	90 of 420	The full scope of recorded Onboard ATP, RBC and ATO events shall be approved by the Engineer. The events recording shall take place at all times in any part of the track except when in stand- by/sleep mode and shall include the following functions at a minimum: 5. Propulsion and brake demands 10. Driving control panels commands	Kindly confirm if only the data received from TCMS for ATP and ATO operations must be recorded as part of item number 5 and 10 of this requirement.	Please refer Addendum & Corrigendum-02B
486	2	6B	5.39.2.6.	90 of 421	The full scope of recorded Onboard ATP, RBC and ATO events shall be approved by the Engineer. The events recording shall take place at all times in any part of the track except when in stand- by/sleep mode and shall include the following functions at a minimum: 4. Location	ETCS can record the location data with reference to balise group. Kindly confirm if is alright for NCRTC.	Please refer Addendum & Corrigendum-02B
487	2	6B	5.40.2.4.	91 of 420	The maximum speed of operation within depot shall be fixed by onboard ATC and shall be finalized during design.	Kindly confirm that this requirement is applicable only in depot area where there is no ETCS L1 trackside system	Please Follow bid conditions
488	2	6B	5.40.2.7.	91 of 420	The stopping accuracy on the stabling lines shall be in the range of ± 1m.	In depot there is no ATO operation expected. So, the driver shall ensure that the train is stopped accurately. Kindly confirm.	Please refer Addendum & Corrigendum-02B
489	2	6B	6.4.3.4.	97 of 420	Development process of TMS and ATO systems shall be designed, manufactured and validated to Safety Integrity Level 2 as defined in the CENELEC standard EN50126, EN50128 and EN50129. All potentially unsafe effects of safety-related functions performed by TMS and ATO shall be mitigated by mandatory interaction with SIL4 subsystems (ATP and CBI).	ATO is normally a SIL0 system as all the oprations of ATO and the train movement are protected by ATP\ETCS system which is complaint to SIL4. So, kindly clarify if we can consider ATO as SIL0.	Please refer Addendum & Corrigendum-02B
490	2	6B	3.2.4	340 of 420	When a train is operating in Degraded mode, the speed shall be limited to 25/40 km/h. The on-board ATP equipment shall enforce this limit.	ETCS trackside subsystem can enforce the speed limits when using degraded operation such as onsight is used. Kindly rephrase the requirement to implement such functions as applicable.	Please refer Addendum & Corrigendum-02B
491	2	6B	3.4	340 of 422	If the Train stops within safety conditions for door opening i.e. door opening authorisation window, the Signalling & Train Control system will provide the door enable signal to the train operator to open the doors manually on the correct side of the platform. If the train does not stop within door opening authorisation window, the Train Control and signalling system shall not provide the door enable signal to the train operator. If the train is not berthed properly and it is desired to open the train doors, then a special door control signal must be sent to the door operating apparatus. The door controls will be supplied and installed by the Rolling Stock manufacturer. Specific criteria for accuracy of stopping and for door control are given in the Technical Specification.	This requirement says that door opening is manual. However, the requirement in Appendix O, 3.5.3 in Page 385 of 420 specifies that the door opeing must be automatic. Kindly claify which one must be followed.	Please refer Addendum & Corrigendum-02B
492	2	6B	3.6	341 of 420	Trains consist will be of 3-car for MRTS and 6-car/9-car for RRTS type. The Train Control system should be designed for all 3-car, 6-car and 9-car train sets as NCRTC may operate mix of 3-car, 6-car and 9-car trains.	Kindly confirm if 9-car train must be considered in scope of this project.	Please Follow bid conditions
493	2	6B	8.4	344 of 420	Cab signals shall be provided for the train operator's use in determining the current speed, the target speed, the distance to go to the target location, and the Limit of Movement Authority. Any change in allowable speed shall produce an audible indication. If the train is travelling above the allowable speed, the audible indication will need to be acknowledged by the train operator. The ATP system shall give the train operator 2 seconds (which can be programmable) to begin to reduce the speed of the train to the allowable speed.	If driver must acknowledge the overspeed by pressing a button, it will create a delay for driver to initiate the SB command. So, we must avoid any other action for driver other than applying SB when overspeed indication is on the DMI and Loudspeaker. We adapt the same procedure in all ETCS projects as per UNISIG requirements. Kindly rephrase the requirement suitably.	Please Follow bid conditions
494	2	6B	11.3.2	349 of 420	The ETCS onboard system shall possess a self testing capacity. As a minimum, the tests shall include propulsion, brake, train presence detection quality, and door operation, train to track transmission, and other vital devices depending on rolling stock design as well as safety tests specific to the ETCS system.	Self test of ETCS onboard system is limited to EVC. It is not possible for EVC to test equipment of other systems. For example, doors, propulsion, brakes, train integrity are managed by TCMS with its own equipment and sensors. So, TCMS \ RS must peform self test of these components. Kindly rephrase the requirement.	Please Follow bid conditions
495	2	6B	6.4.1	392 of 420	Locked axle detection should be provided.	Locked axle detection is part of Wheel Slip and Slide Protection system which is part of Rolling Stock. ETCS on-board can use Radar and Accelerometer to correct wheel sensor errors in case of wheel slip and slide. Kindly confirm if this function is as expected by NCRTC.	Please Follow bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
496	2	6B	7.1	392 of 420	No single failure of any component/ board/ module in the Trackside ATP and Onboard ATP/ ATO subsystem shall cause complete failure of the respective subsystem.	Some of the modules \ boards in the system are having in-built hardware redundancy by accomadating identical set of hardware in the same module \ board. Kindly amend the requirement to have such redundancy as well.	Please Follow bid conditions
497	2	6B	11.3.2	349 of 420	The ETCS onboard system shall possess a self testing capacity. As a minimum, the tests shall include propulsion, brake, train presence detection quality, and door operation, train to track transmission, and other vital devices depending on rolling stock design as well as safety tests specific to the ETCS system.	ETCS on-board sub-system can do self test on its own components such as EVC. However, it can not perform self tests on equipment which are part of Rolling Stock \ TCMS. Kindly rephrase the requirement.	Please Follow bid conditions
498	2	6B	3.7 (xxvii)	387 of 420	The ATP shall detect parting of train and establish appropriate limits of authority to prevent other trains from infringing.	It is a function in moving block system. In the fixed block system, train detection is achieved by Axle Counters \ Track circuits. So, please remove this requirement.	Please Follow bid conditions
499	2	6B	3.11.2.2.	390 of 420	At low speed, a trip function overrides the warning process and the FSB is triggered as soon as the train has overrun the SSP.	ERTMS trip function is applying emergency braking. So, kindly remove this requirement to complaint with UNISIG.	Please Follow bid conditions
500	2	6B		269 of 420	10. S&T, PSD Vs Rolling Stock/21. Driver Identification reader	Please confirm whether S&T contractor need to supply Driver Identification card 2 per Train (one in each Driving cab) or more .. Kindly confirm	Please refer financial bid
501	2	6B	5.1.6.3	37 of 420		Please confirm whether S&T contractor need to supply Onboard Digital Counter 2 per Train (one in each Driving cab) or more .. Kindly confirm	Please Follow bid conditions
502	2	6B		266 of 420	10. S&T, PSD Vs Rolling Stock Signalling Scope: Furnish required voltage values and earthing requirements to Rolling Stock Contractor for respective scope. Rollingstock Scope: To provide the required voltages and earthing. Vehicle control circuit interfacing with signalling shall have a separate, redundant power supply arrangement .	Please confirm whether RS contractor will provide 24V DC and 110V DC power supply to all ETCS and ATO on-board equipment as per its power requirements. Also, please clarify whether RS contractor will provide earthing cables and related accessories for all ETCS and ATO on-board equipment.	Please Follow bid conditions
503	2	6B	11.6.2 and (E)	135 of 420	Information that can provide an early warning of pending failures including, for example, out-of-tolerance conditions and any degradation in ETCS message delivery reliability.	Please provide in detail about the expected early warning of pending failures?	Please Follow bid conditions
504	2	6B	11.7	136 of 420	Predictive maintenance tool: Predictive maintenance tool shall be provided at all Interlocking stations and at remote locations, to detect anomalous behaviour of field gears before the complete failure of field devices.	Please confirm the list of field gears to have predictive maintenance feature? Only point machine or other filed gears like Signals?	Please refer Addendum & Corrigendum-02B
505	2	6B	5.20 & 5.21.2	69 of 420	5.20/ 5.21.2 and logging of all alarms and events. Diagnostic and Maintenance shall provide the user the procedures for searching and locating defects.	Bidder request customer confirm required log storage days .	Please refer Addendum & Corrigendum-02B
506	2	6B	5.24 & 5.24.1	70 of 420	The Video Surveillance System will enable the remote monitoring of Train Saloon and coaches. The OCC will collect images from peripheral video cameras in train. Please refere clause 5.41.	Clause referred in requirement 5.4.1 is not linked with Video surveillance system. please check and update?	Please refer Addendum & Corrigendum-02B
507	2	6B	10.6.7.1.5.	126 of 420	All Cables shall have 20% or 2 cores, whichever is the greater, as spares after completion of the Works	Please confirm if spare cores need to be considered only for main signalling and Outdoor cables?	Please Follow bid conditions
508	2	6B	19	317 to 420	S&T VS. EMPLOYER'S ENTERPRISE-WIDE ASSET MANAGEMENT SYSTEM CONTRACTOR/ (v) Maintenance schedules and formats (vi) Maintenance Work order/Job card details	Maintenance Management System interfaces with AMS for Alarm /Event . Please clarify requirement on Maintenance Schedule & Work order.	Please Follow bid conditions
509	2	6B	5.21.3 & 2.	69 of 420	remote control of local equipment in safe manner for fault reset	Remote Control' is read as 'Remote Monitoring' of local equipment in safe way for fault reset.Please confirm	Please Follow bid conditions
510	2	6B	4.13.1	31 of 420	The contractor is required to conduct full EMC tests and the tests to be conducted shall include but not limited to satisfying standards as follows: Overall Compliance: EN50121-1 EN50121-2 EN50121-4	EN50121-2 : Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency (cartography). Considering this explanation, S&TC alone will not be sufficient to comply to EN50121-2. Relevent S&TC equipment be compliant to EN 50121-3-2 and EN 50121-4. So request you to confirm is it ok that S&TC equipment compliant to EN 50121-3-2 and EN 50121-4	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
511	2	6B	4.13.2.	31 of 420	Specific Standards: (1) Electrostatic Discharge IEC 61000-4-2 (2) Radio Frequency field IEC 61000-4-3 (3) Electrical fast transient/burst IEC 61000-4-4. (4) Surge IEC 61000-4-5 (5) Conducted RF IEC 61000-4-6 (6) Power Frequency magnetic field IEC 61000-4-8 (7) Pulse magnetic field IEC 61000-4-9 (8) Damped oscillatory magnetic field IEC 61000-4-10 (9) Voltage dips, short interruptions IEC 61000-4-11 (10) Oscillatory waves IEC 61000-2-12 (11) Harmonics and Inter Harmonics IEC 61000-4-13 (12) Voltage fluctuation IEC 61000-4-14 (13) Conducted disturbance IEC 61000-4-16 (14) Ripple of DC power supply IEC 61000-4-17 (15) Variation of power frequency IEC 61000-4-28 (16) Digital Radio phone IEC (Latest draft)	Request your confirmation if below specific standards referred in EN 50121-3-2 and EN 50121-4 can be compliant and standards which are not covered under EN 50121-3-2 and EN 50121-4 can be removed as detailed below. (1) Electrostatic Discharge IEC 61000-4-2 - Covered in EN 50121-3-2 and EN 50121-4 So this can be complied (2) Radio Frequency field IEC 61000-4-3 - Covered in EN 50121-3-2 and EN 50121-4 So this can be complied (3) Electrical fast transient/burst IEC 61000-4-4.- Covered in EN 50121-3-2 and EN 50121-4 So this can be complied (4) Surge IEC 61000-4-5 - Covered in EN 50121-3-2 and EN 50121-4 So this can be complied (5) Conducted RF IEC 61000-4-6 - Covered in EN 50121-3-2 and EN 50121-4 So this can be complied (6) Power Frequency magnetic field IEC 61000-4-8 - Covered in EN EN 50121-4 So this can be complied for IXL trackside equipment. (7) Pulse magnetic field IEC 61000-4-9 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with resoect to EMC, request to update. (8) Damped oscillatory magnetic field IEC 61000-4-10 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (9) Voltage dips, short interruptions IEC 61000-4-11 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (10) Oscillatory waves IEC 61000-2-12 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (11) Harmonics and Inter Harmonics IEC 61000-4-13 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (12) Voltage fluctuation IEC 61000-4-14 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (13) Conducted disturbance IEC 61000-4-16 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (14) Ripple of DC power supply IEC 61000-4-17 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update. (15) Variation of power frequency IEC 61000-4-28 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.	Please refer Addendum & Corrigendum-02B
512	2	6B	4.13.2.1.	31 of 420	The following specific EMC requirements shall be met by the design of the S&TC System: 1)Radiated emissions As a minimum requirement, the maximum levels of radiated electro-magnetic interference (EMI) of the installation shall not exceed the levels specified in EN50081-2; 2) Conducted EMI The maximum levels of conducted EMI of the installation shall not exceed the levels specified in EN50081-2; and	EN 50081-2 is superseded by EN 61000-6-4. So can be complaint to EN 61000-6-4. Is it possible to change the standard?	Please refer Addendum & Corrigendum-02B
513	2	6B	4.13.5.	32 of 420	2) As a minimum requirement, the equipment must be immune to a field strength of 20V/m in the frequency range of 27 to 2000 MHz.	Please confirm if it is fine that Immunity requirements is met according to frequency and levels as per EN 50121-3-2 and EN 50121-4 standards for relevant signalling equipment as mentioned below. 80 MHz to 800 MHz --> 20 V/m rms(On Board) -- EN 50121-3-2 80 MHz to 800 MHz --> 10 V/m rms (Trackside) -- EN 50121-4 800 MHz to 1 000 MHz --> 20V/m rms (Onboard and Trackside) 1 400 MHz to 2 000 MHz --> 10 V/m rms (Onboard and Trackside) 2 000 MHz to 2 700 MHz --> 5V/m rms (Onboard and Trackside) 5 100 MHz to 6 000 MHz --> 3 V/m (rms) (Onboard and Trackside)	Please refer Addendum & Corrigendum-02B
514	2	6B	4.13.6.	32 of 420	Conducted Immunity Levels The equipment supplied shall continue to operate correctly with no degradation in performance, when subject to the levels of conducted interference set out in the European Standard EN50082-2 in the frequency range of 150 kHz to 30 MHz	EN50082-2 is superseded by EN 61000-6-2. So can be complaint to EN 61000-6-2. Is it possible to change the standard?	Please refer Addendum & Corrigendum-02B
515	2	6B	4.15.1.	33 of 420	The contractor shall ensure that all the Train control & Signalling equipment are designed and constructed in accordance with the latest issues or versions of internationally recognised EMC standards, including but not limited to EN50081, EN50082, EN50121, EN50123, IEC571, EN50155, IEC 61000 to ensure proper functioning.	Is it acceptable if relevant S&TC equipment can be compliant to 2016 version of the EN 50121-3-2 and EN 50121-4 for EMC compliance?	Please Follow bid conditions
516	2	6B	4.17.1.	34 of 420	(11) Use of high-level modulation technique to improve the immunity of the system. (12) Use of redundancy codes/check sum, etc. to improve the immunity of the system. (13) Use of parallel-check technique to improve the immunity of the signalling system.	Not in signalling EMC scope. It is possible to remove it from the scope of EMC requirements?	Please Follow bid conditions
517	2	6B	4.18.	34 of 420	Environmental EMC (2) Effect of emission on explosive or volatile / flammable material must be considered. BS6656 (Prevention of inadvertent ignition of flammable atmospheres by radio frequency radiation) and other related standards must be adhered to.	Not in signalling EMC scope. It is possible to remove it from the scope of EMC requirements?	Please Follow bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
518	2	6B	12.1.1	113	The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Employer's Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer.	We understand that the maintenance plan defined is for the DLP period. Kindly confirm	Please follow bid conditions
519	2	6B	5.3.8.4.	42	Each CBI shall be provided with VDU workstations which will be provided at the SCRs of stations with points and crossing. These VDUs shall be used as a backup in case of failure of TMS.	We understand that Dual VDUs to be provided at each station's control room, Kindly confirm	Please follow bid conditions
520	2	6B	11.8.4	137	This shall also include planning and supervision of ongoing training and retraining as required in the correct procedures using the training materials and courses supplied under the Contract. Where the supplied training courses are insufficient the Contractor shall develop additional training courses, manuals and materials to make good the deficiency as part of his Defects Liability responsibilities. The Contractor shall provide supervisory maintenance staff who are experts in the first, Second and third line fault finding, maintenance and repair of the various systems supplied under the Contract covering at least the following: (1) 5 Man Months for Onboard ATP (2) 5 Man Months for Wayside ATP (3) 5 Man Months for IXL(Indoor and Outdoor) (4) 5 Man Months for LTE (5) 5 Man Months for TMS .The experts provided for supervision of maintenance shall have adequate qualifications and experience in the relevant discipline in the maintenance depots / workshops of existing metro type undertakings. Further employer shall approve CV of expert provided for supervision of maintenance, without the approval of CV by employer, there shall be no deployment of experts for SOM.	It is understood that the number of months specified for each sub-system for maintenance is within the Defect Liability Period of three years.Kindly confirm	Please follow bid conditions
521	2	6B	No 2.2.2.	19	D-G-M corridor consists of approx. 82 km elevated/ at grade/ Underground section from Sarai Kale Khan to Modipuram (Refer track plan). There are 25 stations (including Stabling lines at Jangpura connected to SKK) on this line and two depots at Duhai and Modipuram.	25 stations and 2 depots is Noted on the clause 2.2.2 but the track plan is given for only 22 stations and 2 depots (remaining 2 stations details required)	Please refer Addendum & Corrigendum-02B
522	2	6B			General Query :Inspection of CBI Cards	Who is the Inspection authority of CBI Cards ? and materials will be RDSO or Consignee	Please follow bid conditions
523	2	6B			General Query :Approval of Documents	Approval of SIP , RCC ,FPD for all CBI will be NCRTC or Employer's Engineer	Please follow bid conditions
524	2	6B		48	The interlocking capacity in Depot shall have capacity of atl east 150% of present stabling lines.	Interlocking capacity is understood as main processor capacity. Please clarify	Please follow bid conditions
525	2	6B	4.13.3	48	The Contractor shall ensure that the effect of induced voltage is taken into account while designing the location and number of CBI/ Object controller units on the line. Wherever the induced voltage is likely to be more than as defined in Clause 4.13.3, object controllers or separate interlocking unit at stations should be provided to cover the entire Line. In any case, stations with points and crossings must have object controllers.	Need more clarity. As clause 4.13.3 speaks only about the earthing value leakage not on the induced voltage.	Please follow bid conditions
526	2	6B	Appendix D	348	Point 4 of Appendix D, Signals shall be located on all tracks as defined in the PS. Signal control circuits shall prevent conflicting train movements within the local interlocking plant and between adjacent track interlocking units.	Location of signals is not defined. Need more clarifications	Please refer Addendum & Corrigendum-02B
527	2	6B	appendix N,	379	5.1.2 appendix N, Cycle time and response time to read and process the input shall be fast enough to ensure safety and avoid any apparent delay. Cycle time and response time of the system shall be clearly indicated.	Specific measurement is required for cycle time and response time	Please follow bid conditions
528	2	6B			Drawings	Only Sarai kale khan to Modipuram RRTS corridor Track Plan is available in provided document. Please provide remaining sectio drawings	Please refer Addendum & Corrigendum-02B
529	2	6B	5.3.7.2.	420		A minimum two block sections shall be defined through axle counters between two consecutive RRTS stations. – **Need clarification on how to from 2 block section between 2 consecutive stations.**	Please refer Addendum & Corrigendum-02B
530	2	6B	APPENDIX B	334		As mentioned on Page 334, **APPENDIX B:** SCHEDULE OF EMPLOYER'S DRAWINGS The following Reference Drgs are required. 1. Typical Station Layouts 2. Typical Depot layouts 3. Typical System Architecture. (IXL & ATC) However, these drgs are not included in Tender Documents.	Please follow Bid Conditions
531	2	6B	5.3.1.3.	38	The speed measurement apparatus shall be provided by the Signalling Contractor in accordance with the Interface Specification for Rolling Stock in Appendix A (refer to Appendix A)	The train/RS shall have WSP protection available as per UIC 541.Please clarify	Please refer Addendum & Corrigendum-02B
532	2	6B	5.4.5.	44	Temporary speed restrictions shall be capable of being imposed over any track segment which shall not be more than 250m.	Please clarify if the max. length of a TSR can be 250m. Or is the minimum length of the TSR section.	Please follow bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
533	2	6B	5.12.7.	49	The functionality of Virtual Balise Cover shall be provided.	Please clarify the meaning of Virtual Balise cover and the desired functionality.	Please refer ETCS specification SRS 3.6.0 Baseline 3 release 2
534	2	6B	8.1.6.	103	The Employer' Engineer may conduct independent safety audit and shall therefore require access to all the relevant design and product information. The contractor shall provide all necessary assistance for this to the Employer's Engineer. The contractor shall provide all documents including Safety cases, Hazard Analysis, Operational safety cases etc.	Access to Project documents can be shared, however the proprietary documents cannot be shared	Please follow Bid Conditions
535	2	6B	Appendix O 3.2.1.	383	The ATC Function shall be responsible for implementing train movements in accordance with the requirements established by the TMS Function, within the constraints established by the Interlocking Function. ATC system based on ETCS Level 1 and Level 2 shall comply SRS 3.6.0 Baseline 3 Release 2+ CR 940 or latest issued.	Adherence to a particular version SRS 3.6.0 Baseline 3 Release 2 only can be provided. Compliance cannot be provided to unknown future version or "latest". Check with HQ also.	Please follow Bid Conditions
536	2	6B	Appendix O 7.6	394	The The train to wayside radio communication network architecture should use radio based communication system. Failure of single network element viz Radio access point, switch, media converter etc shall not cause any deterioration in ETCS working. The contractor shall liaise with Government of India, Ministry of Communications and Information Technology, Wireless Planning and Coordination Wing for obtaining all necessary approval of wireless equipment in the proposed frequency band.	We request NCRTC/Employer to take up the liasioning activities with Government/regulatory authorities, since the contractor is not having a direct contract with these agencies.	Please follow Bid Conditions
537	2	6B	Appendix O 9.2.1	394	Ambient temperature: The equipment shall be designed and manufactured for working in the ambient temperature range as specified in Range –1, operation as defined in table 6.1.1 for train, table 6.1.2 for track and trackside of A200 FRSenv.02 version 00.03. The Indoor system shall be designed and manufactured for working in a non air-conditioned environment and ambient temperature range between -10°C to - 70°C.	Please confirm the temperature range is -10 to -70 Or -10 to +70 degree C.	Please refer Addendum & Corrigendum-01B
538	2	6B	Appendix A	265	10. S&T, PSD Vs Rolling Stock The speed measuring sensor and odometer for non-signalling mode will be provided by Rolling Stock Contractor.	Please clarify , if speed measuring sensors and odometer for signalling mode(ETCS) should be provided by S&T Contractor.	Please refer Addendum & Corrigendum-02B
539	2	6B	Appendix A	270	24. Graphical User Interface (GUI) for RS controller in the OCC/BCC. Signalling contractor shall be responsible for providing RS workstation and display of required information.	RS shall share the requirement details to S&T contractor for freezing the infrastructure and costing. No separate work station is elaborated/provided in the OCC/BCC requirement, hence this information will be displayed on the available work stations.	Please follow Bid conditions
540	2	6B	Appendix A	271	10. S&T, PSD Vs Rolling Stock 27.Platform Screen Doors Signalling and PSD Contractor shall exchange the defective/isolated train door and PSD	Interface requirement shall be shared by PSD Contractor to freeze the design.	Please follow Bid conditions
541	2	6B	Appendix R		Clause 1.3 , 8 Maintenace vehicles door information with RS Contractor.	Please confirm whether these Maintenance vehicles are also EMU type. And also please confirm whether we need to provide OBU at either ends of maintenance vehicles	Please refer Addendum & Corrigendum-02B
542	2	6B	2.6.4.	16	Seamless movement of trains with all functionalities (ATO/ATP/TMS/PSD operation etc) fitted with this contractor's Onboard equipment into future corridors fitted with Trackside equipment of other vendors and vice-versa.	There is no standard established for ATO systems over ETCS L2 and no standard for PSD. This implies that future corridors have to be equipped with a system compatible with the one offered for this project, but not the other way around. Please be so kind as to modify the requirement acordingly.	Please follow Bid Conditions
543	2	6B	5.1.7.	37	Call-On and Push-Out	Please clarify what these two operating modes are.	Please follow Bid Conditions
544	2	6B	5.3.5.5.	40	Platform Screen Doors	We would like to bring your attention to the fact that PSD integration is a very difficult process, and that it would be better and cheaper to include the PSD supply also in the project. As there is no existing international standard for the PSD interface, the integration process of real elements will most probably bring lots of extra costs and delays, as the integration with simulated elements will never reflect the real life integration.	Please follow Bid Conditions
545	2	6B	5.3.6.6.	41	The Contractor shall provide point machine and all mechanical rail connections except those fittings explicitly stated in the interface specifications to be under the responsibility of track contractor. Supplementary drives and detection shall be provided as required by the length of the point.	Could you please inform us about the turnout types considered on the line ? How many point machines per turnout are required for these considered turnouts ? What are the passing speeds for these turnout ? Would you be so kind as to update the track layouts with the considered turnout types for our evaluation ?	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
546	2	6B	3.2.2.1 (15)	19	The Signalling contractor shall attend the installation in the RS factory for both the protoypes of MRTS & RRTS trains.	Please clarify the vehicle configurations. The RS tender notes: 3 Car Train formation (MRTS): *DEC-NDEC-DEC* 6 Car Train formation (RRTS): *DBC-NDEC-NDEC=NDEC-NDEC-DEC* What will a 9 car RRTS configuration look like? Could you please confirm that additional cars will sit in the middle of the current RRTS configuration (no additional cab cars)?	Please refer Addendum & Corrigendum-02B
547	2	6B	3.2.2.1 (15)	19	The Signalling contractor shall attend the installation in the RS factory for both the protoypes of MRTS & RRTS trains.	Please clarify the vehicle configurations. The RS tender notes: 3 Car Train formation (MRTS): *DEC-NDEC-DEC* 6 Car Train formation (RRTS): *DBC-NDEC-NDEC=NDEC-NDEC-DEC* Please also confirm that in normal operation there will be no coupling of RRTS to RRTS trains or RRTS to MRTS trains?	Please refer Addendum & Corrigendum-02B
548	2	6B	3.2.2.1 (15)	19	The Signalling contractor shall attend the installation in the RS factory for both the protoypes of MRTS & RRTS trains.	Please clarify the vehicle configurations. The RS tender notes: 3 Car Train formation (MRTS): *DEC-NDEC-DEC* 6 Car Train formation (RRTS): *DBC-NDEC-NDEC=NDEC-NDEC-DEC* How often will the RRTS trains be split into 3 cars? Will they often be mixed with a 3 car set from another RRTS train?	Please refer Addendum & Corrigendum-02B
549	2	6B	5.3.2.3	39	Station stopping Monitoring and Supervision The ATC system should provide advisory indications on the Driver's MMI to help the train operator to stop correctly the train in station. If necessary, the ATC triggers the Full-Service Brake (FSB) in case the train operator has not correctly followed these indications.	This requirement is relevant for the ATO or a driver advisory system rather than the ETCS system.	Please refer Addendum & Corrigendum-02B
550	2	6B	4.9.3.4	29	A stopped train shall not be permitted to move automatically until all doors of the train are properly closed and locked.	The TCMS and Door Systems are required (according to the Rollingstock Tender - Section 8 Employer's Requirement 20.2.1+20.2.3.3) to ensure that the vehicle cannot apply tractive effort when the saloon or cab doors are open. As this interlocking is to be covered by the SIL 2 TCMS and Door systems of the rollingstock manufacturer it should not be necessary to also be monitored by the onboard signalling or ATO systems.	Please follow Bid Conditions
551	2	6B	5.7.2.6	46	Provision shall be made for the train operator to prevent door opening in ATO Mode.	As door control is handled by the vehicle's TCMS and Door Systems, it is recommended that this be a RS Manufacturer requirement, rather than an ATO requirement (i.e. 'Doors locked' feature in the TCMS that inhibits the ATO operation of the passenger doors). Nevertheless, the door opening strategy can be edited by the TMS and secondly the driver could disengage ATO mode to prevent automatic door opening.	Please follow Bid Conditions
552	2	6B	5.7.3.1	46	In ATP & ATO Mode only, the train shall be prevented from departing unless all cab doors are closed.	The TCMS and Door Systems are required (according to the Rollingstock Tender - Section 8 Employer's Requirement 20.2.1+20.2.3.3) to ensure that the vehicle cannot apply tractive effort when the saloon or cab doors are open. As this interlocking is to be covered by the SIL 2 TCMS and Door systems of the rollingstock manufacturer it should not be necessary to also be monitored by the onboard signalling or ATO systems.	Please follow Bid Conditions
553	2	6B	5.8.3.2	46	All cars shall be provided with redundant independent ATO and ATP equipment. The redundancy requirement shall be as per clause 7 of Appendix O of this PS. Failure of one set of redundant equipment shall be indicated to the train operator.	Recommend the customer focuses on the MTBF figures rather than requiring full redundancy backup to the OBU in the non-leading cab.	Please follow Bid Conditions
554	2	6B	Appendix O - 7.4	393	On board ATP/ ATO equipment (1) Two out of three hardware architecture with identical hardware and identical or diverse software Or (2) Two out of two hardware with identical or diverse hardware and common or diverse software or Single Electronic Structure based on reactive fail safety with diverse software. Redundancy shall be provided so that failure of one onboard ATP/ ATO equipment does not prevent the train from being operated in ATP/ ATO mode. The changeover in the event of failure of one unit shall be automatic, without train operator's intervention, with an indication in the cab. (3) Regardless of the On board architecture, underframe ATC equipment and roof mounted S&T equipment shall be in hardware redundant configuration for both direction of movement.	Regarding Onboard ATP: Recommend the customer focuses on the MTBF figures rather than requiring full redundancy backup to a OBU in the non-leading cab. Redundant OBU in non-leading cab would significantly increase costs. Regarding ATO-OB: Such a requirement for full redundancy is not required for a GoA 2 system (common for GoA 4) as in fallback operation the driver is still present to takeover vehicle operaiton without service interruption (no braking etc.). Please note that this is not required in the current ATO Subsets.	Please follow Bid Conditions
555	2	6B	Appendix A - 10.22	269	For trains in Depots–– S&T Contractor shall provide wi-fi coverage for TCMS and Automated wayside wheel profile measurement. S&T contractor shall provide a link between TCMS and TCMS server in depot. On identified terminal stations (like SKK, Duhai, Modipuram), the limited data download facility shall be provided.	Not within the scope of the signalling contractor. Non-vital train to wayside data can be handled by an interface directly between the TCMS and Telecommunication system.	Please refer Addendum & Corrigendum-02B
556	2	6B	Appendix A - 10.28	272	Signalling contractor shall share the information of load of each train car with Telecom contractor and Telecommunication contractor shall display the load of each train car of at least two consecutive approaching trains.	Not within the scope of the signalling contractor. Non-vital train to wayside data can be handled by an interface directly between the TCMS and Telecommunication system.	Please follow Bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
557	2	6B	Appendix A - 10.29	272	Signalling Contractor shall provide suitable arrangement for live video streaming transmitted from the train to the OCC/BCC via signalling network and its display at CCTV workstation. For CCTV the S&T contractors will provide server in the OCC/BCC. These servers will be networked by the S&T contractor. The buffering arrangement in OCC/BCC via CCTV server shall be responsibility of S&T contractor. Signalling contractor shall interface for control and data transfer of CCTV images from the train to OCC/SCR on the CCTV/ATS terminal and Display System. The Levels and protocols shall be agreed between the two contractors.	Not within the scope of the signalling contractor. Non-vital train to wayside data can be handled by an interface directly between the TCMS and Telecommunication system.	Please follow Bid Conditions
558	2	6B	6.4.3.4	97	Development process of TMS and ATO systems shall be designed, manufactured and validated to Safety Integrity Level 2 as defined in the CENELEC standard EN50126, EN50128 and EN50129. All potentially unsafe effects of safety-related functions performed by TMS and ATO shall be mitigated by mandatory interaction with SIL4 subsystems (ATP and CBI).	As per Subset 125 the ATO system is a non-SIL system. As the intended implementation is with ATO over ETCS (AoE), the ETCS as a SIL4 system has the responsibility for ensuring operational safety.	Please refer Addendum & Corrigendum-02B
559	2	6B	10.4	124	The ATO system shall accept coasting commands from the TMS system. The ATO system shall operate the train within the parameters set by the ETCS Onboard system. As a train approaches a station, the ATO system shall reduce speed and control the stop to within +/- 300mm. When the train is properly berthed, the ATO system shall initiate a command to open the train doors.	In ATO over ETCS (AoE) Coasting is calculated within the ATO-OB system based on Timetable/Journey Profile information from ATO-TS (or ATS)	Please follow Bid Conditions
560	2	6B	Appendix A - 10.46	287	All the ETCS modes (as applicable) including ATO over ETCS (AoE) GoA2 & Automatic Turn Back (ATB)	If Automatic Turn Back is a feature that is still required, please provide further information. Please detail the operational scenarios for Automatic Turn Back. For example; using GoA 2 the ATO drives to the stabling track, the driver disables the active cab and activates the previously non-leading cab, then the ATO would be ready to drive automatically back to the first passenger station. Where does the customer expect the Automatic Turn Back? Please name the stations or depots.	Please refer Addendum & Corrigendum-02B
561	2	6B	4.9.2.1	28	ATO mode shall stop within ± 300 mm for 99.98% of station stops	Please note that this requirement goes beyond both of the harmonised ETCS or ATO standards (e.g. SS.026/SS.125). Bidder can provide this level of stopping accuracy, however, please note that the RS manufacturer will need to ensure certain features to meet this level of accuracy/consistency.	Please follow Bid Conditions
562	2	6B	4.9.3.1	29	If the Train stops within safety conditions for door opening authorisation (generally, -0.7m, +1m from the train stopping position), the train control & signalling system will provide the door enable signal to the train operator to open the doors manually on the correct side of the platform. If the train does not stop within the door opening authorisation window defined above, the Train Control and signalling system shall not provide the door enable signal to the train operator to open the doors manually on the correct side of the platform.	Please note that the ETCS is not able to manage such a stopping accuracy (-0.7m/+1m). The high stopping accuracy requirement falls within either the ATO or PSD requirements already. The ETCS can ensure that the vehicle stops within the length of the platform, as well as provide a safe output for the correct side of the vehicle that the platform is on. Both the platform area and correct platform side are the key safety critical elements. Improved stopping accuracy to ensure correct platform screen door operation could be provided by the Driver Advisory System when the ATO is not active.	Please follow Bid Conditions
563	2	6B	2.6.4	16	Seamless movement of trains with all functionalities (ATO/ATP/TMS/PSD operation etc) fitted with this contractor's Onboard equipment into future corridors fitted with Trackside equipment of other vendors and vice-versa.	As the ATO standards are not yet harmonised, project specific parameters/requirements may be required to ensure interoperability with future corridors of other suppliers. The customer should instead ensure that any future supplier shall provide a system that complies with the features/requirements of the system delivered for the first project phase.	Please follow Bid Conditions
564	2	6B	Appendix V	418 of 6B & 305 of 6C	: Key & Access dates Schedule of key dates Appendix B: Key & Access dates of Section 6C	For Signaling 6B, Access dates AD1 and AD2 for Modairpuram Depot is given as 05-07-2022 and 05- 07-2022, seems this is typo, can you please confirm. There seems a lot inconsistency in the access dates given in Signaling and Telecom packages. Kindly suggest which one to follow.	Please refer Addendum & Corrigendum-02B
565	2	6A	13.3.6	8	General Specification Chapter 13, supply of spare part .., Clause 13.3.6	Spares calculation formula is not clear, "c & o" are not defined. Please clarify.	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
566	2	6B	5.3.7.2.	47	Clause no - 5.3.7.2. (DM/ST/COR-OF/100 Package 24 - Part 2,)+B67	Please clarify which of the two below philosophy are to be followed for communication media between 2 consecutive RRTS stations. 1) If we consider only fiber optic between 2 consecutive RRTS stations, then additional hut has to be considered for placement of Axle counter. 2) If we consider quad cable between 2 consecutive RRTS stations, then there is no requirement of additional hut for placement of Axle counter.	To be finalised during design stage.
567	2	6B	5.4.5.	49	Temporary speed restrictions shall be capable of being imposed over any track segment which shall not be more than 250m.	TSR section is not more than 250 m means track length is not more than 250m, Please clarify	Please follow Bid conditions
568	2	6B	**5.19**	58/59	(13) Axle Counter management (15) PTI management (23) Delay distribution management	The functional requirements of the mentioned functionalities have not been provided in the tender. Please provide minimum functional requirements of the following functionalities as specified under TMS functions: (13) Axle Counter management (15) PTI management (23) Delay distribution management	Please refer Addendum & Corrigendum-02B
569	2	6B	**5.34.5.1**	84	TMS shall be able to communicate some data outside the Control Centre providing interaction with Hand Held Terminal and adapting its interface to the need of a device usable outside and with adverse weather condition also. Its details design regarding its scope and application shall be	Please provide minimum functional requirements of the Hand Held Terminal to help us estimate the efforts and design accurately	Please follow Bid Conditions
570	2	6B	4.3.6	25	Complete RBC or EPC failure, during OLP period shall call for imposition of penalty on the Signalling Contractor.	Please elaborate on EPC and RBC Failure and its conditions.	Please follow Bid Conditions
571	2	6B	4.3.8	25	Onboard equipment (ETCS and LTE) failure (service affecting failure), during OLP period for more than one axle counter section shall call for imposition of penalty on the Signalling Contractor.	Equipment failure can happen due to not only product malfunction, but also operational issues like power availability, poor maintenance, environmental factors, force majeure, etc. Contractor would not be penalized for faults due to operational issues including, and not limited to, those mentioned I above. Please confirm.	Please follow Bid Conditions
572	2	6B	4.4.2.4	25	The MTTR time measurement shall include on site diagnostics and rectification of the failure (including software re-boot) up to the point that the System is restored to full functionality. In the event that the failure cannot be rectified, this time measurement shall include the time necessary to remove the failed piece of equipment from the System and replace it with a functioning one.	Please confirm that Employer would provide remote connectivity to Contractor to enable provision of best-in-class maintenance service. Remote access is critical in handling emergency cases.	Please follow bid conditions
573	2	6B		292	9.4 List of Interface sheets for S&**T,** Clause 11 S&**T** Vs OPE	Kindly clarify scope of S&**T** Contractor under statement "S&T contractor is in charge of Signalling and Telecom and Telecom	Please refer Addendum & Corrigendum-02B
574	2	6B		292	9.4 List of Interface sheets for S&**T,** Clause 11 S&**T** Vs OPE	Kindly clarify "S&T contractor is in charge of Signalling and Telecom maintenance" the Key dates for which this agreement will be in place.	Please refer Addendum & Corrigendum-02B
575	2	6B		292	9.4 List of Interface sheets for S&**T,** Clause 11 S&**T** Vs OPE	Kindly clarify the statement "The Employer, S&T contractor and Operator will enter into an agreement for the provision of services for S&T Maintenance". Please clarify / Elaboratethe duration of this agreement and scope of S&T Contractor and responsibility matrix of Employer, Operator and S&T contractor:	Please refer Addendum & Corrigendum-02B
576	2	6B	9.1	346	TMS ARCHITECTURE	Please confirm our understanding is correct: The scope for this contract will include the TMS only for "Delhi- Ghaziabad-Meerut corridor"	Please refer Addendum & Corrigendum-02B
577	2	6B	9.1	346	TMS ARCHITECTURE	Please confirm our understanding is correct: CTMS for all the corridors (1, 2 and 3) of Phase I has to be provided by the supplier of the Delhi- Ghaziabad-Meerut corridor (this contract). The CTMS will provide interface only for the "Time Table management" functionality for the TMS of future corridors "Delhi- Gurugram-Alwar" and "Delhi-Panipat.	Please refer Addendum & Corrigendum-02B
578	2	6B	9.1	346	TMS ARCHITECTURE	Please confirm our understanding is correct: The TMS for corridors "Delhi-Gurugram-Alwar" and "Delhi-Panipat" are not part of this offer.	Please refer Addendum & Corrigendum-02B
579	2	6B		Additional Query	Additional Query	Please elaborate on the signaling principles(Signalling Plans should be prepared as per Main line or Metro) and the various aspects to be considered for : 1. ETCS L2 with ATO 2. ETCS L2 without ATO 3. ETCS L1 4. Manual	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
580	2	6B		Additional Query	Additional Query	What is expected headway in ETCS **L1**	Please refer Addendum & Corrigendum-02B
581	2	6B		Additional Query	Additional Query	Please specify No of ESP per Platform	Please follow Bid Conditions
582	2	6B		Additional Query	Additional Query	Please clarify whether PSD is required in Depot Test Track towards testing the functionality or will the PSD related test be Simulated	Please refer Addendum & Corrigendum-02B
583	2	6B		Additional Query	Additional Query	Whether Single aspect signal is applicable in all Mode or conventional **LED** signal is required in degraded mode, Kindly clarify	Please follow bid conditions
584	2	6B		Additional Query	Additional Query	Please provide clarification and procedure for TSR lifting from operational point of view also provide details on different steps and coordinating partners (Station controller/OCC/Signaling) for the same.	Please refer Addendum & Corrigendum-01B
585	2	6B		Additional Query	Additional Query	Please elaborate how TSR will be implemented in ETCS **L1.**	To be finalized during design stage
586	2	6B		Additional Query	Additional Query	Please provide the Civil DGN of Main line Girder , Tunnel and station Building.	Please follow bid conditions
587	2	6B		Additional Query	Additional Query	Please provide the standards to be adopted for cable laying or any reference drawing.	Please follow bid conditions
588	2	6B		Additional Query	Additional Query	where can we find the seismic conditions that have to be considered?	Please follow bid conditions
589	2	6B		Additional Query	Additional Query	Please provide geographical and site data for tender evaluation purposes. It would be very helpful if orthomosiac / Video / Image from the sections can be provided. Is there a site survey planned or drone based surveys already in place.	Please follow bid conditions
590	2	6E	SHE 3.2	7	Indian Statutory Requirements	Is Statutory Registration necessary at both Central and State Authorities? (Delhi & UP)	Please refer Addendum & Corrigendum-02B
591	2	6E	SHE 6.4	12	6.4 Employment status of SHE personnel : Contractor shall not engage SHE manpower from any outsourcing agencies in which case the effectiveness would be lost. All SHE manpower shall be on the payroll of the main contractor only and not on the payroll of any subcontractor or outsourcing manpower agencies etc. This condition does not apply to positions like traffic marshals/security guards who marshals/security guards who are engaged almost on a daily requirement basis.	Can the SHE Manpower be recruited through indirect contract from dedicated SHE service provider through a frame agreement while adhering to reporting requirements and responsibility matrix-This will help to ensure timely resource timely resource mobilization / demobilization based on work requirement and also competency levels required for the staff shall be maintained	Please refer Addendum & Corrigendum-02B
592	2	6B	11.2		Maintenance During Defect Liability Period (DLP)	Please confirm on the tenure of DLP.	Please refer Addendum & Corrigendum-01B
593	2	6B	11.2.1.5		Contractor shall ensure that competent team of engineers for each sub-system is available to assist/attend failures to meet maintainability requirements given in P.S. and G.S	Please confirm on the KPIs/SLAs for O&M	Please follow Bid Conditions
594	2	6B	11.2		Maintenance During Defect Liability Period (DLP)	Please confirm on the tenure of DLP.	Please refer Addendum & Corrigendum-01B
595	2	6B	11.2.1.5		Contractor shall ensure that competent team of engineers for each sub-system is available to assist/attend failures to meet maintainability requirements given in P.S. and G.S	Please confirm on the KPIs/SLAs for O&M	Please follow bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
596	2	6B	2.2.1	Page 13 of 420	National Capital Region Transport Corporation Ltd. (NCRTC), a Joint Venture company of Government of India and States of Delhi, Haryana, Rajasthan and Uttar Pradesh is mandated for implementing the Regional Rapid Transit System (RRTS) projects across the National Capital Region (NCR), ensuring a balanced and sustainable urban development through better connectivity and access. For this purpose, total 8 (eight) corridors have been identified. Out of these, 3 corridors namely Delhi–Ghaziabad-Meerut, Delhi-Alwar and Delhi-Panipat are part of Phase I. Delhi-Ghaziabad-Meerut corridor is the first among these three. All these 3 (three) corridors shall be interoperable with seamless connectivity across these corridors which means trains from one corridor shall be capable of running in other two corridors and vice-versa in ETCS Level 2(For all purposes ETCS Level 2 means ETCS Hybrid Level 3 as asked for in this PS) and ETCS Level 1. Sarai Kale Khan (SKK) near Hazrat Nizamuddin Railway Station is the junction station for these three corridors.	We understand that only ETCS Level 2 + ATO to be provided for mainline & ETCS Level-1 for Depots. The system shall have capability to upgrade to Hybrid ETCS Level-3, that will be done later on. Please confirm our understanding.	Please follow Bid Conditions
597	2	6B	Section 6B PS S&TC 2.3 Contingency Plan	Page 14 of 420		We understand that contigency planwill not be part of this tender. If done, during the project execution stage, this contigency plan will be considered as a Variation Order. Please confirm our understanding?	Please follow Bid Conditions
598	2	6B		Page 18 of 420	Electro-magnetic compatibility EEC 89/336/EEC List of Standards/Specifications/	We note that obsolete EMC directive (which has no jurisdiction in India) has been mentioned 89/336/EEC; it should be corrected to 2014/30/EU.	Please refer Addendum & Corrigendum-02B
599	2	6B	3.2.1.2 (Pt. No-19)	Page 18 of 420	Section 6B PS S&TC Operation Control Centre (OCC)/Backup Control Centre (BCC): There will be an Integrated Operation Control Centre which will come at Jangpura (DELHI), while the Backup Control Centre will be at DUHAI Depot (or any other location decided by Employer) of D-G-M Corridor	We understand that connectivity between OCC and BCC will be made available to S&TC contractor. Please confirm our understanding?	Please follow bid conditions
600	2	6B	3.2.2.1 (Pt. No-15)	Page 19 of 420	Section 6B PS S&TC The Signalling contractor shall attend the installation in the RS factory for both the protoypes of MRTS & RRTS trains.	We understand that Onboard for both MRTS and RRTS to be provided by S&TC Contractor. Please confirm whether the same onboard hardware to be provided orthere is some specific requirement for MRTS onboard equipment?	Please refer Addendum & Corrigendum-02B
601	2	6B	3.4.2.4	Page 20 of 420	Section 6B PS S&TC Earthing Pits: Earth Termination Bar in UPS room will be available for shared use by signaling contractor. Signalling contractor shall set up earth bus bar in Signalling room and other locations where signalling equipment are located from the Earth Termination bar in UPS room.	We understand that for indoor earthing: Earthing termination bar will be made available to S&TC contractor in UPS Room. And to extend the earthing from UPS room to other rooms/locations where earthing is needed by S&TC Contractor. S&TC to make respective arrangements. For outdoor earthing: BEC will be made available to S&TC contractor for mainline. And for depot earth pits will be provided to S&TC contractor by other project contractors. Please confirm our understanding?	Please refer Addendum & Corrigendum-02B
602	2	6B	3.4.2.10	Page 20 of 420	Section 6B PS S&TC The Contractor shall supply all types of outdoor cables, all type of indoor & onboard cables.	We understand that only interface cables will be out of scope of S&TC contractor. The equipment which are pre-wired. Cables for those equipment will be provided by S&TC, because of standard product.	Please follow Bid Conditions
603	2	6B	4.7.1 (1)	Page 27 of 420	Section 6B PS S&TC This headway shall be measured on the line using the respective EMU performance for 6-car trains with 30-second dwells at intermediate stations and a minimum 2-minute layover at the terminal stations. The headway calculation will include PSD operation time.	Headway to be claculated with only 6- Car Train and not 9 Car train. Please confirm?	Please refer Addendum & Corrigendum-02B
604	2	6B	4.7.4	Page 28 of 420	Section 6B PS S&TC The design headway shall be based on an average travel speed of 100 kmph or higher with a station dwell time of 30-sec.	Headway & Average speed will depend on other sub-contractors of the project (Civil, Track, Rolling Stock, etc.). Hence this will be confirmed during project execution stage.	Please follow Bid Conditions
605	2	6B	4.8.5	Page 28 of 420	Section 6B PS S&TC The time necessary to the initialization of a sub-system (trackside ATC, trainborne ATC, interlocking, track to train transmission, train detection) shall be as short as possible and no greater than 40 seconds.	For train borne ATC system due to various self-checks/operational requirements the time interval can be longer than 40 seconds hence we request you to change the requirement to 60 seconds for train borne ATC system without affecting the performance/headway.	Please refer Addendum & Corrigendum-02B
606	2	6B		Page 18 of 420	List of Standards/Specifications Section 6B PS S&TC Electro-magnetic compatibility CENELEC EN 50081-2 EN50121-1, EN50121-2 EN50121-3 EN 50121-4. EN50123 IEC 61000-1 IEC 61000-2 IEC 61000-3 IEC 61000-4 IEC 61000-5	EMC standard EN 50081-2 is obsolete. It should be changed to IEC 61000- 6-4:Electromagnetic compatibility – Generic standards Emission standard for industrial environments.	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
607	2	6B	5.1.2.1	Page 35 of 420	Section 6B PS S&TC In ATO mode, the train shall operate without intervention by the train operator except when starting from a station stop	We request the employer to change the requirement to “Train starting from a signalled stop in ATO mode should be initiated by Train Operator”. Also as per “APPENDIX A1 /Section 1.3, point no. 2” it specifies: ATO Mode: The on board equipment shall provide for Automatic Train Operation (ATO). In this mode, the train’s speed, motoring, coasting and braking within the parameters dictated by the ATP system shall be performed by the on-board equipment without the train operator’s intervention. The train shall operate in ATO mode when the mode selector is at ATO mode and ATO Start button is activated. By above clause we understand for every ATO re-start either station re- start or re-start from signal stop ATO start button needs to be activated. Also it’s suggested to add the train re-starting will be done by train operator by ATO start button from signal stop as well, since it’s related to safety. Driver need to ensure that everything is OK and train can re-start further from stop signal.	Please follow Bid Conditions
608	2	6B	5.1.2.6	Page 35 of 420	Section 6B PS S&TC Train re-starting from a signal stop shall be automatic.	We request the employer to change the requirement to “Train starting from a signalled stop in ATO mode should be initiated by Train Operator”. Also as per “APPENDIX A1 /Section 1.3, point no. 2” it specifies: ATO Mode: The on board equipment shall provide for Automatic Train Operation (ATO). In this mode, the train’s speed, motoring, coasting and braking within the parameters dictated by the ATP system shall be performed by the on-board equipment without the train operator’s intervention. The train shall operate in ATO mode when the mode selector is at ATO mode and ATO Start button is activated.By above clause we understand for every ATO re-start either station re-start or re-start from signal stop ATO start button needs to be activated. Also it’s suggested to add the train re-starting will be done by train operator by ATO start button from signal stop as well, since it’s related to safety. Driver need to ensure that everything is OK and train can re- start further from stop signal.	Please follow Bid Conditions
609	2	6B	2.6.6	Page 16 of 420	Section 6B PS S&TC The RRTS Corridor is envisioned to accommodate freight traffic (during the off-peak hours of passenger services).	Please provide further details of freight traffic?	Please follow Bid Conditions
610	2	6B	9.4	Page 395 of 420	Section 6B PS S&TC 9.4.1.1 The wayside ATP equipment shall conform to CENELEC standards EN50121-2 & 4 and EN50082-2. For radiated Emissions & conducted EMI the system shall meet the requirements of CENELEC standards EN 50081-2. 9.4.1.2 ATP onboard equipment shall conform to IEC 571-1, CENELEC standards EN 50155, EN50121-2 & 4, EN50121-3 and EN50082-2. For radiated Emissions & conducted EMI the system shall meet the requirements of CENELEC standards EN 50081-2. 9.4.1.3 Transients (spikes and surges): The equipment shall conform to A200 FRSenv.02 version 00.03. It shall also conform to the following: 9.4.1.4 All equipment shall be protected against electrostatic discharge as defined in IEC 61000- 4-2. 9.4.1.5 All equipments shall conform to IEC 61000-4-4 for protection against Transient Burst. 9.4.1.6 All equipments shall conform to IEC 61000-4-5 for protection against Power Surge. 9.4.1.7 For power supply, susceptibility and generation, Earthing/ bonding, the equipment shall conform to A200 FRSenv.02 version 00.03.	We note that obsolete standards are listed in the requirements. We therefore interpret the requirement as that the following standards will be applied: EN 50121-3-2 for onboard signalling apparatuses EN 50121-4 for wayside signalling apparatuses EN 61000-6-2 and EN 61000-6-4 for equipment installed in industrial environment. We kindly ask to confirm whether our interpretation is correct	Please refer Addendum & Corrigendum-02B
611	2	6B	5.3.7.2	Page 41 of 420	Section 6B PS S&TC Train detection shall be provided on the Main Line, sidings, reception lines and in the depots including automated/manual boundary areas in the depot. The axle counter shall be proven with reliable performance in metro/Railway field. The axle counter shall operate safely and reliably with proper interface with interlocking equipment. All Axle counters shall be duplicated. Indoor and Outdoor Axle counter equipment shall be provided in a complete redundant configuration. Axle counter type shall be MSDAC (Multi Section Digital Axle counter).	What is the meaning of axle counter shall be provided in redundant configuration? Please confirm? Redundacy of computer cards will be provided for the axle counter solution. But by providing redundancy for complete indoor & outdoor equipment will increase the BOQ (equipment, cables, etc.) and cost. We recommend to delete this clause.	Please follow Bid Conditions
612	2	6B	5.3.7.2	Page 41 of 420	Section 6B PS S&TC A minimum two block sections shall be defined through axle counters between two consecutive RRTS stations. A minmum of one block section shall be defined through axle counters between two consecutive MRTS stations and between two different type of stations , however final layout will be finalized during design phase.	Please provide Signalling plan indicating axle counter requirements. This is needed to finalise the number of axle counter needed for the project.	The final Signalling Plan shall be developed by the Contractor during design stage

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
613	2	6B	5.3.7.4	Page 42 of 420	Section 6B PS S&TC Impedance bonds shall be provided wherever required. The Signalling & Train Control Contractor shall provide the impedance bonds. The Signal & Train Control Contractor shall work with the traction power contractor to assure that the impedance bonds provided meet the requirements for traction power return without compromising train detection or cab signal reception.	Impedance bonds are for Track Circuit solution and not for Axle Counter. Please remove this clause because for this tender, axle counters to be provided.	Please follow Bid Conditions
614	2	6B	5.3.8.3	Page 42 of 420	Section 6B PS S&TC Separate Interlocking units shall be provided at the Depot. The interlocking capacity in Depot shall have capability of at least 150% of present stabling lines. The area of jurisdiction of the interlocking units on the main line shall be so configured as to cover the entire section. The Contractor can configure centralized or distributed equipment according to the system feature. However, at least four sets of mainline interlocking logic master unit must be provided for D-G-M corridor. The plan for the same shall be submitted for approval of the Employer/Engineer. The Contractor shall ensure that the effect of induced voltage is taken into account while designing the location and number of CBI/ Object controller units on the line. Wherever the induced voltage is likely to be more than as defined in Clause 4.13.3, object controllers or separate interlocking unit at stations should be provided to cover the entire Line. In any case, stations with points and crossings must have object controllers.	For mainline we propose to provide a solution where Object Controller (Peripheral Post) will be provided at all the stations. But CBI will be provided at limited locations based on project requirement (it can be less than 4 also). Please confirm, if this will be acceptable?	Please follow bid conditions
615	2	6B	5.3.8.4	Page 42 of 420	Section 6B PS S&TC Each CBI shall be provided with VDU workstations which will be provided at the SCRs of stations with points and crossing. These VDUs shall be used as a backup in case of failure of TMS.	CBI VDU will be provided only at the stations where CBI is located. But other stations, no VDU will be provided. Please confirm our understanding?	Please follow Bid Conditions
616	2	6B	4.13.1	Page 31 of 420	Section 6B PS S&TC 4.13.1. The contractor is required to conduct full EMC tests and the tests to be conducted shall include but not limited to satisfying standards as follows: Overall Compliance: EN50121-1 EN50121-2 EN50121-4	It is requested that the signaling system shall comply against EN 50121-2. Being signal integrators we are not responsible for testing of Overall railway system as a whole according to EN 50121-2 std. Since this standard concerns the overall railway system as a whole and not the single subsystem alone , We understand that the compliance to EN 50121-1, EN 50121-3-2 and EN 50121-4 is asked for signaling apparatuses installed in railway environments. We kindly ask to confirm if our interpretation is correct.	Please refer Addendum & Corrigendum-02B
617	2	6B	5.3.9.3	Page 43 of 420	Section 6B PS S&TC Time element relays electronic type conforming to IRS/BS/BRS or of the specification approved by the NCRTC shall be used. When electronic time element relays are used these shall be two in number and their contacts should be in series with each other.	Please provide the details of specifications approved by NCRTC?	Please follow Bid conditions
618	2	6B	5.3.10.2	Page 43 of 420	Section 6B PS S&TC A logic shall be built inTMS system of The Train Control and Signalling System, which shall regulate train movement as described in Appendix A. This shall be achieved for ATP and ATO mode of working. In case the distance between two underground stations is long, there may be additional ventilation shafts in between two stations. If this presents a problem in achieving required headway, the Contractor shall immediately notify the same to the Engineer.	Please provide location of all the ventilation zones. And also confirm, how many trains are allowed to travel in one ventilation zone at the same time?	Please follow Bid conditions
619	2	6B	4.13.2	Page 31 of 420	Section 6B PS S&TC (8) Damped oscillatory magnetic field IEC 61000-4-10 (9) Voltage dips, short interruptions IEC 61000-4-11 (10) Oscillatory waves IEC 61000-2-12 (11) Harmonics and Inter Harmonics IEC 61000-4-13 (12) Voltage fluctuation IEC 61000-4-14 (13) Conducted disturbance IEC 61000-4-16 (14) Ripple of DC power supply IEC 61000-4-17 (15) Variation of power frequency IEC 61000-4-28 (16) Digital Radio phone IEC (Latest draft)	It is requested that the signaling system shall comply against EN 61000-4-10, EN 61000-4-11, EN 61000-4-12, EN 61000-4-13, E 61000-4-16, EN 61000-4-17 and EN 61000-4-28. These standards, related to power quality rather than EMC, include measurement techniques for tests not foreseen by applicable railway and industrial standards (EN 50121, EN 61000-6-1 to EN 61000-6-4). We therefore understand that the EMC compliance to EN 50121 and EN 61000-6-X standards shall be guaranteed, and that the compliance to EN 61000-4-X is requested according to what is indicated in the EN 50121 and EN 61000-6 standards. We kindly ask to confirm that our interpretation is correct or, otherwise, kindly provide the test levels and pass/fail criteria for the tests according the cited EN 61000- 4-X standards, since they are not included in railway and industrial EMC standards.	Please refer Addendum & Corrigendum-02B
620	2	6B	4.13.2.1	Page 31 of 420	Section 6B PS S&TC 4.13.2.1. The following specific EMC requirements shall be met by the design of the Train Control and Signalling System: (i) Radiated Emissions As a minimum requirement, the maximum levels of radiated electro-magnetic interference (EMI) of the installation shall not exceed the levels specified in EN50081-2. (ii) Conducted EMI The maximum levels of conducted EMI of the installation shall not exceed the levels specified in EN50081-2; and (iii) Induced EMI The Contractor shall ensure that any cables supplied under this Contract other than power cables used by the System are properly screened, earthed and terminated to prevent noise and/or electric shock from exceeding the levels defined by the International Telegraph and Telephone Consultative (CCITT).	Please note the standards mentioned are obsolete and should be changed to IEC 61000-6-4:Electromagnetic compatibility – Generic standards Emission standard for industrial environments	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
621	2	6B	4.13.4	Page 32 of 420	Section 6B PS S&TC The Contractor shall demonstrate with evidence that the induced longitude voltage on the cables does not exceed the levels specified in Paragraph 4.13.3.	We understand that this requirement is not applicable for the metro systems working on DC traction system. We kindly ask to confirm whether our interpretation is correct.	Please follow Bid conditions
622	2	6B	4.13.5 (point no.2)	Page 32 of 420	Section 6B PS S&TC As a minimum requirement, the equipment must be immune to a field strength of 20V/m in the frequency range of 27 to 2000 MHz.	It is noted that out-of-standard radiated immunity tests (20V/m between 27 and 2000 MHz) are included in §4.13.5 of technical specification. We interpret the requirement as that EMC tests, levels and performance criteria shall be compliant to the applicable EMC standards. We kindly ask to confirm whether our interpretation is correct, or to clarify the rationale and specificities of NCRTC environment behind those requirements, in order to better assess these activities. Please moreover consider that radiated immunity tests are not foreseen by applicable EMC standards in the frequencies between 27 and 80 MHz, being the immunity against these frequencies already covered by conducted immunity tests.	Please follow Bid conditions
623	2	6B	4.13.6	Page 32 of 420	Section 6B PS S&TC Conducted Immunity Levels The equipment supplied shall continue to operate correctly with no degradation in performance, when subject to the levels of conducted interference set out in the European Standard EN50082-2 in the frequency range of 150 kHz to 30 MHz	Please note that obsolete standard has been mentioned here. It should be changed to EN 61000-6-2 Electromagnetic compatibility– Generic standards – Immunity standard for industrial environments	Please follow bid conditions
624	2	6B	4.13.7,8,9	Page 32 of 420 (PS-Signalling & Train Control)	Section 6B PS S&TC Electrostatic Discharge (ESD) Any equipment, which contains sensitive electronic components and is likely to be handled or touched by personnel or customers shall be protected against electrostatic discharge and shall be tested to 6 kV with contact discharge or 8 kV with air discharge as defined in IEC61000-4-2. Fast Transient Burst In regard of fast transient burst, equipment supplied shall be tested to 2 kV peak in accordance with IEC61000-4-4. Power Surge In regard of power surge, equipment supplied shall be tested to 2 kV (common mode) and 1 kV (differential mode) in accordance with IEC61000-4-5.	We noticed that reference values for Electrostatic discharge tests (8kV air discharge, 6kV contact discharge), Fast transient burst (2 kV peak) and Power surge (2kV common mode, 1kV differential mode) are given for equipment. These values are those given by EN 50121-4 standard. However their pure application would lead to apply them to all the ports of all equipment, whilst the standard states that the tests given are applicable to apparatus inside 3 m zone, whereas other apparatus within the railway environment should comply to requirements of EN 61000-6-2 Also other apparatus (e.g. COTS equipment) normally are compliant with EN 61000-6-1. Please note that appropriate criteria as per EN 50121- 4, EN 61000-6-2 and EN 61000-6-1 will be applied depending on the equipment zoning /position of installation.	Please follow bid conditions
625	2	6B	4.15.1	Page 33 of 420	Section 6B PS S&TC The contractor shall ensure that all the Train control & Signalling equipment are designed and constructed in accordance with thelatest issues or versions of internationally recognised EMC standards, including but not limited to EN50081, EN50082, EN50121, EN50123, IEC571, EN50155, IEC 61000 to ensure proper functioning.	Please note obsolete standards have been mentioned. EN 50081/EN 50082 shall be replaced by equivalent IEC/EN 61000-6-x series of generic standards.	Please follow bid conditions
626	2	6B	4.18 (point no.2)	Page 34 of 420	Section 6B PS S&TC Effect of emission on explosive or volatile / flammable material must be considered. BS6656 (Prevention of inadvertent ignition of flammable atmospheres by radio frequency radiation) and other related standards must be adhered to.	Please note, The BS 6656 standard has been superseded by standard CLC TR 50427. It has been analyzed and resulted not applicable because: I) The presence of electromagnetic radiation due to signalling system is negligible with respect to the emission of the whole metro system and with respect to typical values usually present when this standard is applied. II) In the contract specification the presence of possible victims is not mentioned. The standard is applicable only if the combination of electromagnetic radiation and explosive environment is present. III) The electromagnetic field emission levels imposed by EN 50121 standard series lie in the "No ignition area" of safe threshold field strength diagram(as per CLC TR 50427 std) , for the frequencies interested by Signalling System. We therefore understand that BS 6656 is not applicable to signalling and communication systems. We kindly ask to confirm if our understanding is correct. Otherwise, we kindly ask to provide the rationale behind this requirement, and details concerning the expected explosive area within the boundaries of the metro line, in order to be able to better address the query.	Please refer Addendum & Corrigendum-02B
627	2	6B		General OCC/BCC	Operation Control Centre (OCC) at would come up at Jangpura along with Headquarter Building and Backup Control Centre (BCC) at Duhai Depot. BCC shall be first operationalized along with the Stage 1 and once the OCC at Jangpura gets ready, it will become Main Control Centre under normal circumstances.	We understand there will be efforts involved in shifting of the redundant equipment and controls from Duhai BCC (which will be working as OCC till OCC at Jungpura is operational) Kindly confirm.	Please follow bid conditions
628	2	6B	5.11.1.3	Page no 47 of 420		Based on contract requirement single aspect signal to be provided for mainline. It is understood that signal should be blank when it is restrective and it should illuminate when it is permissive in normal scenarios (ETCS Level2, Hybrid ETCS Level3). We recommend to use two aspect signal.	Please follow bid conditions
629	2	6B		General	Section 6B PS S&TC Type of Route Indicator	Type of route indicator to be used for this project is not mentioned in the tender requirements. Please provide further details?	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
630	2	6B		Tender Drawings	Tender Drawings Delhi-Merrut Track plan	We understand that - Temporary track are part of contigency plan and will be part of variation during execution stage if planned to do so. - Future stations are not part of this tender.	Please follow Bid Conditions
631	2	6B		Tender Drawings	Tender Drawings Track Alignment Data	Track Alignment data (GAD) is not available in tender drawings. Please provide the information to complete the headway simulation study?	Please refer Addendum & Corrigendum-02B
632	2	6B		Tender Drawings	Tender Drawings GAD drawing for Depot & Mainline	Please provide autocad file of GAD drawing for both depot & mainline.	The drawings are provided for information only and native files can not be shared at this stage.
633	2	6B		General	Section 6B PS S&TC Headway requirement	Are we planning a straight move to ETCS L3 hybrid or we consider an intermediate step of ETCS L2 and fixed blocks? in that case the required headway cannot be guaranteed with the existing axle counters.	Please follow Bid Conditions
634	2	6B	5.23	Page 70 of 420	PIS scope	Scope of PIS is not clear. Please provide clear scope of work. **Based on clause no. 5.23 of PS** S&TC it is not clear whether PIS and PIDS/PAS system are same or separate?	Please refer Addendum & Corrigendum-02B
635	2	6B	General	General	Electrical & mechanical drawings of vehilcle	Can we have details in terms of mechanical and electrical drawings of all vehicle classes to be fitted?	Please follow bid conditions
636	2	6B	5.16.9	Page no. 52 of 420	5.16.9. During reverse running the Train Describer facility shall be available and the movement of train running in reverse direction shall be followed by TMS without automatic route setting.	In which scenario such reverse running of trains is expected? Please elaborate?	Please refer Addendum & Corrigendum-02B
637	2	6B	Clause 9.11 (point no.4)	Page 354 of 420	Section 6B PS S&TC Hardware and Software shall conform to the requirement equivalent to standard SIL 2.	We understand that development process for TMS is SIL 2 and not the hardware and software as requested in clause no. 9.11 (point no. 4) of SIG PS. Please confirm our understanding.	Please refer Addendum & Corrigendum-02B
638	2	6B	Section 3.2.2.1 (3)	Page 18 of 420	Section 6B PS S&TC Assist and furnish all information, documents required by Independent Safety Assessor (ISA), if appointed by NCRTC;	It is mentioned in this clause that Assist and furnish all information, documents required by Independent Safety Assessor (ISA), if appointed by NCRTC. Our query is if ISA is not appointed by NCRTC than in that case do contractor has to appoint internal ISA to assets safety case, safety report etc.? Please confirm?	Please refer Addendum & Corrigendum-02B
639	2	6B	5.33.3.7.3	Page no. 79 of 420	Section 6B PS S&TC Axle counter workstation, Playback workstation shall be installed in CER.	Please confirm what is expected from Axle counter workstation?	Please refer Addendum & Corrigendum-02B
640	2	6B	4.17.1 (4)	Page no. 33 of 420	Section 6B PS S&TC All cable pairs in multi-pair cables shall be twisted.	We understand this is not applicable for outdoor cables.	Please follow bid conditions
641	2	6B		General	Section 6B PS S&TC Staff Protection Key Switch (SPKS)/ Authorization Push Button	Please elaborate the requirement of SPks?	Please refer Addendum & Corrigendum-02B
642	2	6B	5.11.1.1	.Page no. 47 of 420	Section 6B PS S&TC Line side signals shall be installed on the Main lines and depot entry/exit with marker board according to their modes and features as follows: • At stations with point and crossing for point protection catering for bidirectional working	Based on the contract, Signals has to be provided at stations with point and crossing only. Please clarify How ETCS operation will be managed?	Please refer Addendum & Corrigendum-02B
643	2	6B	---	-		Will there be any requirement to interface RRTS stations to Indian railways existing lines?	Please follow bid conditions
644	2	6B	---	-		Is there a need to interface TMS system to Indian railways Control Office Application (COA) and eventually to NTES, FOIS and Crew Managment system for trains arrival/departure and Crew information exchange?	As per present plan there is no requirement to interface RRTS stations to Indian railways existing lines
645	2	6B	5.30.4.2.	Page no. 74/420	TMS Workstations shall be provided in each SCR.	For local operation at Station Control room, what is the expecation out of these: 1. Standalone TMS workstation + IXL-VDU 2. Dual Local TMS workstations + IXL-VDU 3. TMS WKS + CCIP + IXL- VDU	Please refer Addendum & Corrigendum-02B
646	2	6B	5.14	Page no. 50/420	These functions shall be performed at two levels (OCC/BCC and Peripheral /Local Control)	Can you please clarify the sentence? Must be the exact same functions replicated locally and at control center level?	Please refer Addendum & Corrigendum-02B
647	2	6B	5.16.2	Page no. 52/420	Automatic Route Setting	Must ARS be able to set also shunting routes or we can consider shunting as excluded from ARS domain?	Please follow Bid Conditons

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
648	2	6B	5.16.4 point (2)	Page no. 52/420	Sequence mode for turnarounds	Can you please elaborate the concept of “Sequence mode for turnarounds”?	Please refer Addendum & Corrigendum-02B
649	2	6B	5.16.6	Page no. 52/420	As a minimum, the ARS commands shall allow the operator to Enable/Disable ARS for the whole ARS area, an ARS sub-area, a particular train or a particular signal.	Can you please define or elaborate the concept of ARS sub-area?	Please refer Addendum & Corrigendum-02B
650	2	6B	5.16.9.	Page no. 52/420	During reverse running the Train Describer facility shall be available and the movement of train running in reverse direction shall be followed by TMS without automatic route setting.	Can you confirm our understanding that in bidirectional mode ARS won’t be allowed to set routes?	Please follow bid conditions
651	2	6B	5.17.2 point (2)	Page no. 53/420	Received by Adjacent TMS/System	How many are the adjacent systems that TMS must interface? Can you please provide information about the adjacent systems to be interfaced?	Please refer Addendum & Corrigendum-02B
652	2	6B	5.18.2.1	Page no. 54/420	Full: Schedule (Timetable) and headway Adherence simultaneously active. This is standard default mode.	Can you please elaborate and detail better the ATR standard default mode (Full: Schedule and headway Adherence simultaneously active) and clarify the difference between this mode and the ones described at point 5.18.2.2 (Schedule adherence only) and point 5.18.2.3 (Constant headway regulation)?	Please follow bid conditions
653	2	6B	5.26.2	Page no. 71/420	TMS Training simulator	Is train TMS Training simulator only limited to TMS/CTMS train traffic and IXL simulations?	Please follow bid conditions
654	2	6B	5.27	72/420	Quality of service	This chapter is devoted to “Quality of service” reports. Can you please add further clarifications on what are the parameters required, for instance, for “operation report”?	Please refer Addendum & Corrigendum-02B
655	2	6B	5.29 .	Page no. 73/420	Local Traffic management System	Is there any specific minimum granularity for the area controlled by the Local TMS?	Please follow bid conditions
656	2	6B	5.31	Page no. 76/420	Degraded operation	Can you describe the possible degraded mode (first, second and third degraded mode) indicating which component is failed and for each case described provide the list of functions available and not available in that degraded mode form a TMS perspective?	Please refer Addendum & Corrigendum-02B
657	2	6B	5.31.2 and 5.31.5	Page no. 76/420	Degraded operation	can you please clarify – under which scenarios Schedule Regulation will not be available ?	Please follow bid conditions
658	2	6B	5.33	78/420	Organizational Model at OCC & BCC	in general we understood that OCC and BCC have the same functionalities . Once OCC will be operative BCC will be a duplicates system to be used as disaster recovery with cold stand by?	Please refer Addendum & Corrigendum-02B
659	2	6B	5.33.3.6.2	Page no. 78/420	Signalling contractor shall supply the rolling stock controller console for rolling stock application GUI (Integrated TIMS) along with signalling workstation. But its software application shall be in scope of rolling stock contractor.	a) We understood that TMS needs only to host the *rolling stock* software application (scope RS contractor) inside signalling work desk at OCC/BCC. Is it right? b) Otherwise, does TIMS software application already exist? c) Does it include the components listed in 5.19.18.x points? Can you provide a more detailed description for them?	Please refer Addendum & Corrigendum-02B
660	2	6B	5.36.3	Page no. 86/420	Crew control management function	Here the Crew Management functions are listed. Can you confirm this function is in charge of Rolling stock management sub system?	Please follow bid conditions
661	2	6B	5.3.6.2.	Page no. 40/420	Main line points shall be non-trailable. Depot points, where speed does not exceed 25 kmph, shall be preferably trailable. Main line point machine shall be used in conjunction with external mechanical lock. Main Line Point Machine shall be electric, operating on 3φ-380V AC only. Depot Point Machine shall be electric, operating on 3φ-380V AC or 110V DC	We request you to modify the clause for the operating voltage from 3φ- 380V AC to 3φ- 380 - 440V AC.	Please follow bid conditions
662	2	6B		General Comment	Interoperable ATO with ETCS-L2	We appreciate the intent of this tender to deploy cutting edge signalling technologies .In this regard we have the following comments: 1) Our company is part of the European initiative fronted by ERTMS and Shift2Rail projects. However these inter-company discussions and specification are still ongoing and there are only a very few projects worldwide which can really certify interoperable ATO. 2) This tender requirement will imply large European involvement which will consequently drive up project costs and will be contrary to the Make in India principle of this contract. 3) Since this requirement will involve technologies which are under development, contractual interpretation and execution will be complex Therefore it is our submission that in interest of lower project cost ,proven interoperable technology and efficient project execution, the requirement may be kindly modified to ETCS L2 as per Baseline 3 retaining the same headway stipulations	Please follow bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
663	2	6B	9.4		List of Interface sheets for S&T, Clause 11 S&T Vs OPE	Kindly clarify scope of S&T Contractor under statement "S&T contractor is incharge of Signalling and Telecom maintenance"	Please refer Addendum & Corrigendum-02B
664	2	6B	9.4		List of Interface sheets for S&T, Clause 11 S&T Vs OPE	Kindly clarify "S&T contractor is incharge of Signalling and Telecom maintenance" the Key dates for which this agreement will be in place.	Please refer Addendum & Corrigendum-02B
665	2	6B	9.4		List of Interface sheets for S&T, Clause 11 S&T Vs OPE	Kindly clarify the statement "The Employer, S&T contractor and Operator will enter into an agreement for the provision of services for S&T Maintenance". The duration of this agreement and scope of S&T Contractor and responsibility matrix of Employer, Operator and S&T contractor.	Please refer Addendum & Corrigendum-02B
666	2	6A	13.3.6		Chapter 13, supply of spare part .., Section 6A, General specifications	Spares calculation formula is not clear, "c & o" are not defined. Please clarify.	Please refer Addendum & Corrigendum-02B
667	2	6A	7.3.1.3		Section 6A_General Specifications for S&T: The identification label shall be permanently attached in such a way that it shall not become detached or illegible during the lifetime of the system from any cause including wear and tear, environmental effects (suchas rain, direct sunlight, etc.) or any other influence. Preference shall be given to embossed or engraved metallic labels mechanically fastened by riveting or similar means to the item to which they refer.	We understand that cables, connectors etc. are to be treated as consumables and hence excluded from this requirement of identification labelling. Please confirm.	Please follow Bid Conditions
668	2	6A	8.2.1 (1)		Section 6A_General Specifications for S&T: "Each case, crate or package shall be waterproof, rot-proof and insect/rodent-proof, of robust construction and suitable for the intended purposes. The Contractor shall, in determining the package materials to be used, take cognisance of the climatic conditions likely to occur during the period of transport, shipment and storage."	We request NCRTC to consider packaging to be in line with the environmental factors as defined in ETSI standards EN 300 019-1-1, class 1.2 & EN 300 019-1-2, class 2.3 for LTE OEM. Please confirm.	Please follow Bid Conditions
669	2	6B	9.4		List of Interface sheets for S&T, Clause 11 S&T Vs OPE	Kindly clarify scope of S&T Contractor under statement "S&T contractor is incharge of Signalling and Telecom maintenance"	Please refer Addendum & Corrigendum-02B
670	2	6B	9.4		List of Interface sheets for S&T, Clause 11 S&T Vs OPE	Kindly clarify "S&T contractor is incharge of Signalling and Telecom maintenance" the Key dates for which this agreement will be in place.	Please refer Addendum & Corrigendum-02B
671	2	6B	9.4		List of Interface sheets for S&T, Clause 11 S&T Vs OPE	Kindly clarify the statement "The Employer, S&T contractor and Operator will enter into an agreement for the provision of services for S&T Maintenance". The duration of this agreement and scope of S&T Contractor and responsibility matrix of Employer, Operator and S&T contractor.	Please refer Addendum & Corrigendum-02B
672	2	6A	13.3.6		Chapter 13, supply of spare part ..	Spares calculation formula is not clear, "c & o" are not defined. Please clarify.	Please refer Addendum & Corrigendum-02B
673	2	6B	10.7	Page 107	– Transfer of Technology	We understand that Transfer of Technology (ToT) means transfer of technical know-how to local group company. Please confirm Technical know-how would be transferred to the employer through trainings. Please confirm	Please follow bid conditions
674	2	6B		General	General	Standardized specifications for train integrity (TIMS) are not finalized yet which could lead to potential interoperability issues in future! Kindly suggest the mitigation for this.	Please refer to SRS 3.6.0 Baseline 3 release 2
675	2	6B	5.11.1.1	General		Pls kindly confirm the following for fallback ETCS L1 requirement: 1.What are the failure conditions, when Fallback ETCS L1 will be required? 2.What will be the headway requirements for ETCS L1 fallback? 3.What is the maximum speed required for ETCS L1 fallback? 4.In few cases distance between signals is more than double the block section, how fallback ETCS L1 operation is expected in such conditions? 5.Is it required to have bidirectional signalling also for the L1 fallback?	Please refer Addendum & Corrigendum-02B
676	2	6B		General	General	The tender does not include any requirement on the Key Management System. Kindly inform us of the expectation.	Please refer Addendum & Corrigendum-02B
677	2	6B	2.6.6.	Page 16 of 420		*Mixed traffic: The RRTS Corridor is envisioned to accommodate freight traffic (during the off-peak hours of passenger services).* Kindly confirm if the freight trains will be ETCS equipped as well.	Please follow bid conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
678	2	6B	5.11.2.1.	Page 47 of 420		*The mainline line side signal aspect shall be used in fallback ETCS Level 1 and degraded modes as under.* *Non Lit/Dark/Blank: Stop: Route not set and locked.* *Lit: Proceed: Route set and locked.* For mixed traffic we recommend multi-aspect signals.	Please follow bid conditions
679	2	6B		General	General	ETCS Level 1 fallback - the tender does not mention about the expectation in the fall back mode e.g. what is the headway expectation in the degraded mode. Expecting less than 350 seconds headway in the ETCS Level 1 fallback mode will be expensive to implement (with many balises and signals) and is not recommended. Kindly clarify the expectation. Also, in the fallback mode do you expect a full functionalities of an ATP or a basic train stop function?	Please refer Addendum & Corrigendum-02B
680	2	6B	3 & 3.1	Page 340 of 420	3 OPERATING CRITERIA 3.1 Headway	*The design shall be based on a theoretical headway of 120 secs in order to permit trains to operate on a sustained headway of 180 secs under normal operations as described in the Technical Specification.* Our understanding is that the theoritical headway requirement of 180 seconds is difficult to meet including the PSD Operation time. Kindly clarify.	Please follow Bid Conditions
681	2	6B		General	General	**Interoperability requirement for Hybrid level 3** are not defined and wll put the execution of the project at risk. We suggest going for a ETCS L2 system, with the possibility to add virtual fixed blocks on the line for capacity increase in the future. This way we ensure adherence to the interoperability standards and the flexibility to chose freely a signaling supplier for subsequent corridors. Please consider. Hybrid Level 3 and the specification that is a reference in the specification is newly prepared and the Shift2Rail initiative are working with the Use Cases and requirements. At current stage we foresee interoperability issues with the Hybrid Level 3 function why we propose a Level 2 system with the possibilities to uppgrade to Hybrid Level 3 in the future when further performance will be needed.	Please follow Bid Conditions
682	2	6B	5.19	58	General	Allocation of functionalities between TMS and CTC / RBC should not be specified by the customer i.e. functionalities should not be restricted to subsystems but should be viewed at a solution level. Some examples: 5.19 TMS Functions -1 Monitoring of signaling gears & equipment -2 Control of signaling equipment -6 TSR management -12 Train detection and train follow-up -13 Axle Counter management 5.19.1.4 TMS shall supervise whole IXL, ATO, RBC trackside equipment at both Central and Local Level. 5.19.8.2.3 TSR shall be apply/removal from TMS workstation and from interlocking VDU at station depending on the existing level of control.	Please refer Addendum & Corrigendum-02B
683	2	6B	4.8.5	Page 28 of 420		Initialization of ETCS onboard might take longer than 40 seconds. Please relax this requirement to 90 seconds.	Please refer Addendum & Corrigendum-02B
684	2	6B	5.4 & 3.2.2	Page 44 of 420 Page 340 of 420		As per the requirement, Temporary Speed Restrictions are also required for Level 1. Train receives TSRs independently when system is in ETCS L1 or ETCS L2. Pls confirm if TSR solution needs to be synchronized or independent.	To be finalized during design stage
685	2	6B		General	General	As per our understanding the ATO functionality will not be required in Depots. Pls kindly confirm.	Please refer Addendum & Corrigendum-02B
686	2	6B	5.7.2.2	45		Which performance limits regarding door enable does this requirement refer to? 4.9.3.1 or 4.9.2.2?	Please follow Bid Conditions
687	2	6B	5.7.3.1	46		Usually this is a TCMS function and requires support from the rolling stock provider. See also comment on 5.1.3.3 (5) and (6)	Please follow Bid Conditions
688	2	6B	4.8.1	28		The response time of 500 ms is faster than required by the ETCS standards for the trainborne equipment. It might not be possible to achieve this with interoperable equipment. What commands and inputs are considered as start events? Only human input or also input from other technical systems?	Please follow Bid Conditions
689	2	6B	5.3.3.1	39		The predetermined reverse movement limit needs to be greater than 10 m which is required for adjusting the stopping position according to 4.9.3.2.	Please follow Bid Conditions
690	2	6B	5.1.3.3 (5)	36		The information whether the train is docked is not available in ATP mode, since the (operational) stopping point is only known to the ATO. According to the standard ETCS only knows about the position and length of the platform (packet 69), but not about the required stopping location of the train. A proprietary solution is possible.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
691	2	6B	4.9.2.1	28		stopping accuracy: The international standards for ATO over ETCS don't allow such a high stopping accuracy in an interoperable way (see e.g. draft version 0.0.3 of subset 141). So it will be a proprietary solution. In what aspect may the solution differ from the interoperability?	Please follow Bid Conditions
692	2	6B	4.9.3.2 (1)	29		Shall the maximum creeping speed of 10 km/h be technically supervised? If so, by which system (ATP or ATO) and with what detailed functionality (margin, service or emergency brake...)? Is this supervision a safety function? If so, what is the required SIL for it? Note that such a supervision is not part of the international ETCS and ATO over ETCS standards and might be proprietary, i.e. not interoperable.	Please follow Bid Conditions
693	2	6B	5.8.3.2	46		Shall all "cars" be equipped with redundant ATO and ATP equipment or all "consists"?	Please refer Addendum & Corrigendum-02B
694	2	6B	5.1.3.3 (5) and (6)	36		Safe door enabling and blocking the train with unlocked doors is not an interoperable function according to the international ETCS standard. Usually this function is part of TCMS, not the signalling system. A proprietary solution is possible. The conditions for door enabling contradict those from 4.9.3.1.	Please follow Bid Conditions
695	2	6B	2.6.6	16		Mixed traffic with freight: Does this mean that all the requirements (e.g. precision stopping) also apply to freight trains? If not, what are the applicable requirements for those freight trains? Will the freight train be equipped with ETCS ?	Please follow Bid Conditions
696	2	6B	List of Standards / Specifications, "ETCS Hybrid Level 3"	11	List of Standards / Specifications, "ETCS Hybrid Level 3"	Meanwhile version 1C of 16E042 is available. Which version is required? -> 1A or latest issued, see appendix O, 3.2.2.	Please follow Bid Conditions
697	2	6B	4.9.3.2	29		Is there any limitation to "stopped outside the door authorisation window"? E.g. if the train stops due to a signal stop a longer distance in rear of the platform stop. Shall the following three procedures always be provided or only if stopped close to the platform stopping point. If so, what is the definition of "close"?	Please follow Bid Conditions
698	2	6B	4.9.3.2 (3)	29		Is the possibility to proceed in ATO mode to the next station explicitly excluded? Shall it be technically prevented that the driver re-engages ATO? If so, note that this would be a deviation from the ATO over ETCS standard.	Please follow Bid Conditions
699	2	6B	4.9.3.1	29		Is the door opening authorisation a safety function or will the driver take all safety responsibility for opening the doors? If it is a safety function, what is the required Safety Integrity Level (SIL)? (Note that this function is not covered by the ATO over ETCS standards).	Please follow Bid Conditions
700	2	6B	5.39.2.1	89		Is it intended to send the train borne log via ETCS train borne to the RBC? This deviates from the standard and causes huge effort (mixing safe and non-safe applications). Is it allow to use a separate interface (not via RBC)?	Please refer Addendum & Corrigendum-02B
701	2	6B	Appendix O, 9.2.1	394		Is an ambient temperature of up to "-70°C" meant or rather up to "+70°C"?	Please refer Addendum & Corrigendum-01B
702	2	6B	3.2.2.1 (14)	19		Interoperability with future lines can only be achieved if the specifciations for those lines are available now, the specifications are consistent with the first line (i.e. allow interoperability) and the future lines will comply with the specifications. Can this be assured?	Please follow Bid Conditions
703	2	6B	2.6.4	16		Interoperability is required. This can only be achieved by standardisation. Some of the requirements in the specification contradict the international ATO over ETCS standards (see other comments). We assume that interoperability is achieved if the Contractor complies with the Employer's requirements and that it is in the responsibility of the Employer to set the requirements such that interoperability is achieved. This may include publishing proprietary interfaces or system properties. Is this understanding correct?	Please follow Bid Conditions
704	2	6B	5.3.2.3	39		In which mode shall this function be available? In ATO mode the train is braked automatically, so there is no need for the indication. In ATP mode is would contradict the manual driving principle and the ETCS and ATO over ETCS standards to supervise the station stop. This would be a mix of automatic and manual driving. A proprietary solution is possible, causing high effort.	Please refer Addendum & Corrigendum-02B
705	2	6B	5.3.4.1 and 5.3.4.3	39		If the neutral sections are placed at inappropriate locations by the Traction Power Contractor according to 5.3.4.3, then 5.3.4.1 gives restrictions to the signalling contractor which can results in not being able to meet other (e.g. performance) requirements. It is recommended that an agreement about neutral zones is achieved between Traction Power Contractor and Signalling Contractor.	Please follow Bid Conditions
706	2	6B	5.7.1.5	45		Here the speed limit applies for reversing, while in 4.9.3.2 (1) it applies for jogging forward. In which moving direction is it valid? Regarding the supervision see also comment on 4.9.3.2 (1): Shall it be supervised and with what safety requirement?	Please follow Bid Conditions
707	2	6B	4.9.3.1	29		From the requirement it is not clear who is responsible to select the correct side of doors to open: The train control and signalling system (providing dedicated signals for each side) or the driver (while the ATC generically authorizes both sides)?	Please follow Bid Conditions
708	2	6B	5.3.5.3	39		Emergency stop switch is a CBTC function not covered by the mainline standards for ETCS and ATO over ETCS. A proprietary solution is possibe causing respective effort. Since it is not an ETCS function, what is the required Safety Integrity Level (SIL) for this function?	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
709	2	6B	4.10.5.1	29		Does bi-directional running refer to the trackside or also to the train, i.e. shall the train be able to reverse its direction in all operating modes? Or does it mean trains driven from the opposite cab? Note that some ETCS modes don't allow reverse movements on the train.	Please refer Addendum & Corrigendum-02B
710	2	6B	Appendix O, 7.4 b (2) and 7.5	393		Does automatic changeover from one ATP/ATO trainborne equipment to the redundant other system allow a startup of the new system (new start of mission), i.e. cold standby, or shall the changeover be seamless (hot standby)? (see also 5.8.3.2)	Please follow Bid Conditions
711	2	6B	5.3.8.5	42		Does ATO mode for turnback mean automatic turnback? Which functions shall be automated? The train movements only (normal ATO mode) or e.g. also Start of Mission procedure?	Please refer Addendum & Corrigendum-02B
712	2	6B	5.1.2.5 (8)	36		Does "doors are not detected closed" refer to the train doors or also to the platform screen doors? Note that this is no interoperable function from the ATO over ETCS standard, but proprietary solutions are possible.	Please refer Addendum & Corrigendum-02B
713	2	6B		11	List of Standards / Specifications	ATO standards are missing. Is this intended (i.e covered by 1.2.5.5?)	Please refer clause 13 of Appendix D
714	2	6B	6.4.3.4	97		According to the CENELEC standards the Safety Integrity Level shall be defined per function, not per product. Putting the complete ATO to SIL2 will create huge effort. Which functions are required in SIL2?	Please refer Addendum & Corrigendum-02B
715	2	6B	5.1.2.5 (7)	36		According to 4.9.3.1 doors shall be opened manually. This is a contradiction.	Please follow Bid Conditions
716	2	6B	5.1.2.5 (7)	36		4.9.3.1 requires a different (larger) stopping window for doors to be enabled then the "docked" window from 4.9.2.2. This is a contradiction.	Please follow Bid Conditions
717	2	6B			Drawing 06 TRACK LAYOUT DUHAI NCRTC-DM024-AIA-DUHD-DPT-M2-OM-10006_REV-1.pdf	While opening this file it shows an error "cannot find or create the font "SansSerif". Some characters may not display or print correctly". Pls Provide CAD file.	To see the file please click on message "ok". At this stage CAD file can not be shared.
718	2	6B		Drawing	07 TRACK LAYOUT MODIPURAM NCRTC-DM024-AIA-MOD-DPT-M2-OM-10007_REV-1.pdf	While opening this file it shows an error "cannot find or create the font "SansSerif". Some characters may not display or print correctly". Pls Provide CAD file.	To see the file please click on message "ok". At this stage CAD file can not be shared.
719	2	6B	3.5.1.	Page 20 of 420	Territory between SKK & Modipuram: A distance of approximately 82 km (Refer track plan). There are 25 stations (including Stabling lines at Jangpura connected to SKK) on this line and two depots at Duhai and Modipuram.	Total number of station stated as 25 but in Delhi-Meerut Track Plan.pdf, total number of station are shown as 22 only. Pls kindly confirm the station numbers.	Please refer to Appendix R of Section 6B
720	2	6B	5.3.5.5.	Page 40 of 420	Platform screen doors	The functional scope split is not clear: 1. Which system shall supervise the doors? Train-borne or wayside? It should be wayside / trackside system. 2. What is the required stopping accuracy for using platform screen doors? We cannot commit to better than +/- 0.5 m. All stopping accuracy values require that appropriate balises are installed on the track according to our engineering rules. Below +/- 0.5 m an interoperable solution is not possible. 3. An interface to platform screen doors is not in the ATO over ETCS standard.	Please follow Bid Conditions
721	2	6B	4.7	Page 27 of 420	Signalled Headway	the design shall be based on a theoretical headway of 120 secs in order to permit trains to operate on a sustained headway of 180 secs under normal operations. This is again inspired from metro tenders and is unrealistic in an ETCS application especially when you include turnback time.	Please follow Bid Conditions
722	2	6B			Drawing "02 SYSTEM ARCHITECTURE NCRTC-DM024-AIA-XXXX-ZZZ-M2-SG-10002 REV-1 (4).pdf"	Station Chainages shown in "02 SYSTEM ARCHITECTURE NCRTC-DM024-AIA-XXXX-ZZZ-M2-SG-10002 REV-1 (4).pdf" are different than "Delhi-Meerut Track Plan.pdf". Pls Suggest which should be considered?	Please refer Addendum & Corrigendum-02B
723	2	6B		NA	General	Requirement of The European ATO over ETCS standard is mixed with CBTC specifications. This results in contradiction requirements, a decision is required which is to be considered? Pls Advise.	Please follow Bid Conditions
724	2	6B	5.3.7.4	Page 42 of 420	Impedance bonds shall be provided wherever required. The Signalling & Train Control Contractor shall provide the impedance bonds	Pls exclude the scope of supply of impedance bonds from signalling and move to Traction contractor	Please follow bid conditions
725	2	6B	8	Page 241 of 420	Shall install impedance bonds and make connection of the cable to Impedance Bond if applicable.	Pls exclude the scope of installation of impedance bonds from signalling and move to Traction contractor	Please follow Bid Conditions
726	2	6B		Drawings	Drawings	Please Provide all drawings in CAD format.	The drawings are provided for information only and native files can not be shared at this stage.

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
727	2	6B	46	General	Modes of train operation All the ETCS modes (as applicable) including ATO over ETCS (AoE) GoA2 & Automatic Turn Back (ATB).	Please Kindly remove Automatic Turn back, as it is not in scope of Operating modes as per PS 5.1.1	Please refer Addendum & Corrigendum-02B
728	2	6B		General	General	It is not clear what is the purpose of Onboard specification. General understanding is that the requirement of ATO over ETCS in Grade of Automation GoA 2 (driver attended) according to e.g. IEC 62290, but it is not clear (apart from maybe appendix O, 4.7 1., which seems a literal copy from ATO over ETCS subset 125).	Please follow Bid Conditions
729	2	6B		General	General	In general this seems an inconsistent mixture of technical details from mass transit and roughly copied functions from the European ETCS/ATO standards. These two concepts should be merged first. Otherwise there will be inconsistencies and a high effort for implementing both.	Please follow Bid Conditions
730	2	6B			Drawing NCRTC-DMGC-AIA-MA-BM-00002_CAD BIM Standards_.pdf	File is corrupt, Pls Provide CAD file.	Please refer Addendum & Corrigendum-02B
731	2	6B	3.3	Page 340 of 420	Reverse Running	Doing this with ATO is not covered by the standard ATO and is not planned to be implemented. This specification should be removed or as an alternative, consider to start a new mission from the other (rear) cabin.	Please refer Addendum & Corrigendum-02B
732	2	6B	28	Page 226 of 420	Shall request space for installation of SMPS	1. Please clarfiy the scope of SMPS for S&T contractor. 2. Who is responsible for SITC of SMPS ?	Please refer Addendum & Corrigendum-02B
733	2	6B	4.9.2.2	Page 28 of 420		+/- 0.3 m would be a challenge for mainline application. We recommend to offer better than +/- 0.5 m (provided the trains are modern EMUs and balises are placed at required locations close to the stop).	Please follow Bid Conditions
734	2	6B	5.1.1 (6)	Page 35 of 420	Chapter 5, Operating Modes	(6) Reversing etc. Pls kindly Explain what is reversing etc. ?	Please follow Bid Conditions
735	2	6B	3.4	Page 340 of 420 & Page 390 of 420	Station Stopping	This seems from Metros. Not covered by ETCS. ETCS doesn't know about station stops. Proposal: replace by the respective ATO over ETCS functions. Note that reversing is not allowed in ETCS Full Supervision.	Please refer Addendum & Corrigendum-02B
736	2	6A	9.1.4	GS, Page 9-1 of 16		Clause says : The Employer and the Employer's Engineer will bear their own costs for attendance at witnessed inspections or tests (other than re-tests) scheduled in accordance with the agreed Works Programme and subject to notice in accordance with the Specification. Does this means that cost of re-testing to be borne by contrcator? If yes, please detail the expanses.	Please follow bid conditions
737	2	6A	9.2.7.9	GS, Page 9-4 of 16		Clause Says: The Contractor shall be responsible for the cost and scheduling, to the Employer and the Employer's Engineer's convenience, of any repeat testing of items which fail FAI. **Please elaborate the clause and cost impact.**	Please follow bid conditions
738	2	6B	10.6.4.3	PS, 125 of 420		Appropriate and suitable work experience in mainline ERTMS or Metro should also be considered sufficient to demonstrate the competancy of the staff.	Please follow Bid Conditions
739	2	6A	11.2.1.2	PS, 129 of 420		Routine maintenance to be done by the Employer's engineers as per GS clause 12.1.2	Please follow bid conditions
740	2	6B	11.2.1.3	PS, 129 of 420		Clause 11.2.1.3 says that contractor need to depute suffecient staff in each shift is contradictory to GS clause 12.1.2 for maintenance support. Please clarify and confirm if the Engagement of contractor staff during DLP is as per the requirement raised by Employer for SOM as per clause 12.1.2	Please refer Addendum & Corrigendum-02B
741	2	6B	11.2.1.8	PS, 130 of 420		Appropriate and suitable work experience in mainline ERTMS or Metro should also be considered sufficient to demonstrate the competancy of the staff.	Please follow bid conditions
742	2	6B	11.2.2.2	PS, 130 of 420		Investigation of any falilure should be limited to work under scope in this contract.	Please refer Addendum & Corrigendum-02B
743	2	6B	11.8.5	PS, 137 of 420		This clause is in contradiction to 11.2.1.3	Please refer Addendum & Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
744	2	6B	5, 5.13, 5.13.1, 5.1	Page 49 of 420	5 OPERATION CONTROL CENTRE 5.13 General- Centralized Control center(CSS) 5.13.1 During its preliminary design, the Contractor shall issue a functional preliminary specification for the whole Operation Control Centre and related Back up, rehearsing all function achieved by the system in the different 'Operation Control Centre (OCC)' sub-systems. 5.13.2 The chapter describes the main Functional Features of the Centralized Control System (CCS), showing the reference architectures and operational levels of the system, both within the Operating Control Centre (OCC), and within the Local. 5.13.3 The extension of the controlled geographical area and the diversity of the functions require a distributed architecture both physically and functionally. The OCC is the super hierarchical element that centralizes the functions of supervision and coordination of the controlled area. For each Signalling sub-systems, during its preliminary design the contractor shall issue a functional preliminary specification in respect with the requirements of the present Chapter. Content of those preliminary functional specifications shall be detailed by contractor during detail design stage in detailed design functional specifications. The present document describes the main Functional Features of the Centralized Control System (CCS) system, showing the reference architectures and operational levels of the system, both within the Control Operating Centre (OCC), and within the peripheral stations – Peripherical Installation (PI).	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please follow Bid Conditions
745	2	6B	5.4.1	Page 44 of 420	Main Characteristics of CSS •Territory distributed system;	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please follow Bid Conditions
746	2	6B	5.13.5.2.	Page 49 of 420	Flexibility and Maintainability Open standard system for interoperability.	Please share the specification of standard system or some references	Please refer Addendum & Corrigendum-02B
747	2	6B	5.13.5.3.	Pg 50 of 420	Efficiency •Alarm management •Event management •Crew management •Train Tracking management •Boundary Management •Shunting Area (SA) •Disruption management •Multi-User Management •Configuration Management •Rolling stock Msnagement	The following are new ATS requirements specific to this project: Boundary Management Disruption management Shunting Area (SA) Rolling stock Msnagement Kindly reconsider including these.	Please refer Addendum & Corrigendum-02B
748	2	6B	5.13.5.3.	Page 50 of 420	Efficiency b.Simplification of procedures;	Need more info rmation on this requirement	Please refer Addendum & Corrigendum-02B
749	2	6B	5.13.3.	Page 49 of 420	The extension of the controlled geographical area and the diversity of the functions require a distributed architecture, both physically and functionally. The Operation Control Centre (OCC) is the superior hierarchical element that centralizes the functions of supervision and coordination of the controlled area.	We did not found any merit of this system rather than a 3rd (Local ATS) & 4th Level (Depot) of ATS complicated opration along with OCC & BCC which may creat enourmous confusion to the operator as well as Singnal Maintainer. We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please follow Bid Conditions
750	2	6B	5.14	Page 50 of 420	FUNCTIONAL ARCHITECTURE of CCS 2. Diagnostic & Maintenance Management;	Need more information of diagnostic and Maintenance of signalling gears. To what extent? As a part of diagnostic do we need to measure voltage and current level of signalling gears. Please clarify	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
751	2	6B	5.14	Page 50 of 420	(9) Access control and Intrusion Detection system	We request for the removal of the functionality. We feel it is not relevant for ATS operation	Please refer Addendum & Corrigendum-02B
752	2	6B	5.14	Page 50 of 420	(10) Distributed Acoustic System	We request for the removal of the functionality. We feel it is not relevant for ATS operation	Please refer Addendum & Corrigendum-02B
753	2	6B	5.15	Page 51 of 420	5.15. Central Traffic Management System (CTMS) 5.15.1 The Centralized Traffic management system shall be implemented through TMS(Automatic Train Supervision) CTMS (Centralized Traffic Management System)and TMS(Traffic management system) system. Operator shall utilize all functions of TMS (CTMS) and TMS for train operation. TMS 5.15.2 TMS system shall have data processing facilities and achieve the minimum following main functions but not limited to: (1) Dispatch remote commands; (2) Real time monitoring of trains position; (3) Traffic regulation; (4) TMS functions (5) Junction management (6) Offline and online train dispatch timetable management (7) Data exchange with external systems related to traffic management (including tools for operational plan and traffic monitoring preparation).	CTC and TMS functionality are achieved as a part of ATS system itself	Please refer Addendum & Corrigendum-02B
754	2	6B	4	Page 353 of 420	TMS Functions. Traffic management/TMS functions (SS,TH,KDC,DOOR STATUS)	What is SS,TH and KDC please provided us with more information	Please refer Addendum & Corrigendum-02B
755	2	6B	5.16.4.	Page 52 of 420	The Train Control and Signalling System shall provide commands to disable automatic route setting on specific routes, specific IXL and for specific train and manually set routes in various modes. The following modes shall be available for route setting: (1) Fleet and manual modes (including shunt route setting); and (2) Sequence mode for turnarounds.	Please explain the mode 'Sequence mode for turnarounds' - what is the customer expectation here?	Please refer Addendum & Corrigendum-02B
756	2	6B	5.16.8.	Page 52 of 420	The ARS initiation point (or trigger point) that trigger ARS in sending the command shall be based on the booking time calculated by the TMS: this permits to open the route with respect of the effective speed of a train “blocking” this route for a minimal time.	Please explain "Booking Time"	Please refer Addendum & Corrigendum-02B
757	2	6B	5.17 & 5.17.7	Page 53 of 420	5.17 Real time monitoring of Train Position 5.17.7 During switchover from Central TMS TMS to Local/Peripheral TMS TMS or from one TMS TMS server to the redundant TMS server there should not be any loss of Train ID. The operator shall be able to assign, delete, replace, change and edit the Train Id /Rake id from CTMS MMI TMS MMI and CTMS TMS shall verify from TMS CTMS.	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please refer Addendum & Corrigendum-02B
758	2	6B	5.18.9.	Page 58 of 420	ATR Commands ATR shall provide following operator commands to be selected through TMS: (1) Select Regulation Mode; (2) Select Schedule Regulation Strategies (3) Set train in service, out of service (4) Anticipation of delay (5) Control compensation step for delay distribution	We need more information on Control compensation step for delay distribution.	Please follow Bid Conditions
759	2	6B	5.19	Page 58 of 420	TMS FUNCTIONS (12) Train detection and train follow-up	Please provide more details about "Follow - Up"	Please follow bid conditions
760	2	6B	5.19	Page 58 of 420	(13) Axle Counter management	Please request to remove interface with Axle counter management system with ATS. Since Axle counter system is a stand alone system.	Please refer Addendum & Corrigendum-02B
761	2	6B	5.19	Page 59 of 420	(15) PTI management	Please eloborate on PTI functionality.	Please refer Addendum & Corrigendum-02B
762	2	6B	5.19	Page 59 of 420	(19) Change of ends request	Please eloborate " Change of end request"	Please follow Bid Conditions
763	2	6B	5.19	Page 59 of 420	(23) Delay distribution management	Need more information	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
764	2	6B	5.19	Page 59 of 420	(25) Rolling stock management	Request for deleteing this functionality	Please follow Bid Conditions
765	2	6B	5.19	Page 59 of 420	(26) Implementing Wet and dry profile	Request for deleting this functionality	Please refer Addendum & Corrigendum-02B
766	2	6B	5.19.10.2.	Page 62 of 420	The TMS sub-system is divided into three categories: (1) Category 1: Communication with other signalling systems & Local signalling operation. Automatic signalling operation from Local TMS server at station.	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please refer Addendum & Corrigendum-02B
767	2	6B	5.19.10.2. (7)	Page 63 of 420	(7) The TMS sub-system component of Category 3 shall be composed of: (a) Off-line Redundant LAN	Need more information	Please follow Bid Conditions
768	2	6B	5.19.18	Page 65 of 420	5.19.18. Rollingstock Management function:- The Rolling Stock management function shall include the following: 5.19.18.1. Rolling Stock Plan Management component including adjustment of rolling stock assignment 5.19.18.2. Rolling Stock Follow Up component including management of localisation of Rolling stock i.e. Yard,Mainline and Stabling lines. 5.19.18.3. Rolling Stock Constraints Management component 5.19.18.4. Maintenance Management component including a) Follow incident b) Follow Rolling stock failure c) Detection of hot axle failure through HABD. 5.19.18.5. TDS interface component 5.19.18.6. MMI interface component	We request to remove this functionality	Please follow Bid Conditions
769	2	6B	5.19.19.1.	Page 65 of 420	TMS shall be capable to allow operator to apply “dry” or “wet” condition of track that shall be communicated to train to act accordingly. The operator shall have the option to apply such condition on any track section particularly in open area.	We request to remove this functionality	Please refer Addendum & Corrigendum-02B
770	2	6B	5.19.21.6.	Page 67 of 420	Timetable Adjustment The TMS shall adjust the timetables automatically under the following circumstances: 1. Global adjustment made to one timetable block;	Please provide us more information about Global adjustment	Please follow Bid Conditions
771	2	6B	5.19.21.7.	Page 67 of 420	Compare Timetables 5.19.21.7.1. The TMS shall compare timetables to ensure the matching of trains at interchange stations. Conflicts shall be highlighted automatically with proposed feasible solutions in system. 5.19.21.7.2. A facility shall be provided for the setting of arrival time difference for interchange stations, duration of interchange matching required and the matching of interchange stations for a particular period.	Our Understanding is this requirement means that Timetable function checks consistency of connection between 2 trains which are set as waiting for people who transfer to another train. We should consider. Please confirm)	Please refer Addendum & Corrigendum-02B
772	2	6B	5.19.21.13.1.	Page 68 of 420	6. Shift the time of train schedule for all the trains before or after a stipulated time.	Need more information here.	Please follow Bid Conditions
773	2	6B	5.19.21.13.1.	Page 68 of 420	10. Resume suspended timetable from current time through a single command with automatic train assignment and operations;	We request for deleting this requirement	Please follow Bid Conditions
774	2	6B	5.21.3	Page 68 of 420	2. remote control of local equipment in safe manner for fault reset.	Resetting a device in fault condition by a remote system is difficult. Because failure equipment cannot receive the command for reset. We request for deleting this functionality.	Please follow Bid Conditions
775	2	6B	5.21.5.	Page 68, 69 of 420	5.21.5. Diagnostic and Maintenance of all installations, including all diagnostic activities, on-line and forecast activities, related to all apparatus, devices, systems laid on trackside and in the various local locations as follows: (1) Signalling equipment including Platform screen doors and Hot axel detection system; (2) Onboard ATP, RBC & ATO. •Diagnostic and Maintenance of the Centralized Control System, that mainly concerns the diagnostic of the electronic apparatus of CTMS & TMS and their software.	This are all standalone system specific diagonostic tools shall be available and not related to ATS; hence to be deleted from ATS specification.	Please follow Bid Conditions
776	2	6B	5.28., 5.28.3.	Page 73 of 420	5.28. Playback system 5.28.3. Facility of copying Logs and events from any TMS Subsystem to Playback system shall be Provided.	We request for deleting this requirement	Please follow Bid Conditions
777	2	6B	5.30, 5.30.1.1	Page 73 of 420	5.30. Control Locations 5.30.1.1. Workstations for control shall be provided in the following locations: (1) Operations Control Centre (OCC); (2) Depot Control Centre (DCC); (3) Station Control Room (SCR); (4) Backup OCC(BCC)	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
778	2	6B	5.30., 5.30.1.4.	Page 73 of 420	5.30. Control Locations 5.30.1.4. The workstation at the Software Development Facilities Centre shall be used for software development. These changes shall only be performed off line.	We request for deleting this requirement	Please refer Addendum & Corrigendum-02B
779	2	6B	5.30.4., 5.30.4.1, 5	Page 74 of 420	5.30.4. Local Control from Station 5.30.4.1. Not used 5.30.4.2. TMS Workstations shall be provided in each SCR. 5.30.4.3. TMS workstation shall be provided at all IXL station with all the functions under authorization of OCC,and verbally under OCC authorization upon failure of OCC if it is in operation,	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please refer Addendum & Corrigendum- 02B
780	2	6B	5.30.7.7.	Page 75 of 420	The TMS system shall ensure central control from Operation Control Centre, local control from each main line Station Control Room, and depot control from Depot Control Centres. The TMS networking shall guarantee the fault tolerance, transfer of controls between control levels, hot redundancy ensuring transparent switchover, TMS scalability and without loss of data.	We propose a Centralized ATS redundant Server both physically and functionally at OCC with the interfaces to other subsystems at OCC along with a BCC (Redundant Server) as a second level of system identical to Centralized ATS both functionally and physically.TMS and CTC functionality along with ARS feature, shall be an integral part of Central ATS at OCC & BCC. IxL Control shall be available at the Station Control Room with the feature for manual mode of operation at local level in degraded mode. For depot separate Redundant server with TMS feature and operation at IXL control shall be available at depot .	Please follow Bid Conditions
781	2	6B	5.34.4., 5.34.4.4.	Page 83 of 420	5.34.4. Line Overview Diagram 5.34.4.4. Line Overview Diagram - Detailed Display The magnification feature shall not only magnify the line overview, it shall add additional information and details at a higher magnifications levels as follows: 1. Point identities; 2. Block identities; 3. Signal identities; and 4. Maintenance blocks and temporary speed restriction zones. 5. OHE mast number and location Identities 6. Axle counter Identity 7. RBC	OHE - Not possible. Please remove this functionality RBC - Our understanding is static display of the location where RBC equipment is physically placed. Please confirm	Please refer Addendum & Corrigendum-02B
782	2	6B	5.34.4	Page 83 of 420	5.34.4. Line Overview Diagram On MMI 34. Status of OHE supply/OHE energisation status.	This information is already displayed in SCADA system. Hence request to remove this functionality from ATS	Please refer Addendum & Corrigendum-02B
783	2			175	**Section 6C/5.6.2.11(1) (CCTV - POE Switch)**	Please consider ***Gigabit access port (10/100/1000 Mpbs)*** for Layer 2 field switches.Currently it has been asked to support 10/100 Mbps only.The switch is of 28 port including 2 Gig uplink.All the hardware is asked for longer support .We request to change the speed to 10/100/1000 considering the traffic growth of next 10-15 years. All leading OEM new product supports 10/100/1000 speed at client side also. Mjority Cameras, Access Points, sensors, Relays are comming with 1/100/1000 Mbps support. It will be imperative to position New switches considering long term support requirement of Gigabit access port (10/100/1000 Mpbs)	Please follow Bid Conditions
784	2			175	**Section 6C/5.6.2.11.2(8) (CCTV - POE Switch)**	Current Specification only ask for **Port Security (IP/MAC)**. With increase in threat and criticality of network we suggest to include the following protocols also as part of secuirty. **Shall have Port security (IP/MAC), Secure boot, 802.1x, Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, BPDU guard, IPv6 RA gurad and IPv6 DHCP guard**.	Please follow Bid Conditions
785	2			175	**Section 6C/5.6.2.11.2(5) (CCTV - POE Switch)**	Current specification asks for Operating temperature **0°C to + 60°C**, Humidity up to 90% (non-condensing). Switch shall be without any moving parts (no fans). We would request to. **Change the operating temperature to 0 to 70C. This will help in reducing the hardware failure of switch.**	Please follow Bid Conditions
786	2			175	**Section 6C/5.6.2.11.2(3) (CCTV - POE Switch)**	The curret clause is asking for only IGMP support for multicast but there are different versions of IGMP protocol which is required to run for Sparse and source specific multicast. Sparse mode and source specific multicast widely deployed.IGMP snooping is key feature to determine whihc all ports are intrested in a perticular stream and bringing a single copy of data which is the essence of multicast. So we reuest you to add **IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier and MLD Snooping also as requirement for running multicast.**	Please follow Bid Conditions
787	2			176	**Section 6C/5.6.2.11.2(9) (CCTV - POE Switch)**	The RFP mentionas that the Switches shall meet all the above specifications and shall be from the reputed OEM. To ensure that quoated product is from reputed OEM pls allow **OEM from Gartner Magic Quadrant leader and Challenger Quadrant category in Wired and Wireless for the year 2019.**	Please follow Bid Conditions
788	2			176	**Section 6C/5.6.2.11.3 (CCTV - POE Switch)**	RFP requires 4/8- port Layer- 2 Industrial grade switches which may be used for connecting the CCTV cameras outside the stations to the nearest station .**We under stand that the specification for same is similar to the 28 port switch**. Please clarify also clarify whether 4 port port or 8 port POE switch would be required?	Please follow Bid Conditions
789	2			New (175) in POE Switch	**Section 6C/5.6.2.11.2 (CCTV - POE Switch)**	We would recommend to add: **"The switch should support Swapping of drive which has all config from the faulty switch to New switch to ensure faster restoration without sending skilled person on field"**	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
790	2			New (175) in POE Switch	**Section 6C/5.6.2.11.2 (CCTV - POE Switch)**	We would recommend to add: "The switch should support features like dying gasp/core dump to ensure logs are captured before switch goes down in case of any outage".	Please follow Bid Conditions
791	2			New (175) in POE Switch	**Section 6C/5.6.2.11.2 (CCTV - POE Switch)**	We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
792	2			New (175) in POE Switch	**Section 6C/5.6.2.11.2 (CCTV - POE Switch)**	We would recommend to add: "The Switch must support features like RSPAN"	Please follow Bid Conditions
793	2			New (175) in POE Switch	**Section 6C/5.6.2.11.2 (CCTV - POE Switch)**	We would recommend to add: "The POE Switch must support EN-50121 compliant, as per Railway standard".	Please follow Bid Conditions
794	2			192	**Section6C/ Telephone System 6.2.1.1**	**RFP requirement:** It shall be a highly reliable State of the art, non-blocking, ISDN compatible IP PBX Telephone network for voice, facsimile and data communication services throughout the RRTS Corridor. Telephone sets (where applicable) shall be provided in the control rooms, , administration offices, HQ, rooms for operation, maintenance, security and equipment rooms, mid tunnel shaft, emergency evacuation routes at stations, staff rooms in the OCC/BCC, depot, RSS and all stations. Each OCC/BCC controller position shall also be provided with IP PBX telephones. **We would request to change as below:** The technology is shifting towards IP based voice communication. We request the IP PBX to be 100% IP Compatible	Please follow Bid Conditions
795	2			205	**Section6C/ Telephone System 6.2.1.1**	**RFP Requirement: Digital Feature Telephone** We would request to change as below: **IP phones are better than Digital Phones. We request you give flexibility to the bidder to quote IP Phones with same features and functionality instead of digital phones**	Please follow Bid Conditions
796	2			60	Section 6C / 1.12.4 Software Support	Kindly clarify that fo 24x7 TAC support for any offered should be in place. **The offered product should be supported by 24x7x365 TAC Support from the OEM of the Product with toll free number**	Please follow Bid Conditions
797	2			19	**Section6C/ Particular Specifications – Telecommunications/ General Specification/ 1.3.5**	"Relevant Codes and Specifications". 1.3.5.1 The Sub-system and its constituent parts shall comply with the relevant latest version of British Standards, International Electromechanical Commission (IEC) standards, International Organization for Specification (ISO) Standards, European Standard (EN) or UL Standards (Underwriters Laboratory) etc. as specified below **Please clarify the relevant standards are for which items.**	Please follow Bid Conditions
798	2			19	**Section6C/ Relevant Codes and Specifications/ 1.3.5**	Please clarify following equivalent standards are acceptable for Chapter 7 – DATA TRANSMISION SYSTEM (DTS) and not for EPBAX System and L2 and L3 switches. We would request for following changes for larger participations **Power Transformers: IEC 60076, EN 60076 or IEC 61850-3 (2002)** **Surge Protective Devices:** IEC 61643 – 1, UL1449 or equivalent standard (equal or more stringent) **or IEC/EN 61000-4-5** **EMC – Immunity:** IEC 60801, EN 60801 or EN 55024 or EN 300386 **EMC – Emission:** VDE 0875 or IEC 60555, EN 60555 or EN55022, class A or CISPR22, class A **Inter system EMC:** EN 50082, EN 50121, ~~EN 50123, EN 50155, IEC 571, IEC 1000 or equivalent:~~ Level measuring systems utilizing ionising radiation with continuous or switching output: IEC 60982 or FCC CFR47 Part 15, Class A **Sound Level of Noise Source:** ISO 3746, BS 4196–6 or Network Equipment Building Standards (NEBS) GR-63-Core Issue 5 **Flammability Tests**: IEC 60707 or Reduction of Hazardous Substances (ROHS) Code of practice for Earthing: IEEE1100, NFPA 780, IEC1024 or equivalent in GR-63-CORE and GR-1089-CORE **Transient Protection:** MIL-STD-7041A or IEC/EN 61000-4-5 **Lightning Protection:** BS-6651 or IEC/EN 61000-4-5 **Electromagnetic Compatibility (EMC):** Generic standards immunity for Industry environments: BS EN 61326 (Annex A) or EN 300 386, class A **Specification for safety requirements for equipment to be connected to telecommunication networks:** BS EN 41003:1999 or EN 60950-1, 2005 **Safety requirements for electrical equipment for measurement, control & laboratory use. Part 1:** General requirements: BS 61010-1:2003/A2:1995 or EN 60950-1, 2005 **Secondary protectors for Communication Circuits.**: Underwriters Laboratory safety std 497A or safety in GR-63-CORE, GR-1089-CORE **Following are not applicable for Telecommunication system equipment :** Valve Regulated Sealed Lead Acid Rechargeable Single Cells:, Low-voltage Switchgear and Control gear Assemblies	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
799	2			30	**Section6C/Particular Specifications – Telecommunications/ General Specification /1.5.6.3 to 1.5.6.5**	Kindly suggest follwoing changes for Telecommunications equipments 1.5.6.3 The maximum levels of radiated and conducted EMI of the System shall not exceed the levels specified in EN50081-1/ EN 61000-6-3:2007+A1:2011 **or GR-1089-CORE** 1.5.6.5 For PAS/PIDS, EMC emission according to BS EN 55032:2012 & EMC immunity according to EN 55103 – 2 EMC certified to meet EN50121-4 or GR-1089-CORE	Please follow Bid Conditions
800	2			31	**Section6C/Particular Specifications – Telecommunications/ General Specification /1.5.7**	Inter-system EMC 1.5.7.1 The contractor shall ensure that all equipment are design and constructed in accordance with latest versions of EMC standards including but not limited to latest version EN50082, EN50121, EN 50123, EN50155, IEC571, IEC1000 or equivalents to ensure proper functioning or or GR-1089-CORE	Please follow Bid Conditions
801	2			217	**Section6C/ EPBAX POE Switch 6.5.3.1.25**	The Layer 3 Managed and Layer 2 Managed switches at OCC, BCC, Depots, HQ and Stations to be provided as per table 6.5 to meet overall design requirement 1. L2 Managed Switch 8 Ethernet 10/100/1000BT PoE Ports supporting IEEE 802.3AF and 802.3AT compliant PoE (dynamic PoE allocation) with 2 combo 10/100/1000Base-T/SFP ports for Uplink, **1K VLANS**. Basic L3 features for Static routing, IPv4 and IPv6 support. Provision for local/remote configuration backups. We would recomend 256 VLANs instead 1K VLANs for larger participation	Please follow Bid Conditions
802	2			217	**Section6C/ EPBAX POE Switch 6.5.3.1.25**	We would request for following changes L3 Stackable **or 10G port other than uplink ports and** Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2x10G SFP+ for Uplink~~, 4 combo 10GBase-T CX-4 ports,~~ **(this is a not a industry standard , so request to delete 10G BaseT)** Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto **80** ~~100~~ kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	Please Refer Addendum and Corrigendum-02B
803	2			217	**Section6C/ EPBAX POE Switch 6.5.3.1.25**	**L3 and L2 Switch should have Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, BPDU guard, IPv6 RA gurad and IPv6 DHCP guard**.	Please follow Bid Conditions
804	2			217	**Section6C/ EPBAX POE Switch 6.5.3.1.25**	We would recommend to add: "The switch should support features like dying gasp/core dump to ensure logs are captured before switch goes down in case of any outage".	Please follow Bid Conditions
805	2			217	**Section6C/ EPBAX POE Switch 6.5.3.1.25**	We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
806	2			217	**Section6C/ EPBAX POE Switch 6.5.3.1.25**	We would recommend to add: "The Switch must support features like RSPAN"	Please follow Bid Conditions
807	2			243	**Section6C/Data Transmission systems/7.4.4.3**	General Carrier Grade Data Transmission systems life is not beyond Seven years. So, kindly change long term support till 10 years, instead of 25 years. Similarly for Servers, it should be Seven Years	Please follow Bid Conditions
808	2			248	**Section6C/Data Transmission systems/7.5.5.2.4**	Network Management System 1) An SDN ready Management workstation with GUI features shall be installed in OCC and BCC to provide the necessary control, supervision, maintenance, configuration and performance management. The design shall cater for standard NMS functions. For network support with SDN ready, the network equipmentts must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
809	2			248	**Section6C/Data Transmission systems/7.5.5.2.4**	The equipment shall be Commercial off the Shelf (COTS) products and shall be for industrial purposes and harsh environment like MRTS/Railway, widely deployed across a wide range of commercial networks. **Kindly add the device should be as per EN50121 compliant**	Please follow Bid Conditions
810	2			249	**Section6C/Data Transmission systems/7.5.5.3.2**	**We would request following changes :** 7.5.5.3.2 Network Synchronization 4) The core DTS equipment shall support Ethernet synchronization preferably SyncE to IEEE 1588V2 standard **with T-BC and G.8275.1 Telecom Profile and NTP**. The synchronization shall have frequency as well as phase synchronization, NTP Server and Client functionality.	Please follow Bid Conditions
811	2			252	**Section6C/Data Transmission systems/7.6.2.4 / Core Layer (ii)**	**We would request following changes , as in thenetwork generally Redundancy occurs through Active-Standby mode instead of Active-Active mode** The OCC and BCC shall each be equipped with Carrier Grade Core Switch of 40G in **active-~~active~~ Standby** redundancy and operate as one logical Layer 3 switch.	Please follow Bid Conditions
812	2			252	**Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer**	We would request following changes , as in thenetwork generally Redundancy occurs through **Active-Standby mode instead of Active-Active mode** 2) Distribution & Access Layer (i) The station CER/TER shall be equipped with distribution switches in active**-~~active~~** Standby redundancy and shall operate logically as one layer 3 switch.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
813	2			252	**Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer**	We would request clarity on the Industrial grade in Data Transmission Systems is in terms of **Industial Temperature till 65 DegreC** (vii) At the outdoor locations/platform level, the switches shall be of industrial grade with a minimum of 16 ports, and all the edge devices shall terminate on outdoor switches. (viii) The industrial grade switches shall be connected in 1G fibre ring with sub 50ms ring protection and shall be dual homed on cluster of distribution switches.	Please follow Bid Conditions
814	2			256	**Section6C/Data Transmission systems/7.7**	Kindly clarify to introduce 100G instead of 40G, as majority of new network are using 100G instead of 40G. To have redundancy in the link in each direction, we would recommend to hav**e 4x100G in each Core Switch**	Please follow Bid Conditions
815	2			256	**Section6C/Data Transmission systems/7.7**	Kindly clarify this Port requirement table is related to Core and Distribution Layer.	Please follow Bid Conditions
816	2			256	**Section6C/Data Transmission systems/7.7**	Kindly clarify Distribution Layer should have more 10G and more 1G Fiber interfaces instead of elctrical interfaces to connectivity to station switches and reachability to tthose switches. **We would recommend Stations/ Depot Layer -3 Switch should have 8x10G SFP+, 2x100G for connectivity between to two switch and 8x1GSFP and 4x1G RJ45**	Please follow Bid Conditions
817	2			252	**Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer**	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
818	2			252	**Section6C/Data Transmission systems/7.6.2.4 / Core Layer (ii)**	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
819	2			257	**Section6C/Data Transmission systems/ Core Layer / 7.7.1.2 Security Features**	We recomend to following change, as per Industry standry standard with **full duplex** requirement Performance Specifications 1) Backplane Bandwidth shall support non-blocking wire speed for current ports including future expansion ports as well. However, the core switch should support minimum **800 Gbps Full Duplex non-blocking switching fabric capacity.**	Please follow Bid Conditions
820	2			259	**Section6C/Data Transmission systems/ Core Layer / 7.7.1.6 Security Features**	**802.1X is a security feature is a security feature of POE End Switches, not for Core or Distribution switches. Kindly delete this clauses** 7.7.1.6 Security Features should be deleted related to 802.1X 17) 802.1x Network Security and Authentication. Support for the 802.1x standard allows users to be authenticated regardless of which LAN port they are accessing and provides unique benefits to customers who have a large base of mobile (wireless) users accessing the network. 18) 802.1x with VLAN assignment allows a dynamic VLAN assignment for a specific user regardless of where the user is connected. 19) 802.1 x and assigning VLAN and priority for IP phones automatically, simplifying network configuration and maintenance. 20) 802.1x with port security for authenticating the port and managing network access for all MAC addresses, including that of the client.	Please follow Bid Conditions
821	2			260	**Section6C/Data Transmission systems/7.7.2 Distribution Switch**	We would request following changes 7.7.2.1 Switch Architecture 1) Distribution Switch should have Redundant Power supply. 2) **Dedicated ~~stacking~~ Ports supporting 2x100 Gbps.** 7.7.2.2 Performance Specifications: 1) Backplane Bandwidth: minimum **200 Gbps non-blocking full duplex** 2) Layer 2/3 Forwarding Performance: minimum **300 Mpps**	Please follow Bid Conditions
822	2			258 & 269	**Section6C/Data Transmission systems/Core 7.7.1.4 and Distribution Switch / 7.7.2.4**	We would recommend to have futuristic L3 Routing features and SDN related features for Core and Distribution Router/Switches 7.7.2.4 and 7.7.1.4 Layer 3 Features Support: **Router shall have unicast IPv4/IPv6 routing protocols (BGP, OSPF, IS-IS, RIP etc).** **Router should support TI-LFA, R-LFA,** **Router shall support Segment Routing and Segment Routing Traffic Engineering (SR-TE), EVPN, Segment Routing for IPv6,On demand next hop ,Any cast SID, support of minimum 5 label depth** **The router should support Black hole filtering, RTBH and BGP Flow Spec: dropping of traffic destined for a specific prefix at wire speed.**	Please follow Bid Conditions
823	2			62	1.12.5.3.2 Supervisory Staff - The total of 30 man-months SOM shall be provided by contractor. Distribution of man-months for each telecom sub-system shall be done as per employer's discretion.	Pls clarify if this scope is also applicable post the DLP.	Please follow Bid Conditions
824	2			62	1.12.6.1.2- Support during DLP Staff of employer/O&M agency shall be deputed at suitable locations for first line of maintenance. Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses.	Pls clarify the scope distribution - is Contratcor/LTE OEM expected to perform only L2 Operations support during DLP or complete L1 & L2 operations from Field and NOC (FCAPS)? LTE OEM's resources required in shift are applicable in NOC or Field? - Pls clarify as it is mentioned location shall be decided by NCRTC.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
825	2			63	1.12.6.1.9 The Contractor shall provide comprehensive DLP support for items supplied by him and provide call-out services to the Employer as required restoring the System to normal operation in case of faults and defects are found.	Does NCRTC mean NOC activities e.g. Alarm surveillance & L1 fault management is to be performed by Contratcor/LTE OEM? Since it is mentioned that normal day to day maintenance shall be done by NCRTC, will NCRTC share the SOW to be performed by them and the manpower that will be performing those tasks so that contractor/LTE OEM's solution doesn't duplicate responsibilities?	Please follow Bid Conditions
826	2			61	1.12.5.1.1 Supervision and planning The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Employer's Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer.	Contractor/LTE OEM assumes this scope is applicable post DLP of 3 years and tenure can go upto 6 months post expiry of DLP. Pls confirm.	Please follow Bid Conditions
827	2			64	1.12.6.5 Support and Call-out Services 1.12.6.5.1 The support and call-out services shall be available 24 hours per day and 7 days per week. 1.12.6.5.3 The Contractor shall provide a list of maintenance staff together with the contact mobile telephone numbers who can be contacted for support and call-out services. List of all the Contractor's staff responsible for attending the failure during DLP shall be displayed at all the stations with their address and contact numbers.	"support and call-out services" is only applicable for DLP period or shall be extended after expiry of DLP? If yes, Kindly specify the support period after DLP.	Please follow Bid Conditions
828	2			77	Section 6C Particular Specification Telecommunication Clause 2.2.4 The PAS facilities for the Depots & Head Quarter shall be standalone without any control and access from OCC & BCC.	Two stand alone PAS system required for Depots and Head quarter. - - **Does it mean all system with redudancey and PC software needed as separate system without any any interface with OCC & BCC?**	Please follow Bid Conditions
829	2			85	Section 6C Particular Specification Telecommunication Clause 2.5.1.4 PAS announcement shall be capable of being originated from designated radio sets also to a set of pre-defined PAS zones at each station. It should be possible to make simultaneously Radio to PAS announcement at minimum 5 different stations. This needs to be coordinated, planned, executed and demonstrated by the contractor along with the Radio and Telephone contractor.	PAS announcement shall be capable of being originated from designated radio sets also to a set of pre-defined PAS zones at each station. It should be possible to make simultaneously Radio to PAS announcement at minimum 5 different stations. - - - **Radio system interface and mode of connection details required**	Please follow Bid Conditions
830	2			90	Section 6C Particular Specification Telecommunication Clause 2.5.10.2 The PAS shall have the facility to broadcast live FM/AM (Govt. Channels/ Frequencies or any other channel).	In PAS system at station, FM/ AM reception facility mentioned. **Is it expected in PAS or PAS should interface with FM/ AM system**	Please Refer Addendum and Corrigendum-02B
831	2			87	2.5.7.1	4) Each Platform Announcement Device shall be provided with Hard wired PAS control panel and microphone. The PAS control panel shall have the facilities to make live broadcast to Particular Zone or all Zones. **Does this Announcemnet limited to respectiv station only?**	Please follow Bid Conditions
832	2			77	Section 6C Particular Specification Telecommunication Clause 2.2.5 The PAS at stations shall be accessed from the following locations as a minimum: 2)Wall mountable Station Announcement Equipment at each Platform/ PSBs (wherever applicable)	As per our understanding PA control panel to be consider for PSB with wall mount arrangement . Please confirm.	Please Refer Addendum and Corrigendum-02B
833	2			79	Section 6C Particular Specification Telecommunication Clause 2.3.3.7- One Hard wired PA Control panels, complete with microphone, zone selection facility and inter- panel- calling facility shall be provided at designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in each zone/ all zones. The PAS shall provide uniform broadcast coverage throughout all areas of each site within which staff or members of the public may gain access to. The design shall be such that the speakers are so located as to ensure that there are no dead zones between adjacent speakers due to interference or any other reason.	As per our understand, One Hard wired PA Control panels, complete with microphone, zone selection to be consider on designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in their respective locations each zone/ all zones. please confirm.	Please follow Bid Conditions
834	2			81	Section 6C Particular Specification Telecommunication Clause 2.4.2.8 -Through acoustic modelling the relevant system performance shall be validated to comply with the following requirements: 3))Frequency Response - All areas 100 Hz to 16 khz at - 10 dB and In case of horn speaker 500 Hz to 4.5 khz at - 10dB.	System should have a minimum frequency response from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hz – 5.0 kHz at -10 dB. Please do consider the changes accordingly .	Please Refer Addendum and Corrigendum-02B
835	2			82	Section 6C Particular Specification Telecommunication Clause 2.4.4.1- The minimum overall system frequency response for the PAS from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB excluding PA from depots.	The minimum overall system frequency response for the PAS should from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB excluding PA from depots. Please do consider the changes accordingly .	Please Refer Addendum and Corrigendum-02B
836	2			82	Section 6C Particular Specification Telecommunication Clause 2.4.4.2-The corresponding system frequency response from a radio input channel shall be 100 Hz to 16 kHz, ± 3 dB or better.	The corresponding system frequency response from a radio input channel shall be 170Hz to 20KHz, ± 3 d B , please do consider the changes accordingly.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
837	2			84	Section 6C Particular Specification Telecommunication Clause 2.4.8.6-The PAS shall have two Racks/Amplification systems (Circuits) at each Station as Primary & Secondary, the Primary Rack will feed to Even speakers of all Zones & Secondary Rack will feed to Odd numbered speakers of all Zones. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability. The PAS shall ensure that each zone is driven from two separate amplifier channels and that there is in addition, a standby amplifier in a ratio of >10% to provide automatic substitution in the event of a duty amplifier failing.	The PAS shall have two independent Amplification systems at each Station as Primary & Secondary, the Primary amplification will feed to Even speakers of all Zones & Secondary amplification will feed to Odd numbered speakers of all Zones. Failure of Primary amplification shall not hamper functionality of secondary amplification hence maintaining 50% Speakers availability. The PAS shall ensure that each zone is driven from two separate amplifier channels and that there is in addition, a standby amplifier in a ratio of >10% to provide automatic substitution in the event of a duty amplifier failing. please do consider the changes accordingly.	Please follow Bid Conditions
838	2			86	Section 6C Particular Specification Telecommunication Clause 2.5.6.2 -The contractor has to provide a PAS rack for full coverage of OCC and BCC similar to a PAS rack provided at a typical elevated station with expansion capacity. Provision of hardwired control panel, complete with microphone and station-wise zone selection shall be made for OCC and BCC to make live audio broadcasts to any zone or group of zones or all zones there.	As per our understanding Hard wired PA control panel complete with microphone to be provided at OCC and BCC to make live announcement at selected zone or all zone on OCC and BCC itself. Please confirm.	Please follow Bid Conditions
839	2			87	Section 6C Particular Specification Telecommunication Clause 2.5.7.1.1 - (1)The OCC/BCC shall have full announcement facilities as described for the SCR / MMI and shall be provided with the necessary facilities to access every station.	As per our understanding OCC and BCC shall have facility to made live announcement from OCC and BCC to station using HMI. Please confirm.	Please follow Bid Conditions
840	2			90	Section 6C Particular Specification Telecommunication Clause 2.5.12.2 - The PAS shall have the necessary facilities to mute or attenuate selected PAS locations or zones either manually or under time mode control in areas where broadcasts may disturb the public. This facility shall also be available from the MMI.	As per our understanding PA system should has facility to mute or attenuate selected PA locations or zones manually and same feature will be accessible remotely via HMI. Please confirm.	Please follow Bid Conditions
841	2			91	Section 6C Particular Specification Telecommunication Clause 2.5.13.1- Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 12)- Each MMI position shall be equipped with a PAS control panel including a microphone to enable live broadcast messages to be made even when the MMI and DVA equipment fail. Hence PAS control panel shall work as a manual backup to MMI (including the DVA) at all locations i.e. stations and OCC & BCC.	As per our understanding PA system each MMI equipped with PAS control panel including microphone to enable live broadcast messages to their respective locations zones to be made even when the MMI and DVA equipment fail. Please confirm.	Please follow Bid Conditions
842	2			92	Section 6C Particular Specification Telecommunication Clause 2.5.13.1- Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 17) VIII-One look Status bar- This status bar shall show the Operational status of all the available PIDS, PAS Zones etc.	As per our understanding, one look status means all the equipment failure alarm (to be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
843	2			92	2.5.13.1- Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 17) IX-Self-Health Test- This feature shall facilitate a maintenance personnel to retrieve the current health status of the PA System.	As per our understanding, one look status means all the equipment failure alarm (to be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
844	2			97	Section 6C Particular Specification Telecommunication Clause 2.6.1.9 -The system shall be capable of playing all standard available audio formats and shall not use any proprietary audio formats.	As per our understanding, , system should capable of playing standard available audio formats ex. Wav . Please confirm.	Please follow Bid Conditions
845	2			97	Section 6C Particular Specification Telecommunication Clause 2.6.2.2 - Distortion 1)-The amplifier total harmonic distortion shall be less than 0.5% at 1 kHz with full power.	The amplifier harmonic distortion should <0.3% (@ 1 kHz) @ 50% of output power. Please do consider the changes accordingly for better performance.	Please follow Bid Conditions
846	2			97	Section 6C Particular Specification Telecommunication Clause 2.6.2.3- (1) -The minimum overall system frequency response for the PAS from 100 Hz to 16 khz at -10dB and In case of horn speaker 500Hz - 4.5khz at -10dB.	The minimum overall system frequency response for the PAS from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB . Please do consider the changes accordingly for better performance.	Please Refer Addendum and Corrigendum-02B
847	2			98	Section 6C Particular Specification Telecommunication Clause 2.6.3.1- (2)- The PAS control equipment shall be provided with suitable redundant modules / cards to prevent single point of failure that affects overall system operation at a particular location including critical components so as to achieve the RAMS requirement laid down. The PAS control equipment shall have hot redundancy of the controller in both OCC & BCC to prevent failure that affects overall system operations.	As per our understanding, , The PAS control equipment shall be provided with suitable redundant modules to prevent single point of failure that affects overall system operation at a particular location including critical components so as to achieve the RAMS requirement laid down. The PAS control equipment shall have hot redundancy of the controller in all locations (Station ,Depot ,OCC and BCC) to prevent failure that affects overall system operations. please do consider the changes accordingly.	Please follow Bid Conditions & Refer Addendum and Corrigendum -01B
848	2			101	2.6.3.5- (3)The monitor speaker with volume adjustment control on the PAS control panel shall be used for real time monitoring of any message being broadcast to the pre-defined zones. There can be a separate Monitoring speaker, which can be provided in SCR for continuous monitoring of Broadcast messages.	As per our understanding, , monitoring speaker to be provided on SCR either inbuilt with PAS control panel or separate speaker to continuous monitoring of broadcast messages. Please do consider the changes accordingly .	Please follow Bid Conditions
849	2			101	Section 6C Particular Specification Telecommunication Clause 2.6.3.5- (6)-Inter Panel calling facility shall also be available.	As per our understanding, interpanel calling facility means operator is able to initiate a call on selcated zones or all zones from all the pannels as and shen required. similar zone selction ficility should be availble on all panel. Please confirm if my understanding is correct or please do share the use case of inter panel calling facility.	Please follow Bid Conditions
850	2			102	Section 6C Particular Specification Telecommunication Clause 2.6.3.8- (4) Adequate standby arrangements shall be provided to achieve system availability. At each station 2 Sets of amplifiers each shall be provided, set 1 shall be in Rack/ Circuit 1 & Set 2 shall be installed at Rack/ Circuit 2. Rack/Circuit 1 shall feed Even Numbered speakers & Rack/ Circuit 2 Shall feed Odd numbered speaker circuits, Failure of Rack/ Circuit 1 will not affect Rack/ Circuit 2 & hence maintain system availability. Electric Power supply for Rack/Circuit 1 & Rack/ Circuit 2 should be separately Routed with different cable to avoid single point of failure.	Adequate standby arrangements shall be provided to achieve system availability. At each station 02 set of Amplifier channels to be provided for each zones and each zone is driven from two separate amplifier channels with separate power supply of module to make sure the availabilty of 50% loudspeaker in zone. please consider the chnages accordingly.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
851	2			103	Section 6C Particular Specification Telecommunication Clause 2.6.3.12 - (8)- Loudspeakers shall have a minimum frequency response from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB.	All Loudspers should have minimum frequncy response from 170Hz to 20KHzat -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB . Please consider the changes accordingly for better performace.	Please Refer Addendum and Corrigendum-02B
852	2			79	Section 6C Particular Specification Telecommunication Clause2.3.3.7 One Hard wired PA Control panels, complete with microphone, zone selection facility and inter- panel- calling facility shall be provided at designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in each zone/ all zones. The PAS shall provide uniform broadcast coverage throughout all areas of each site within which staff or members of the public may gain access to. The design shall be such that the speakers are so located as to ensure that there are no dead zones between adjacent speakers due to interference or any other reason.	Inter-panel-calling facility required points	Please follow Bid Conditions
853	2			86	Section 6C Particular Specification Telecommunication Clause 2.5.4 PAS Station Zones	Please specify Number of zones in the Station	Please follow Bid Conditions
854	2			86	Section 6C Particular Specification Telecommunication Clause 2.5.5 Depot Coverage and Zoning	Please specify Number of zones in the Depot	Please follow Bid Conditions
855	2			86	Section 6C Particular Specification Telecommunication Clause 2.5.6 OCC, BCC & Head Quarters	Please specify Number of zones in OCC, BCC & HQ	Please follow Bid Conditions
856	2			90	Section 6C Particular Specification Telecommunication Clause 2.5.11 Automatic Level Control	Is the Automatic Level control requirement limited to station & Depot only?	Please follow Bid Conditions
857	2			77	2.2	How many interchange stations are there?	Please Refer Addendum and Corrigendum-02B
858	2			1	1.4.2.1 – general specification	PAVA Controller is with fiber optic connection or ethernet will be fine for Networking?	Please follow Bid Conditions
859	2			94	2.5.15.2	Amplifier redundancy requirement is N-1 0r 1+1?	Please follow Bid Conditions
860	2			98	2.6.3.1	Is there any controller Redundancy require?	Please refer Corrigendum & Addendum- 01B
861	2			111	Section 6C Particular Specification Telecommunication System Clause 3.4.1.6 The PIDS displays shall produce images with a minimum contrast ratio of 20:1 when operating in all ambient lighting conditions including artificial lighting and natural lighting, up to full sunlight conditions.	The PIDS displays shall produce images with a minimum contrast ratio of 20:1. Standard contrast ratio is 1000:1, 3000:1, 4000:1 in case of TFT. Please clarify	Please follow Bid Conditions
862	2			113	Section 6C Particular Specification Telecommunication System Clause 3.5.1.1 - 1 (i) Integrated PIDS/PAS central server shall be located in the OCC & BCC CER which shall be connected to the integrated PIDS/ PAS station server equipment at each station TER via the data transmission system. The PIDS/PAS central server shall have redundant architecture and connectivity to workstation MMIs with mirroring of disks for high reliability.	PID/ PAS central server shall have redudent architecture and connectivity. Please confirm our below understanding is correct 1. OCC will have one PID server and BCC will have one PID server. In case of failure of OCC PID server, BCC PID server will take charge automatically.	Please Refer Addendum and Corrigendum-02B
863	2			114	Section 6C Particular Specification Telecommunication System Clause 3.5.1.1 - 4 i-b Display Line 2: Train information like destination information, arrival & departure time, train length, train occupancy details etc (in both Hindi and English as per requirement) or Scrolling/ flipping train data for the next 2-3 trains or any advertisement related message or any public information. Information pertaining to current date, time, temperature and air quality index shall also be displayed.	Information pertaining to Air quality shall be display on display. Details for Air quality data collecting system and interfacing are not mentioned.	Please Refer Addendum and Corrigendum-02B
864	2			114	Section 6C Particular Specification Telecommunication System Clause 3.5.1.1 - 4(ii) Each platform shall be equipped with a minimum of two dual sided LED displays at locations approved by Employer's representative. The cabling layout along with enclosures and mounting arrangements shall be designed to facilitate this.	Please provide details about number of charachers and charcter height are not mentioned for LED display.	Please follow Bid Conditions
865	2			116	Section 6C Particular Specification Telecommunication System Clause 3.5.1.1	Point 6 sub point xii, all the PIDS must be provided with maintenance sockets for connecting maintenance equipment (Maintenance lamp/ cleaner etc.). Does this mean, one spare 3 pin socket with switch required inside PIDs cabinet? Please confirm.	Please follow Bid Conditions
866	2			121	Section 6C Particular Specification Telecommunication System Clause 3.6.1.1 The PIDS shall be capable of creating and displaying passenger information in any combination of characters, numerals, animated graphics, punctuation & symbols. Each page of display shall be complete in meaning that shall be easily interpreted by passengers. The display layout shall be submitted for approval by the Employer's Representative. The PIDS shall be capable for displaying multiple windows to display information and simultaneously commercial advertisement in another window. Size of windows shall be configurable.	The PIDS shall be capable for displaying multiple windows to display information and simultaneously commercial advertisement in another window. Size of windows shall be configurable. TFT OK, is this applicable to LED display also?	Please follow Bid Conditions
867	2			125	Section 6C Particular Specification Telecommunication System Clause 3.6.5.1 It shall be possible for platform LED PIDS, to display special information like emergency messages in different colours.	Point 7 mentioned It shall be possible for platform LED PIDS, to display special information like emergency messages in different colours. As per this statement we assume Multi coloured(RGB) LED Display for platform required. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
868	2			111	Section 6C Particular Specification Telecommunication System Clause 3.2.9 At all Platforms (Elevated/ Underground/At Grade station) & Concourse (Elevated station) the PIDS shall be of LED type. For all other locations (Concourse of UG station, Interchanges etc.) the display panels shall be of TFT type. All PIDS for concourse, platforms and other public areas should be as per latest specifications. TFT display screens shall provide additional facilities for display of commercial messages/ video clips along with train running information. The Contractor shall submit details of LED display panels and TFT display screens for Employer's representative for approval before procurement.	Required size of TFT Display are not mentioned. We have multiple variants of TFT display in sizes 32", 43" and 55". Please speciify the details.	Please follow Bid Conditions
869	2			111	Section 6C Particular Specification Telecommunication System Clause 3.2.9 At all Platforms (Elevated/ Underground/At Grade station) & Concourse (Elevated station) the PIDS shall be of LED type. For all other locations (Concourse of UG station, Interchanges etc.) the display panels shall be of TFT type. All PIDS for concourse, platforms and other public areas should be as per latest specifications. TFT display screens shall provide additional facilities for display of commercial messages/ video clips along with train running information. The Contractor shall submit details of LED display panels and TFT display screens for Employer's representative for approval before procurement.	TFT Display below details are missing in requirements. 1. Surface Luminunce details.(Nits/candulance required) 2. Contrast ratio details. 3. Display Colors 4. Display Pixel Resolution details. 5. Display Viewing Angle.	Please follow Bid Conditions
870	2			154	Section 6C Particular Specification - Telecommunication 5.2.3 (4) Long range PTZ/Fixed CCTV cameras with night vision facility shall be provided at the entry/exit of the platforms at every station which would be pointing towards the viaduct on each side of station.	As per our understanding long range cameras with night vision facility should be at edge of the platforms at every station which would be pointing towards the viaduct on each side of station. We suggest please use Fixed cameras instead of PTZ cameras.	Please refer Corrigendum & Addendum- 01B
871	2			156	Section 6C Particular Specification - Telecommunication5.3.2.1- (25)- Anti-virus and network security software for the CCTV system	As per our understanding Antivirus network security software to be consider part of CCTV system. Please confirm.	Please follow Bid Conditions
872	2			159	5.5.1.9 The CCTV system shall have control equipment located in the TER at all stations, Depot, OCC & BCC. CCTV control equipment for RSSs /Mid shafts/ ramp/ viaduct escape routes, SPC etc. shall be installed in the TER of adjacent station / depot.	Please provide the locations where we have RSSs /Mid shafts/ ramp/ viaduct escape routes and SPC with exact count to consider the camera accordingly .	Please Refer Addendum and Corrigendum-02B
873	2			160	5.5.2 CCTV Coverage	As per our understanding , bidder has to consider camera coverage based on locations define on clause 5.5.2.1. or do we need to consider clause 5.2.3 as well for camera coverage. Please confirm.	Please follow Bid Conditions
874	2			161	5.5.2.3 The location of the CCTV monitors and control panel shall be as follows: 1) One CCTV control MMI shall be provided each for SCR, Security Booth(s), DCC/DSC, Traffic Controller, Chief Controller and for the OCC & BCC Security Controller. Please refer to Appendix F of chapter 11 under Part -2 (PS-Telecom for MMI Provision Schedule for the requirements of the MMIs.	as per PS requirement and appendix -F MMI provision has different input. So please share the exact input on which all location MMI shall be consider .	Please follow Bid Conditions
875	2			163 / 359	5.5.6.1 All alarm status of the CCTV system equipment including CCTV cameras, video recorders, L2 Switches etc as necessary and approved by the Employer's representative shall be monitored by CCTV Management System/Network Management System in the CER at the OCC & BCC and shall automatically generate an audio/visual alarm on the CCTV Management System on occurrence of an alarm	As per our understanding Monitoring of IT equipment hardware failure like Workstation , Servers and L-2 switched to be monitor from standard NMS. Rest other alarm related to CCTV system has to come on CCTV Management system .Please do consider the changes accordingly.	Please follow Bid Conditions
876	2			164	5.6.2.2 5) Unless specified otherwise elsewhere in the PS, Cameras, field switches, PF Monitors & other equipment, meant for outdoor installations, shall be suitable to work from 0 deg C to +55 deg C with RH up to 80% non-condensing.	As per our understanding ,defined temperature is for outdoor equipment except camera as camera operating temperature is already defined in camera specification. Please confirm.	Please follow Bid Conditions
877	2			184	Section 6C Particular Specification - Telecommunication 5.6.2.19 - (2)- Management Server - (XVI) - a)- Management servers, recording servers, Fail over servers which shall show CPU and memory usage of the servers.	As per our understanding, as part of monitoring Management server, recording servers and failover servers status to be shown on CCTV GUI to monitor the exact status the devices. Please do consider the changes accordingly.	Please refer Corrigendum & Addendum- 01B
878	2			186	Section 6C Particular Specification - Telecommunication 5.6.2.19 - (4)- Viewing Client - (III) - t)- One look Status bar- This status bar shall show the Operational status of all the available cameras (Total cameras, Cameras with recording issue etc).	As per our understanding, one look status means all the equipment failure alarm shall be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
879	2			167	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night):S. No 2	Most of the OEMs produce either 4MP camera or 5MP camera therefore 4MP cameras may be consider. If this application is for ANPR, 2MP box camera can also work. If application such as RLVD is required, then 8MP camera may be consider.	Please follow Bid Conditions
880	2			168	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night):S. No 25	Most of the OEMs do not produce cameras with 2 TB built in SD card as 128 MB built in SD card support is sufficient.	Please Refer Addendum and Corrigendum-02B
881	2			169	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) S. No 2	Most of the OEMs produce either 4MP camera or 5MP camera therefore 4MP cameras may be consider. If this application is for ANPR, 2MP box camera can also work. If application such as RLVD is required, then 8MP camera may be consider.	Please follow Bid Conditions
882	2			171	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) S. No 26	Most of the OEMs do not produce cameras with 2 TB built in SD card as 128 MB built in SD card support is sufficient.	Please Refer Addendum and Corrigendum-02B
883	2			172	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) S. No 24	Most of the OEMs produce cameras with 4 sectors only which is sufficient, therefore it may be consider. It will give fair opportunity to all reputed OEMs.	Please follow Bid Conditions
884	2			292	10.3.2.1 Pt. 2	Number of workstations for OCC & BCC, Number and type of Printers required	Please follow Bid Conditions
885	2			292	10.3.2.1 Pt. 3	Details required for "Local and remote alarm interface to Communication system supervisor"	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
886	2			292	10.4.3.1 Pt. 2	Failure of which MMI ?	Please follow Bid Conditions
887	2			293	10.5.1.3	For T-SCADA only monitoring will be applicable	Please follow Bid Conditions
888	2			294	10.5.1.9	Both Primary and Backup servers at OCC/BCC will have it local database which will be updated, a separate backup server is not required Please confirm ?	Please follow Bid Conditions
889	2			296	10.7.3	Will there be a NMS for Power Supply system ? In case there is no NMS do we have to interface with individual Stations seperately ?	Please follow Bid Conditions
890	2				General	Since there are total 8 corridors out of which 3 will be in phase 1, so we have to consider OCC/BCC only for phase 1 only i.e. for 3 corridors ?	Please follow Bid Conditions
891	2			155	5.2.9 Station entries, parking, RSS, SPC, Mid tunnel Shafts, Ramps (viaduct/ tunnel) ,PF ends, sidings, specially identified theft prone track areas, shall be covered by providing cameras with IR illuminator at the pole / wall keeping in view the lightingconditions. 5.2.10 Depot perimeter camera shall also be required to be provided with IR illuminator for night vision capabilities.	IR illuminator will be External or Internal for all camera ? Kindly confirm.	Please follow Bid Conditions
892	2			161, 162 &185	5.5.3 CCTV Standards, Point no-3 5.5.5.1 Video recording system shall provide primary recording locally at the respective station and mirrored recorded at adjacent station for all stations. The Network Video Recording system shall provide Fail over and Redundancy. 3) Network Video Recording Server, Point no (xvi)	We understand that 15days recording is required at 25FPS with Full HD resolution at stations and mirror recording at adjacent stations. There is no requirement of recording at other places like OCC/BCC for Stations camera. Kindly confirm as it will have impact on the BoQ.	Please follow Bid Conditions
893	2			65	7) All CCTV cameras shall be self-diagnosis, auto focus feature and SD card storage facility.	Please mention the SD card storage requirement in all camera's specifications clause if need to be provided along with camera.	Please Refer Addendum and Corrigendum-02B
894	2			168, 170	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) 21 Camera Features Auto back focus, Analog video out, defog	Since camera is IP based and all functionality can be achieve through TCP/IP port available in camera so please remove Analog video out from camera features	Please follow Bid Conditions
895	2			49	1.11.1.28 All the equipment installed outside equipment room like network- switches, distribution panels etc must be installed inside racks that are IP- 66 rated ensuring an additional canopy like structure to ascertain prevention of water seepage into the rack under any circumstances.	As we are installing network switch and power equipment inside the junction box, which radiate the heat. We need to dissipate the heat from inside the enclosure/ junction box. For removing the heat it required Fan and filter then IP derate and meet IP 55 standards. Request for IP 55 standards junction box/rack instead of IP66. Kindly confirm.	Please follow Bid Conditions
896	2			157	5.3.2 Scope of Supply 5.3.2.1 18) All power supplies, Media converters, cabling and earthing accessories including termination protection devices;	Kindly clarify that Earthing pits and Riser earthing strip /Cable at all the common area will be provided to Telecom contractor and Telecom contractor will only connect the earthing cable to the active elements. Please confirm.	Please follow Bid Conditions
897	2			175	**Layer 2 Switches for Field** 4/8- port Layer- 2 Industrial grade switches may be used for connecting the CCTV cameras outside the stations to the nearest station.	Kindly provide the total ports of Layer-2 Field switch i.e. of FE Ports and Gigabit Fibre ports including SFP's types as SX/LX..	Please follow Bid Conditions
898	2			249 & 250	7.5.5.3.2 Network Synchronization	As per standard architecture, the Core switches should have capability to interface with master clock source on SyncE/IEEE 1588v2 but switches at distribution & access layer will only support NTP server synchronization. Hence please categorize clock requirement on basis of core switch/distribution switch & access (LAN switches)	Please follow Bid Conditions
899	2			259	7.7.1.6 Security Features 5) Session control	In the section security feature for Core Switch, there is sub section **(5) Session control**, Kindly elaborate what is expected from this feature?	Please follow Bid Conditions
900	2			260	7.7.2.1 Switch Architecture 1) Distribution Switch should have Redundant Power supply. 2) Dedicated stacking Ports supporting 40 Gbps	As per RFP , infrastructure will be in ring topology with option of dual ring. This could be done without stacking feature as well. So recommend to keep stacking as optional to consider multiple topology. Kindly confirm.	Please follow Bid Conditions
901	2			240	Scope of Supply 1) Carrier grade L2 switches/ L3 switches/routers	Please provide the power requirement for IP network components like Carrier grade L2 switches/L3 switches /routers . Is it – 48V DC or 220V AC ? Please confirm	Please follow Bid Conditions
902	2			140& 241	7.3.2 Scope of Supply 17.Internet connectivity and hardware firewalls to local service provider for internet service for OA/IT	Firewalls required in the project are redundant or standalone. Kindly confirm.	Please follow Bid Conditions
903	2			241	7.3.2 Scope of Supply 17. Internet connectivity and hardware firewalls to local service provider for internet service for OA/IT.	The networks serving the DTS shall not be connected to the internet hence limit the connectivity to dark fibre only. Kindly Confirm.	Please follow Bid Conditions
904	2			241	7.3.2 Scope of Supply 17. Internet connectivity and hardware firewalls to local service provider for internet service for OA/IT.	As internet connectivity will be required for internet service. Internet connectivity is in the scope of System Integrator ? Please confirm.	Please follow Bid Conditions
905	2			248	7.5.5.2.3 Servers	The network design will require Server switches and top of the rack switches. Please provide the detailed technical specification of Server switch/ Top of the rack switch along with port density and exact requirement.	Please follow Bid Conditions
906	2			18	1.3.3.6.2 Provisioning and laying of such lengthy optical fibre cables as inter stations distance between RRTS stations varies from 5km to 10km	As per standard , OFC cable drums comes in 2/4 Km length. Kindly confirm in case of splicing /joint after 4 Km, where to place OFC joint enclosure in Elevated/at Grade /Underground sections. Kindly confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
907	2			52	1.11.4.1.3 The Telecom Contractor shall provide all necessary secondary cable containment and supports in addition to the primary cable containment provided, if necessary, to complete the connection to the Contractor's equipment. In Elevated/At Grade Sections, in case Optic Fibre cable is laid on the viaduct in the cable duct, then the Contractor shall provide it in a rugged "permanently solid lubricated" HDPE telecom duct of minimum diameter of 40 mm(Outer)/ 33 mm(Inner) with material characteristic as per TEC Specifications along with the accessories . HDPE Telecom duct as per TEC specifications shall be buried at a depth of 1.2 metres in the At Grade Sections and suitably supported/fixed on Elevated Sections (where the duct is not available).	Kindly share if any specific procedure and guidelines are available for laying HDPE Duct in Elevated/at Grade and Underground section as not mentioned in RFP.	Please follow Bid Conditions
908	2			56	5.3.2.1 Armoured Optical Fiber Cable minimum (12 fibers) to connect the cameras within stations (including ramp), depots, Mid shafts, SPC, RSS etc to TER, Subways etc.	The standard practices are that HDPE duct to be clamped for laying 12F OF Cable. Kindly share the specific procedure and method for laying 12 Fibers Optical fibre cable within stations? Kindly confirm.	Please follow Bid Conditions
909	2			157	5.3.3.2 For RSS connectivity, HDPE pipe / duct (2 x 100 mm diameter) shall be provided and laid by Telecom contractor for optical fiber cable from RSS to the nearest station for RSS CCTV video integration and any other telecom requirement at RSS. Telecom contractor shall coordinate timely with electrical contractor for route for laying of fiber cables for the RSS connectivity. In case Telecom fails to coordinate / interface with electrical contractor, then trenching, ducting, road cutting and related approvals from the local authorities, for laying of optical fiber cable from RSS to the nearest station etc. to be done totally by Telecom contractor as part of this contract.	As we understand that for RSS Connectivity from nearest station, 2 x of 40/33 mm HDPE duct to be installed. 2 x 100 mm diameter by-mistake mentioned. Kindly confirm.	Please follow Bid Conditions
910	2			157	5.3.3.2 For RSS connectivity, HDPE pipe / duct (2 x 100 mm diameter) shall be provided and laid by Telecom contractor for optical fiber cable from RSS to the nearest station for RSS CCTV video integration and any other telecom requirement at RSS. Telecom contractor shall coordinate timely with electrical contractor for route for laying of fiber cables for the RSS connectivity. In case Telecom fails to coordinate / interface with electrical contractor, then trenching, ducting, road cutting and related approvals from the local authorities, for laying of optical fiber cable from RSS to the nearest station etc. to be done totally by Telecom contractor as part of this contract.	In this case who will pay the local authorities RoW (Right of Way) charges/ demand note ? Kindly confirm.	Please follow Bid Conditions
911	2			246	7.5.4.8 The Contractor shall conduct survey of the cable route and ensure that cable lengths supplied are such as to avoid possible wastage of cable and additional joints. Proposal of any inevitable FO cable splice and other joints along the track side will be required to be submitted along with reasons for specific approval of the Employer's Representative.	Standard OFC drum lengths are available in 2km & 4km length, so for any section which is longer than 2/4kms will have a splice joint in between. Kindly confirm	Please follow Bid Conditions
912	2			246	**7.5.4.4** The Contractor shall propose a fibre cable that supports the specific RRTS (MRTS in Meerut on same Track/infrastructure) railway constraints and shall determine the exact total number of fibres needed and reserve at least 30% of fibres, within each cable, as spares for future use. Nevertheless, as a minimum two 144 fibre cables (one on Up track and one on DN Track) shall be proposed, each terminated between station TERs, OCC and depot TERs. Connectivity of the RSS's will be done using separate FO cables of minimum 24 fibres.	Generic fiber optic cable specifications are given in the RFP, kindly share the detailed specifications for the constructional requirements of 144F/24F/12F cables.	Please follow Bid Conditions
913	2			262	Optical Fibre Distribution Frame (OFDF) 7.7.5.1 The OFDF must be of international level of quality. (ITU-G-671, as applicable).	Kindly share the Specification of OFDF with respect to 144 Port , 48 port, 24 port and 12 port .	Please follow Bid Conditions
914	2			347	Appendix – L 2. Fiber Management System (FMS)	It is not being specified that the FMS should a drawer type, a drawer type is used for easy O&M, Can we quote for drawer type (Telescopic) or fixed type ?	Please follow Bid Conditions
915	2			. 347	Appendix – L 2. Fiber Management System (FMS)	The number of fiber count is not specified , should be quote for 24F, 48 and 144F? Kindly clarify	Please follow Bid Conditions
916	2			262	**Optical Fibre Splice Boxes** 7.7.4.1 Splices Boxes must be of international level of quality. (ITU-G-671, as applicable).	Kindly share the Specification of Splice Box for 144 F, 24 F and 12 F OFC cable .	Please follow Bid Conditions
917	2			262	7.7.4 Optical Fibre Splice Boxes	Since it would be a splice boxes should be mounted on the metro wall / Elevated viaducts , should be quote with a wall mount type kit? Kindly clarify .	Please follow Bid Conditions
918	2			262	7.7.4 Optical Fibre Splice Boxes	From the understanding of topology we understand that the splice closure should be an IP68 enclosure having one ovel port (For the 144F ring) and atleast 4 round ports for 24/48/144F fiber. Please confirm?	Please follow Bid Conditions
919	2			330	OPTICAL PATCH CHORD AND PIGTAIL 1.3.1.1 All patch cords (or jumpers) and pigtails shall be fitted with one type of high-quality optical connector such as FC/PC connectors for the single mode patch cord/pigtail at the factory. The OEM shall indicate the type of connector offered for the Engineer's Representative to choose a suitable type. The optical type specified on the transmission equipment shall be compatible with the optical Fiber termination. The coupling loss of the connector shall be less than 0.3dB repeatedly.	Here optical patch cords mentioned as FC/PC type where as in Fiber Management System (FMS) it is mentioned as LC type of Adopter ,Kindly clarify the same .	Please follow Bid Conditions
920	2			326	Appendix I - 1.1.1.6 : For Cables as per RDSO / TEC specifications, the Contractor shall have to get the cables inspected by RDSO/TEC and all cost therein has to be borne by the Contractor.	The inspection will be done by RRTC team or their nominated third party agency. The third party inspection will be borne by us. As this OFC is not as per RDSO spec exactly but follows clause 1.1.2.1.3, wherever required tender specs will be followed for specific cable construction along with RDSO/ TEC spec. Please Confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
921	2			326	Appendix I - 1.1.2 Fire and Smoke Performance Requirements	1. Is this clause is applicable to optical fiber cable ? Please confirm. 2. Whether fire test is part of FAT or declaration will be acceptable? As fire test from external laboratory will take about 1.5 to 2 months for the testing & report submission based on their time slot availability. So we suggest to go with declaration of performance. Please confirm.	Please follow Bid Conditions
922	2			328	Appendix I - 1.2.: Optical Fiber Cable: In addition to the requirements specified in clause 1.1 of Appendix I of Chapter 11 of this PS, following specifications shall be complied with by Optical Fiber Cables for Underground Section used inside the tunnel, if any.	Optical fiber cable shall be offered, considering the Appendix I-Clause 1.1 & Clause 1.2, i.e. cable shall be as per tender specification & not exactly as per RDSO/TEC. (As RDSO spec is not for flame retardant type OFC. Also TEC has various GR but no specific TEC GR number is mentioned, so we consider the tender specification Clause 1.2). Kindly confirm.	Please follow Bid Conditions
923	2			329	Appendix I - 1.2.4.3: Armoured: 1.2.4.3.1 Armour for the cable shall consist of single layer of galvanized steel tape corrugated transversely for lateral strength and to make the cable rodent and termite proof. The armour shall be electrically continuous and bounded to the outer sheath with an overlap of 10% min. Armoured cable shall be suitable for direct underground burial and inside ducts. 1.2.4.3.2 The thickness of stainless-steel tape to alloy AISI 304 or 305 shall not be less than 0.125 mm. The height of the corrugation shall be minimum 0.6 mm and the pitch shall be 2.5 mm maximum. Outer jacket of 1.8mm minimum thickness HDPE shall be provided over the steel tape throughout the length of the cable	1. Clause 1.2.4.3.1 has mentioned galvanised steel tape while Clause 1.2.4.3.2 has mentioned AISI 304 or 305 stainless steel tape. These two tapes are different type steel tape options, so what to consider for armouring. Please confirm. 2. As per cable application, fire performance is required, hence we suggest to use Galvanised Steel Tape with Anti-Cracking LSZH instead of HDPE sheath. Also we suggest not to use SS 304 or 305 with LSZH due to technically feasibility reason which will creates cracks in sheath due to hardness/stiffness issue (& different thermal coefficient). Please suggest.	Please Refer Addendum and Corrigendum-02B
924	2			329	Appendix I - 1.2.4.5 Over sheath : 1.2.4.5.1 The Over sheath of the cable shall be an extruded layer of anti-corrosion, reduced flame propagation, low smoke zero halogen / low halogen compounds complying with the fire performance requirements specified in clause1 of the specifications.	As per cable application & fire performance requirement, we suggest to use LSZH bedding as per clause 1.2.4.2, then Armouring 1.2.4.3.1 i.e. Galvanised Steel Tape & 1.2.4.5 Oversheath instead of HDPE sheath. As HDPE will work against the cable fire performance. Please suggest.	Please Refer Addendum and Corrigendum-02B
925	2			240	Internet connectivity and hardware firewalls to local service provider for internet service for OA/IT.	Internet Connectivity and capacity information is not detailed out in the RFP, kindly give clarity & detailed info.	Please follow Bid Conditions
926	2			24	Design, Supply and Installation of Base Frame, False Floor & under False Floor Cable Trays with required risers for wall mounted units in TER of Stations/Depot and under false floor cable trays in SCR	Need Complete dimensions detail and more detailed info of this requirement.	Please follow Bid Conditions
927	2			157	In Scope of Supply, Laptops pre-loaded with CCTV system software	Are laptops also in the scope of the System Integrator and if yes, how many to be supplied. Kindly confirm.	Please follow Bid Conditions
928	2			157	In case Telecom fails to coordinate / interface with electrical contractor, then trenching, ducting, road cutting and related approvals from the local authorities, for laying of optical fiber cable from RSS to the nearest station etc. to be done totally by Telecom contractor as part of this contract.	For all ROW and other expenditure is Re-imbursable or all charges will be borne by System Integrator.	Please follow Bid Conditions
929	2			pg 157	5.4.1.2 The OEM for CCTV system shall be registered in India with self-owned service centre for more than 10 years without joint venture. 5.4.1.3 The OEM shall have implemented end to end CCTV solution in minimum 3 Indian metro environment.	Request you to relax the qualification creteria as it will limit the CCTV suppliers	Please Refer Addendum and Corrigendum-02B
930	2			192	6.2 Overview of Telephone System	Kindly confirm, as our understanding is the requirements of 3 types of system as IP PBX system, Direct line telephone system and Voice over IP phone system (UMA clause ref. 6.5.3.1, 6.5.3.1.6)	Please follow Bid Conditions
931	2			207	6.5.2.1.7 For provision of Direct Line Console in the OCC, BCC and the Depot refer to MMI Provision Schedule Appendix F of chapter 11 under Part -2 (PS-Telecom). System capacity for OCC shall be same for BCC. The Stations/Depot/OCC/BCC shall have 9 numbers each of Direct Line Telephones and 01 number at each RSS, which shall be programmed for the required Direct Lines, to be reviewed by Employers representative.	Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM (INCL. DC SUPPLY SYSTEM) FOR EVERY LOCATION, s. 6, the quatity is 175, as per calculation Tender clause the quantity comes is 270 kindly confirm	Please Refer Addendum and Corrigendum-02B
932	2			211	6.5.3.1.4 Requirements of IP PBX System are given in Table 6.4 below as a minimum. S. 12	for s. 12 , phone user licences quantity is not matching, it should be 300 as per clause ref. 6.5.3.1.6. pls. confirm the quantity.	Please Refer Addendum and Corrigendum-02B
933	2			25	6.5.3.1.25 s. 2, L3 Stackable Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2 10G SFP+ for Uplink, 4 combo 10GBase-T CX-4 ports, Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto 100 kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	As these switch going to connect behind the DTS, so we request you to the SFP module for this may not required for 100 kms. It is only a 300m is sufficient. Kindly confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
934	2			146	4.5.1.5 The Master Clock System shall include, but not be limited to, the following: 3) Sub-Master Clocks shall further distribute the synchronized signal to all slave clocks. In the absence of valid Sub-Master Clock signal, the Slave clocks shall operate in free running mode with an internal clock supplying the time signals. On restoration of the Sub-Master clock signal the Slave clocks shall validate the signal. After the successful validation, the Slave clocks shall self-correct, if necessary. The Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours.	**Point 1:** Referring to clause 4.5.1.5 8) "Slave clocks shall preferably have provision of configuration of at least three NTP server IP as source for Redundancy", We understand that during the absence of valid Sub-Master clock synchronized signal, the slave clocks shall take the timing reference from Master clock (installed at OCC & BCC) over the LAN/WAN to achieve the redundancy in terms of synchronize. The slave clocks shall operate in free run mode only when it is not getting valid synchronization signal from Sub-Masterclock & Masterclocks. **Point 2:** Further, we understand that to retain internal time during power failure, the Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours to its RTC (Real Time clock / Quartz). Please confirm our understanding.	Please follow Bid Conditions
935	2			146	4.5.1.5 The Master Clock System shall include, but not be limited to, the following: 6) The Sub-Master Clock system shall provide appropriate clock output interfaces for master clock and timing and reference distribution. The type and quantities of the clock output interfaces shall be determined by the interfaces requirements of the subsystems (PAS, PIDS, Radio, CCTV, CDRS, Telephone System etc) and relevant interfacing project contractors (Traction, Fare Collection, Train Control and Signalling etc.). Suitable interfaces (such as RS 422 or RS232 or LAN connections) for clock output interfaces shall be supported.	We understand that the Master Clock System (and not Sub-master clock) shall provide appropriate clock output interfaces for sub-master clock (and not master clock) and timing and reference distribution. Please confirm our understanding.	Please Refer Addendum and Corrigendum-02B
936	2			147	4.6.2.1 (1) Master Clock (vi) A Master Clock Server to deliver Network Time Protocol (NTP) or Precision Time Protocol (PTP) as required by other subsystems. Subsystems that are not compliant to IEEE-1588 shall receive NTP. Subsystems compliant to IEEE-1588 shall receive PTP.	We understand that a compatible Master clock system to deliver both Network Time Protocol (NTP) as well as Precision Time Protocol (PTP) shall be proposed. Subsystems that are not compliant to IEEE-1588 shall receive NTP whereas Subsystems compliant to IEEE-1588 shall receive PTP at the same time. Please confirm our understanding.	Please follow Bid Conditions
937	2			149	4.6.2.1 (3) Display Clocks Outdoor Double-Sided Analog Clocks 1. 60 cm diameter double faced suspended,	We understand that 60 centimeter diameter refers to dial and display diameter of 60 centimeter excluding length / size of analogue clock housing. Please confirm our understanding. Moreover please specify, if the clock dial should consist of numerals or line marks with suitable hands for a clear visibility and even distribution of LED illumination throughout the dial.	Please follow Bid Conditions
938	2			148	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4 : Master Clock System (MCS) Clause 4.6.2.1(3): The design of the display/ slave clocks shall be of high quality and blend into the architecture of the area in which they are located. All digital slave clocks shall be programmable both for 12 hours and 24 hours and shall display 4 characters viz., time in HH:MM format, date in DD/MM format and temperature. The digital clock shall be configured in such a way that it shall display Date, Temperature or Time alternatively as per client's requirement	Kindly specify how digital clocks shall display information of temperature. What will be the source of this information and how this information will be received by digital clocks.	Please follow Bid Conditions
939	2			111	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Cla… Concourse (El… Concourse of UG sta…	Kindly specify size of LED PIDS and TFT/LCD panels as it will have commercial implications and other contractors may offer different size of PIDS boards.	Please follow Bid Conditions
940	2			111	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : P… C… …ctions to display video information in M… …lutions, H.264, AVCHD, fullduplex ai… …pplicable display panels	This clause should be applicable for TFT types of PIDS only. The asked functionalities are not possible on LED types of PIDS panels.	Please follow Bid Conditions
941	2			116	Part… …mmunications : Chapter-3 : Pas… Clau… …rporate a number of display lines to pres… …rain information like destination infor… … occupancy details etc (in both Hindi and… …g to current date, time, temperature and… … Line 2: Train information like dest… …length, train occupancy details etc (in both… …g/ flipping train data for the next 2-3 trai… …ublic information. Information pert… …uality index shall also be displayed	Kindly specify how platform and concourse PIDS panels shall display information of temperature and air quality index. What will be the source of this information and how this information will be received by PIDS panels.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
942	2			116	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (6, VIII): The PIDS display housing shall provide cable access from the top and bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Cable access should be either from top or bottom. Therefore, clause may be revised to as below. The PIDS display housing shall provide cable access either from the top or bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Please follow Bid Conditions
943	2			117	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (7, IX): The displayed information shall provide full clarity and legibility when viewed at the required distances and at positions of up to ±70°, vertically, from the normal viewing axis. The viewing angle shall be min. ±80° contained within the arc where at the extremity the illumination intensity drops to half of the peak intensity	There seems to be typographical error in view angle. The view angle should be +/- 40 deg. In place of +/- 80 deg. SMD LEDs with +/-n80 deg. View angle are not available commercially.	Please follow Bid Conditions
944	2			125	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.6.5.1 (7): It shall be possible for platform LED PIDS, to display special information like emergency messages in different colours	Kindly clarify whether asked LED PIDS is mono colour PIDS or Multi colour PIDS? If Multi colour PIDS, then how many colours are required for display of information on LED PIDS.	Please follow Bid Conditions
945	2			81	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.4.2.5 : The Acoustic Consultancy shall submit a report, for approval of the Employer's Representative, on the STIPA performance of each site which shall inter-alia include the following...	In place of STIPA report for each individual site, similar sites may be grouped together and one station from each group may be selected for STIPA report. The Acoustic contractor should be made responsible for submission of report for approval of the Employer. Therefore clause may be amended as below: The Acoustic contractor shall submit a report, for approval of the Employer, on the STIPA performance of each group of similar site which shall inter-alia include the following...	Please follow Bid Conditions
946	2			84	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.4.8.6: The PAS shall have two Racks/Amplification systems (Circuits) at each Station as Primary & Secondary, the Primary Rack will feed to Even speakers of all Zones & Secondary Rack will feed to Odd numbered speakers of all Zones. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability...	This functionality is possible with one Rack/ Amplification system also by dedicating separate amplifiers for odd & even of loudspeakers. Therefore this clause may be deleted.	Please follow Bid Conditions
947	2			102	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.6.3.8 (2): Minimum two 200 W Class-D power amplifier shall be provided for each zone at each station.	Specification of power capacity (of minimum 200 W) is not necessary & relevant as other capacity power amplifier will also serve the purpose of application. Therofore 200 W capacity to be replaced with "Suitable power capacity".	Please follow Bid Conditions
948	2			102	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.6.3.8 (6, 1): RMS power output - 200W-500W RMS or as required by individual or paralleled modular units;	Same explaination as at clause 2.6.3.8 (2) above.	Please follow Bid Conditions
949	2			103	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.6.3.12 (13): All speakers should preferably be from same OEM as that of PAS supplier.	OEMs of Loudspeakers & PA system may be different. Loudspeaker is one of the components in the large PA system only and linking same OEM of loudspeaker with PA system will limit the of OEMs. Therefore this clause may be deleted.	Please refer Corrigendum & Addendum- 01B
950	2			104	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.6.5.1: All equipment of the PAS shall work from 240 volts ±20 % AC single phase power supply and connected to a dedicated UPS supply.	Power supply to the PAS equipment is from UPS which is a controlled power supply. Therefore, power input to all the PAS equipment may be changed to 240 V AC single phase with a variation of +/- 10%.	Please follow Bid Conditions
951	2			111	3.2.9 At all Platforms (Elevated/ Underground/At Grade station) & Concourse (Elevated station) the PIDS shall be of LED type. For all other locations (Concourse of UG station, Interchanges etc.) the display panels shall be of TFT type. All PIDS for concourse, platforms and other public areas should be as per latest specifications. TFT display screens shall provide additional facilities for display of commercial messages/ video clips along with train running information. The Contractor shall submit details of LED display panels and TFT display screens for Employer's representative for approval before procurement.	In this clause TFT displays are mentioned however, in the BoQ (Financial bid-Anexure2-schedule 3) only LED display quantities are mentioned. Request you to provide the quantity of TFT display as well.	Please Refer Addendum and Corrigendum-02B
952	2				Financial bid-Anexure2-schedule 7	Request you to provide the quantity for 144 and 24 core fiber cable length	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
953	2			265	**8.2.4** Intruder Detection equipment shall be installed at selected sites: 1) Around building entrances including stations and depots (round the clock for normally un-manned buildings and outside normal working hours for sites manned for a part of the day);	As per this requirement, it seems the intrusion detection is needed at **Entrances** of the Building which shall be a part of the Door Access Control System. Pls confirm.	Please follow Bid Conditions
954	2			265	3) At other critical locations related with safety or security;	Pls provide details of location for cost estimation.	Please follow Bid Conditions
955	2			265	4) Station equipment rooms, control and monitoring rooms and operating rooms;	We understand, this refers to the Access Door Sensor/status detection, Pls confirm.	Please follow Bid Conditions
956	2			267	**8.3.2 Scope of Supply** **8.3.2.1** **9)** 12 Core OF cable for depot, OCC/BCC and Ramps at underground and at grade depot to elevated stations;	Please clarify the function of OF cable in ACIDS.	Please follow Bid Conditions
957	2			270	**8.5.2 Access Point Controller** **8.5.2.1** The access point controller shall, as a minimum, include the following facilities: **10)** In case of advance security access is required the use of a Proximity ID Card, the user may opt to insert a valid PIN (Personal Identification Number), via the numeric keypad, to authorise or deny pedestrian or vehicular access by releasing the electrically operated doors, barriers or turnstiles, as appropriate.	Please clarify the location and quantity where Card and PIN readers are needed.	Please follow Bid Conditions
958	2			271	**8.5.3.5** Proof of concept must be demonstrated with respect to the type of detection, that will have the following options, which will be finalised during Detailed design stage: **1)** Motion detection cameras, which shall be provided as part of the intrusion detection system along with associated special software and software licenses	Since CCTV System shall be having all the cameras and dedicated Software for Surveillance, so Motion Detection cameras and associated software shall be a part of CCTV system or ACIDS system, please clarify.	Please Refer Addendum and Corrigendum-02B
959	2			273	**6) GUI Functions** **(ii)** Select and view CCTV image at each access point location, individually or in combination	This states that CCTV System footage for respective location/camera should be visible in the Access Control System. Please confirm.	Please Refer Addendum and Corrigendum-02B
960	2			277	**8.6.1.2** Access Point Controllers **(i)** The access point controllers shall: **c.** Visual Display **d.** Keypad	Since the controller shall be installed at a secured place i.e above ceiling level or below false floor, Display & keypad on controller will not serve any objective, however LED indication should be available to indicate the relay/power/communication status. Request you to allow the Intelligent Controllers without Display and keypad. Please validate.	Please Refer Addendum and Corrigendum-02B
961	2			266	**8.2.9.4 Sensor Controller** **1)** It shall be able to display all the operational status and send the alarm signals to the ACS Local server. It shall also be able to detect sensor failure and the damage of connecting wires.	Since all access controllers are IP based and can manage all the functionalities in standalone mode if communication between OCC central server and station is down. We recommend to consider only one server at a central location (each at OCC & BCC) for better management and cost effective solution. Maintenance cost will also reduce in many folds. OCC server's HMI clients can be provided at station level for local operation. Pl. allow.	Please Refer Addendum and Corrigendum-02B
962	2			266	**8.2.9.5 Key Switch** **2)** After service hours, the station personnel shall turn on the key switch on the station building wall to start the "ALERT" state. Thereafter, the local intrusion detection system shall be activated for intrusion supervision. If any intrusion is sensed, the intrusion signal shall be transferred to the security controllers at OCC/BCC.	Since Door Access Control intrusion (i.e Door forced etc) remain on alert 24X7 to detect any door access breach. Also, respective Door alarms can be escalated to OCC if not acknowledged for a defined duration by the local operator (without any manual intervention). Here the necessity of Key Switch doesn't seem to have any function as all the functionality is already available in System software. So, is Key Switch functionality associated with other IDS at Stations like motion detector etc (if any) ? Please confirm/correct.	Please follow Bid Conditions
963	2			265	**8.2.6** The Access Control cards shall also be used as staff identity cards. The Contractor shall provide a standalone workstation and dedicated cards printer.	Workstation shall be on network, so workstation should work in conjunction with OCC/BCC which shall be a part of ACS network, so standalone workstation would complicate the design. Also it will expand the maintenance efforts. So, please replace 'standalone workstation ' with 'Workstation as a part of ACS network.'	Please follow Bid Conditions
964	2			267	**8.3.2.1** **3)** Central and Redundant ACS server at OCC & BCC	One server each at OCC and BCC shall serve the purpose of the ACID system with redundancy. Two servers (central & redundant) at each OCC and BCC will only increase the implementation cost and design complications. Please validate.	Please follow Bid Conditions
965	2			26	1.4.8.1 The Telecom Contractor will be provided a space of about 1200 sqm and 600 Sqm respectively at three (03) suitable places for constructing temporary storage facilities for Contractor. The Contractor will construct the storage facility within 4 months of possession of land given by NCRTC. The space will be available to the Contractor till end of Defect Liability Period. 1.4.8.2 The Contractor shall be responsible for the erection of site offices at above mentioned two suitable places. The Contractor shall arrange for the utilities and any facilities and resources necessary to operate the site offices, such as electrical, telephone, water, and sewage as well as security. However, telephone facility for employer's engineer shall be provided by the employer. The contractor to ensure space for employer and employer engineers in these offices.	According to clause 1.4.8.1 it is mentioned that three (3) places will be provided for project office/storage space. However only two site areas are given and also in clause 1.4.8.2 it is mentioned that two (2) places will be given which is contradicting the above clause.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
966	2			157	5.3.3.2 For RSS connectivity, HDPE pipe / duct (2 x 100 mm diameter) shall be provided and laid by Telecom contractor for optical fiber cable from RSS to the nearest station for RSS CCTV video integration and any other telecom requirement at RSS. Telecom contractor shall coordinate timely with electrical contractor for route for laying of fiber cables for the RSS connectivity. In case Telecom fails to coordinate / interface with electrical contractor, then trenching, ducting, road cutting and related approvals from the local authorities, for laying of optical fiber cable from RSS to the nearest station etc. to be done totally by Telecom contractor as part of this contract.	As per clause 5.3.3.2 dimension of HDPE pipe/duct is 2x100 mm diameter which is not matching with the minimum BoQ provided for CCTV.	Please Refer Addendum and Corrigendum-02B
967	2			159	5.5.1.8 In depot there are many buildings which are geographically scattered i.e. DCC, workshop, DCO office, time office, security gate, watch towers, etc. These building / locations are far from the Telecommunication Equipment Rooms (TER) where CCTV system will be installed. For the installation of CCTV cameras in these building / locations suitable optical fiber connectivity arrangements have to be made by the Contractor.	Request you to provide distance between DCC, workshop, DCO office, time office, security gate, watch towers to calculate fiber cable for depot for CCTV.	Please refer Employer's drawings- section 6F
968	2				Financial bid-Anexure2-schedule 7	Request you to provide the quantity for 144 and 24 core fiber cable length	Please follow Bid Conditions
969	2				General	Do we need to consider PA control Panel for CSS at OCC and BCC . please confirm as per Appendix-F CSS location PA control panel is not considered.	Please follow Bid Conditions
970	2				General	Do we need to ocnsider the PA system for HQ seprately or HQ is part of OCC/BCC location where we need to consider additional speakers and PA Control Panel only for annoucement. Please confirm.	Please follow Bid Conditions
971	2				General	Do we need to consider the CCTV system for HQ separately or HQ is part of OCC/BCC location where we need to consider additional camera and MMI . Please confirm.	Please follow Bid Conditions
972	2				General	Details required as list of total number of Parking at each station is not mentioned.	Please follow Bid Conditions
973	2				General	Details required as list of total number of mid tunnel shafts at each station/Depot is not mentioned.	Please Refer Addendum and Corrigendum-02B
974	2				General	Consolidate Access Switches (Specifications & BoQ) from PA/ Tel/ CCTV to FOTS. It is better to manage one OEM for all kind of switches. Also, it shall be helpful in consolidating ports for all systems.	Please follow Bid Conditions
975	2			303/359	PS – Telecommunication – Employer's Requirements: Part 2/ Chapter – 11 Appendices/ Miscellaneous CC-B TMB7: Integration with future next two Corridors	Bidder requests to provide detailed information on such integration with future corridors. We assume that bidder's role will be limited to making provisions as per the requirements mentioned in this technical volume & any future upgradation will be in the scope of prospective bidder for those corridors. Please clarify	Please follow Bid Conditions
976	2			303/359	PS – Telecommunication – Employer's Requirements: Part 2/ Chapter – 11 Appendices/ Miscellaneous CC-B 1.12.6.1.10 DLP shall be on section-by-section basis as detailed in the PCC	Bidder requests to clarify if the DLP is applicable for each stage after RoD of each stage / section-wise as per the PS clause 1.12.6.1.10 & **Addendum 1B** to Part II A/ P24 Part-2/ Section 6C_Particular Specifications_Telecommunication / CH- 1/ CLAUSE NO. 1.12.6.1 As per Chapter-11 : DLP support ends at stage-4 KD-9: Does this mean DLP for all the stages will end after Stage-4 KD-9? Please clarify & remove the contradiction.	Please Refer Addendum and Corrigendum-02B
977	2			303/359	PS – Telecommunication – Employer's Requirements: Part 2/ 1.12.5.1.2 The responsibility for the provision of supervision of maintenance shall be based on the number of man-months identified during the Tender period and incorporated into the Contract. The actual utilisation of these man-months shall be at the Employer's discretion and may be at any time up to six months after the Employer's Taking Over of the whole of the Works or the last part of the Works or the date of issuing of the Performance Certificate whichever shall be the later PS – Telecommunication – Employer's Requirements: Part 2/ Chapter – 11 Appendices/ Miscellaneous CC-B **(Addendum 1 B)**	As per clause 1.12.5.1.2 supervision of maintenance can be upto the date of issuing of performance certificate. Does it mean that the bidder should plan for utilization until the end of year 2028 (tentatively ???). Kindly confirm if this understanding is correct Kindly clarify if the bidder should follow the Table at Chapter-11/ Miscellaneous CC-B or above clause.	Please Refer Addendum and Corrigendum-02B
978	2			303/359	PS – Telecommunication – Employer's Requirements: Part 2/ 1.15.1.1.3 All the training courses shall be conducted during installation period and completed before the commencement of testing and commissioning of respective stage which is subject to change as per employer's requirement. No training course shall be started before the completion of design phase. PS – Telecommunication – Employer's Requirements: Part 2/ Chapter – 11 Appendices/ Miscellaneous CC-A	As per clause 1.15.1.1.3 - Training shall be conducted in each stage however as per Table in CC-A (TMA1 to TMA-3) key dates are linked to only Stage-2 KD-9. Kindly confirm if all training for all stages has to be completed by Stage-2?	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
979	2			26/359	PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 1/ 1.4.8.1 1.4.8.1 The Telecom Contractor will be provided a space of about 1200 sqm and 600 Sqm respectively at three (03) suitable places for constructing temporary storage facilities for Contractor. The Contractor will construct the storage facility within 4 months of possession of land given by NCRTC. The space will be available to the Contractor till end of Defect Liability Period.	Bidder requests NCRTC to kindly confirm if the area mentioned in this clause is in addition to the area mentioned in the Signalling PS Appendix S, Clause 1.2.1 Please confirm the area indicated is at **both Depots or only at one Depot ? Is the whole 1200 sqm + 600 Sqm available at all the three places ?** Please confirm the **area alloted per location at all the locations.**	Please Refer Addendum and Corrigendum-02B
980	2			26/359	PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 1/ 1.4.8.2 The Contractor shall be responsible for the erection of site offices at above mentioned two suitable places. The Contractor shall arrange for the utilities and any facilities and resources necessary to operate the site offices, such as electrical, telephone, water, and sewage as well as security. However,telephone facility for employer's engineer shall be provided by the employer. The contractor to ensure space for employer and employer engineers in these offices	Bidder requests to confirm if the employer office / employer facility expected is in addition to the facility required as per Signalling PS - Appendix S If the employer office is to be provided in addition to the Signalling PS Apppendix - S, Please provide the details of facility required to be provided	Please Refer Addendum and Corrigendum-02B
981	2			46/359	PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 1/ 1.10.4 Inspection during Delivery	Bidder requests to confirm that a material which is conforming to more than one specifications shall not be inspected more than once by any of the inspecting agency. If a material is inspected by RDSO then the material shall be deemed accepted by Employer's Engineer & no additional inspection will be necessary.	Please follow Bid Conditions
982	2			302/359	PS – Telecommunication / Appendix B - Key & Access dates / Schedule of Key Dates / KD-1	Preliminary design submission and approval duration: From our estimates D+91 days does not seem sufficient to complete activity given the varied requirements and the context also involving the first time deployment of ETCS L3 (hybrid) on Indian Railways. Bidder estimates that a minimum of D+180 days will be required to deliberate on the overall solution, preliminary Plans & designs etc with NCRTC to enable clear understanding of the expectations on both sides. There is also a buffer duration between end of design & the start of installation which can be considered. Request NCRTC to kindly amend the KD	Please Refer Addendum and Corrigendum-02B
983	2			302/359	PS – Telecommunication / Appendix B - Key & Access dates / Schedule of Key Dates / KD-2	From our estimates detail design submission duration D+210 days is not sufficient to complete the various activities enlisted as part of the KD-2. Bidder estimates that a minimum of D+365 days will be required to achieve the milestone. There is also a buffer duration between end of design & the start of installation which can be considered to accomodate time for effective design. Request NCRTC to kindly amend the KD	Please Refer Addendum and Corrigendum-02B
984	2			302/359	PS – Telecommunication / Appendix B - Key & Access dates / Schedule of Key Dates / KD-5 & 6	Bidder requests NCRTC to provide the Rolling stock delivery details to align integrated testing and commissioning	Please follow Bid Conditions
985	2			302/359	PS – Telecommunication / Appendix B - Key & Access dates / Schedule of Key Dates / KD-8	Bidder requests NCRTC to provide the testing details for Employer operational trial Run.	Please follow Bid Conditions
986	2			327/359	PS – Telecommunication – Employer's Requirements: Part 2/ Chapter-11 1.1.2.1.5 The contractor shall comply in general with the pertinent requirements of NFPA 130 (Fixed Guide way Transit system 2007 edition issued by the US National Fire Protection Association).	NFPA is specific to US country regulations. Cables in India are not designed as per US standard specificatiosn. Bidder requests NCRTC to kindly mention Equivalent European or other standards in the requirement.	Please Refer Addendum and Corrigendum-02B
987	2			329/359	PS – Telecommunication – Employer's Requirements: Part 2 1.2.4.3.2/ Chapter-11 The thickness of stainless-steel tape to alloy AISI 304 or 305 shall not be less than 0.125 mm. The height of the corrugation shall be minimum 0.6 mm and the pitch shall be 2.5 mm maximum. Outer jacket of 1.8mm minimum thickness HDPE shall be provided over the steel tape throughout the length of the cable.	Stainless steel tape armouring is not standard solution used in Optical fibre cable Industry. Kindly confirm whether we can also consider Electro Chrome coated Steel Tape (ECCS) Armouring as available & manufactured by reputed OFC manufacturers in India. HDPE material Outer Jacket can not meet Fire retardant properties as specified in other sections. Kindly confirm whether to use alternate Outer Jacket material meeting Fire properties mention in this document?	Please Refer Addendum and Corrigendum-02B
988	2			331/359	PS – Telecommunication – Employer's Requirements: Part 2 1.5.2 The Cable shall be UTP Category 6 or better having following as minimum:	Coupling Attenuation 45dB/100 m is not applicable as this test is done only for SFTP cables. Request to remove Coupling attenuation test requirement from specification of UTP Category 6 cables.	Please follow Bid Conditions
989	2			103/359	PS – Telecommunication – Employer's Requirements: Part 2 / Chapter-2 / Telephony 2.6.3.12 Loudspeakers 13) All speakers should preferably be from same OEM as that of PAS System Supplier.	Please allow loudspeakers to be supplied from manufacturer (OEM) other than PAS system OEM/supplier. The loudspeakers will fulfill the technical requirements and are in use & proven in similar metro/railway projects. This clause 2.6.3.12 restricts other vendors from participation & request you to remove this requirement as it leads to a single vendor scenario. Multiple vendor choices should be allowed to the contractor as per the rules of International competitive bidding.	Please refer Corrigendum & Addendum- 01B
990	2			122	PS – Telecommunication – Employer's Requirements: Part 2 3.6.3.4 The service life of the PIDS equipment shall not be less than 15 years, for cables it shall be 25 years and for workstation/servers, it shall be 10 years	Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life.	Please follow Bid Conditions
991	2			36	PS – Telecommunication – Employer's Requirements: Part 2 1.7.3.2 Unless otherwise specified, all telecommunication equipment installed under this Contract inside rooms with controlled environment shall be designed for operation in temperatures of 0oC to + 40oC. All equipment installed outside these areas shall be rated for continuous operation up to + 55 deg C.	We request to change the requirements to following as these are standard available options from all OEM's: Server Operating Temperature is 10° to 35°C with Operating humidity 8% to 90% non-condensing Workstation operating temperature is 10°C to 35°C with operating humidity at 30% to 90%, non-condensing	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
992	2			27	PS – Telecommunication – Employer's Requirements: Part 2 1.5.1.2 The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously for the equipment (excluding Servers & workstations) For Servers & workstations it shall be 10 years. The life of all the cables shall not be less than 25 years.	We request to change the requirements to following as these are standard available options from all OEM's: Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life.	Please follow Bid Conditions
993	2			84	PS – Telecommunication – Employer's Requirements: Part 2 2.4.9.2 The service life of the PAS shall not be less than 15 years excluding Workstations/Servers. The service life of all types of cables shall not be less than 25 years and for Workstation/Servers the service life is 10 years. The service life shall be counted from the commencement date of Defect Liability Period	We request to change the requirements to following as these are standard available options from all OEM's: Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life. Please confirm & amend the clause suitably	Please follow Bid Conditions
994	2			112	PS – Telecommunication – Employer's Requirements: Part 2 3.4.1.12 The PC-based control equipment shall be industrial grade PC model. The PC-based control equipment shall function normally from -5°C to +55°C (ambient) and with relative humidity ranging up to 99%.	We request to change the requirements to following as these are standard available options from all OEM's: Server Operating Temperature is 10° to 35°C with Operating humidity 8% to 90% non-condensing Workstation operating temperature is 10°C to 35°C with operating humidity at 30% to 90%, non-condensing	Please follow Bid Conditions
995	2			122	PS – Telecommunication – Employer's Requirements: Part 2 3.6.3.4 The service life of the PIDS equipment shall not be less than 15 years, for cables it shall be 25 years and for workstation/servers, it shall be 10 years.	Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life. Please confirm & amend the clause suitably	Please follow Bid Conditions
996	2			243	PS – Telecommunication – Employer's Requirements: Part 2 7.4.4.3 The service life of the DTS equipment's except server/workstation shall not be less than 15 years. The service life of all types of cables shall not be less than 25 years. The service life of Server/Workstation shall not be less than 10 year.	Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life. Please confirm & amend the clause suitably	Please follow Bid Conditions
997	2			197	PS – Telecommunication – Employer's Requirements: Part 2 6.4.4.3 The service life of the Telephone System not be less than 15 years. Service life of all type of cables shall not be less than 25 years. The service life of work stations/servers shall not be less than 10 years. Service life shall be counted from the commencement date of the Defects Liability Period.	Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life. Please confirm & amend the clause suitably	Please follow Bid Conditions
998	2			287	PS – Telecommunication – Employer's Requirements: Part 2 9.6.10 The Contractor shall design the CVRS for a service life of 15 years with recommended maintenance.	Service life for Workstation/servers shall be 7 years same as Part 2 Section 6B: PS-Signalling and Train control, clause 4.4.4 Service life. Please confirm & amend the clause suitably	Please follow Bid Conditions
999	2			157	PS – Telecommunication – Employer's Requirements: Part 2 5.4.1.2 The OEM for CCTV system shall be registered in India with self-owned service centre for more than 10 years without joint venture	Most OEM's are managing service in India throught joint venture partners & have reliable service offerings with established processes. Clause 5.4.1.2 favors one particular vendor and restrict fair competition and it leads to a single vendor scenario.Multiple vendor choices should be allowed to the contractor as per the rules of International competitive bidding. Please remove Clause **"5.4.1.2"**.	Please Refer Addendum and Corrigendum-02B
1000	2			157	PS – Telecommunication – Employer's Requirements: Part 2 5.4.1.3 The OEM shall have implemented end to end CCTV solution in minimum 3 Indian metro environment.	CCTV solution is deployed globally in all metros/railway. NCRTC is a mixed railways application which has both RRTS & MRTS requirements & a global experience in metro/main line should be acceptable qualification criteria. Clause 5.4.1.2 is favouring only one particular supplier and restrict fair competition leading to a single vendor situation. Multiple vendor choices should be allowed to the contractor as per the rules of International competitive bidding. Please remove **"minimum 3 Indian metro environment"** in the clause.	Please Refer Addendum and Corrigendum-02B
1001	2				PS – Telecommunication – Employer's Requirements: Part 2 5.6.1.1 (14) Camera, Housing and software should be from same OEM	Housing can be procured from any reputed supplier meeting the specifications. Softwares are available internationally which can be procured from 3rd party. Clause 5.6.1.1(14) is favouring only one particular supplier and restrict fair competition leading to a single vendor situation. Multiple vendor choices should be allowed to the contractor as per the rules of International competitive bidding. Please confirm if others suppliers will be allowed to participate fairly.	Please Refer Addendum and Corrigendum-02B
1002	2			36	PS – Telecommunication – Employer's Requirements: Part 2 1.7.3.2 Unless otherwise specified, all telecommunication equipment installed under this Contract inside rooms with controlled environment shall be designed for operation in temperatures of 0oC to + 40oC. All equipment installed outside these areas shall be rated for continuous operation up to + 55 deg C.	We request to change the requirements to following as these are standard available options from all OEM's: Server Operating Temperature is 10° to 35°C with Operating humidity 8% to 90% non-condensing Workstation operating temperature is 10°C to 35°C with operating humidity at 30% to 90%, non-condensing	Please follow Bid Conditions
1003	2			112	PS – Telecommunication – Employer's Requirements: Part 2 3.4.1.12 The PC-based control equipment shall be industrial grade PC model. The PC-based control equipment shall function normally from -5°C to +55°C (ambient) and with relative humidity ranging up to 99%.	We request to change the requirements to following as these are standard available options from all OEM's: Server Operating Temperature is 10° to 35°C with Operating humidity 8% to 90% non-condensing Workstation operating temperature is 10°C to 35°C with operating humidity at 30% to 90%, non-condensing	Please follow Bid Conditions
1004	2			242	PS – Telecommunication – Employer's Requirements: Part 2 7.4.2.3 The DTS equipment shall comply with the reliability figures herein: DTS Equipment MTBF (Hours) GE Equipment : >150000 hours Workstation : >50000 hours Network Management System : >50000 hours	MTBF provided by the Workstations OEMs is 40000 Hrs Maximum. Kindly amend the requirement	Please follow Bid Conditions

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1005	2			83	PS – Telecommunication – Employer's Requirements: Part 2 2.4.7.2 The PAS equipment supplied under the contract shall comply with the reliability figures given below: PAS Equipment MTBF (Hours) Control and switching equipment : > 50,000 Amplifier redundancy control equipment : > 100,000 Power amplifier : > 50,000 Digital voice announcer equipment : > 50,000 Microphone : > 50,000 PAS management system (Server) : > 50,000 PIDS/PAS MMI + Station Server : > 50,000 Loudspeaker : > 150,000 Noise logic control sensor : > 50,000 Noise logic controller : > 100,000	MTBF provided by the Workstations OEMs is 40000 Hrs Maximum. Kindly amend the requirement	Please follow Bid Conditions
1006	2			112	PS – Telecommunication – Employer's Requirements: Part 2 3.4.2.3 The Contractor shall ensure that PIDS equipment supplied under the Contract comply with the reliability figures herein PIDS Equipment MTBF (Hours) Control Equipment : >50000 Display Boards : >35000 PIDS Management System :>50000 PAS/PIDS MMI : >50000	MTBF provided by the Workstations OEMs is 40000 Hrs Maximum. Kindly amend the requirement	Please follow Bid Conditions
1007	2			158	PS – Telecommunication – Employer's Requirements: Part 2 5.4.2.3 The Contractor shall ensure that the CCTV system equipment supplied under the Contract shall comply with the reliability figures here in: CCTV System Equipment MTBF(Hours) per unit Station and central equipment : > 50,000 IP Fixed Cameras : > 60,000 PTZ cameras : > 25,000 Video recording equipment : > 50,000 Video Display Units (monitors) : > 35,000 Layer-2 Switch : > 50,000	MTBF provided by the Workstations OEMs is 40000 Hrs Maximum. Kindly amend the requirement	Please follow Bid Conditions
1008	2			196	PS – Telecommunication – Employer's Requirements: Part 2 6.4.2.3 The Telephone System equipment supplied under the contract shall comply with the reliability figures given below: Equipment MTBF (Hours) Switching module : > 150,000 Processor module : > 200,000 Memory module : > 200,000 Line and trunk interface module : >100,000 Power supply equipment : >50,000 Multifunction direct line console : >20,000 Network Management System : >50,000 Battery Backup System : >50,000 Network Switch : > 200,000 Gateway : > 200,000	MTBF provided by the Workstations OEMs is 40000 Hrs Maximum. Kindly amend the requirement	Please follow Bid Conditions

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S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
1009	2			100	PS – Telecommunication – Employer's Requirements: Part 2 2.6.3.4 Integrated PIDS/PAS Workstation S. No. Parameter Specification 1. Processors : Intel Xeon Scalable Processor Gold 5100 family, 3.7 GHz, Hyper threading, 19.25MB L3 Cache, 1600 Mhz memory or better. 2. Operating Systems : Genuine Windows /Linux or better 3. Chipset : Intel C620 or better 4. Memory : DDR4 1600 MHz memory 16GB expandable to 64 GB 5. Graphics Display card : Dual NVIDIA Quadro P1000 WITH DUAL HDMI PORT or better 6. Drive Controller : 6 Gb/s controller, RAID 0,1,5 and 10 capable. 7. Hard Drives : 2 x 500GB 10K/15K SAS/ SATA/SSD WITH RAID- 1 8. Networking : Dual Integrated GbE Controller 9. Keyboard : USB keyboard 10. Mouse : USB two-button optical mouse 11. Optical Storage Devices : DVD-ROM 12. Approvals : The workstation shall be UL/FCC approved and shall be from reputed makes to meet the above specifications.	For a given PAS workstation application the suited and optimized specification recommended are a below, Bidder assumes that the below specification with respect to mentioned components will be acceptable. All other specifications will remain as per the RFP Processor : Intel Xeon E/W series with 3Mhz & 5MB cache Memory : 16GB (2*8) Graphics Display card : Single NVIDIA Quadro P400 with 3 MiniDP interface port Hard Drive : As the Hard drives is on RAID-1, the controller will also be RAID-1 only Hard Drives : 1*300GB for OS @ 10K RPM SAS/SATA/SSD on RAID1 and 1*500GB for storage @ 7.2K RPM SAS/SATA/SSD on RAID1 Network : One integrated and one dedicate with an USB to 1G LAN port adapter	Please follow Bid Conditions
1010	2			176-177	PS – Telecommunication – Employer's Requirements: Part 2 5.6.2.14 WorkStation for Viewing, Monitoring 1) The PC Workstation Hardware shall be Rack Mountable for viewing, Monitoring and management of CCTV images at the stations and shall meet the following specification As a minimum: S. No. Parameter Specification 13. Processors : Intel Xeon Scalable Processor Gold 5100 family, 3.7 GHz, Hyper threading, 19.25MB L3 Cache, 1600 Mhz memory or better. 14. Operating Systems : Genuine Windows /Linux or better 15. Chipset : Intel C620 or better 16.Memory : DDR4 1600 MHz memory 16GB expandable to 64 GB 17. Graphics Display card : Dual NVIDIA Quadro P1000 WITH DUAL HDMI PORT or better 18. Drive Controller : 6 Gb/s controller, RAID 0,1,5 and 10 capable. 19. Hard Drives : 2 x 500GB 10K/15K SAS/ SATA/SSD WITH RAID- 1 20. Networking : Dual Integrated GbE Controller 21. Keyboard : USB keyboard 22. Mouse : USB two-button optical mouse 23. Optical Storage Devices : DVD-ROM 24. Approvals : The workstation shall be UL/FCC approved and shall be from reputed makes to meet the above specifications.	The optimized specifications recommended should be acceptable for NCRTC. Kindly confirm. All other components will remain as per the RFP Processor : Intel Xeon E/W series with 3Mhz & 5MB cache Memory : 16GB (2*8) Graphics Display card : Single NVIDIA Quadro P400 with 3 MiniDP interface port Hard Drive : As the Hard drives is on RAID-1, the controller will also be RAID-1 only Hard Drives : 1*300GB for OS @ 10K RPM SAS/SATA/SSD on RAID1 and 1*500GB for storage @ 7.2K RPM SAS/SATA/SSD on RAID1 Network : One integrated and one dedicate with an USB to 1G LAN port adapter	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1011	2			178-179	PS – Telecommunication – Employer's Requirements: Part 2 5.6.2.16 Network Video Recorder (Server/Storage)-Hardware 1) The Network Video Management and Recorder system shall be 19" Rack Mountable. The storage with RAID 5 or better configuration shall be inbuilt hard disks on the server/Direct Attached Storage/Network Attached Storage/Storage Area Network. Each NVR (Primary/Secondary) shall have a provision of expansion of up to 25%. Telecom Contractor shall provide a latest suitable version of NVR that is capable to processing in operational conditions all working cameras including spares camera also and support all Employers requirements for CCTV. However Telecom contractor have to take the approval from the Employer representative before finalizing the NVR. S. No. Parameter Specification 1. Processor : Intel Xeon Scalable processor Platinum 8100 series 2.80 GHz or better 22MB L3 cache, 16 cores or bnetter, Hyper-Threading Technology with 7.2 GT/s QPI Speed and scalable up to 2 Processors, configured with Redundant Power Supplies 2. Chipset : Intel C620 or better 3. Memory : 32 GB Registered Low Voltage DIMMS, 1333 MHz or better scalable to 128 GB of memory 4. Storage : 1. OS Hard Drive: Min. 2X300 GB SAS 15K RPM or better in RAID 1. 2. Data Hard Drive: Hot plug Hard drive SAS/ SCSI/ SATA 7.2K or better with 35 TB usable in RAID 5 with 1 HDD in hot standby mode. 5. Drive controller : SAS controller with RAID 5 or better Hot-plug HDD, with 1GB DDR3 NVRAM Internal Hot-plug SCSI /SAS HDD. 6. Optical Storage : External DVD ROM Drive should be supportable 7. Network Controller : 4x1GbE with Load Balancing and Fail over Support. Remote management card with IPv6 8. Power supply : Two hot plug high efficiency rated power supplies. 9. Management : Dedicated Remote management card, with support for full out of band remote management Remote management system to provide Firmware updates and Roll	Specification on CCTV NVR Server can be optimized to as below & will not functionalities adversely, Bidder assumes that the these are acceptable. All other specifications will remain as per the RFP. Kindly cofnrim Processor : HPE DL380 Gen10 Intel Xeon-Silver 4XXX (2.2GHz/10-core/16MB Cache) FIO Processor Kit Harddisk : 1. OS Hard Drive: Min. 2X300 GB SAS/SATA/SSD 10K RPM in RAID 1. 2. Data Hard Drive: Hot plug Hard drive SAS/ SCSI/ SATA 7.2K 35 TB usable in RAID 5	Please follow Bid Conditions
1012	2				General List of total no. of platform supervisory booth.	As we understand, PCB(clause 2.5.9.5 of PS Chapter-2) and PSB are same locations. Please share the location along with the count of Platform Supervisory booth.	Please Refer Addendum and Corrigendum-02B
1013	2				Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) General	Do the bidder need to consider the PA system for headquarters (HQ) separately? Is HQ a part of OCC/BCC location where we need to consider additional speakers and PA Control Panel only for announcement. Please confirm.	Please follow Bid Conditions
1014	2			79	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.3.3.7One Hard wired PA Control panels, complete with microphone, zone selection facility and inter- panel- calling facility shall be provided at designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in each zone/ all zones. The PAS shall provide uniform broadcast coverage throughout all areas of each site within which staff or members of the public may gain access to. The design shall be such that the speakers are so located as to ensure that there are no dead zones between adjacent speakers due to interference or any other reason.	1. Bidder understands that One Hard wired PA Control panels, complete with microphone, zone selection facility to be provided at designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in their respective locations each zone/ all zones. please confirm. 2. Please clarify the use case of Inter-panel-Calling Facility Feature. Please provide more details on the same.	Please follow Bid Conditions
1015	2			79	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.3.3.7 One Hard wired PA Control panels, complete with microphone, zone selection facility and inter- panel- calling facility shall be provided at designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in each zone/ all zones. The PAS shall provide uniform broadcast coverage throughout all areas of each site within which staff or members of the public may gain access to. The design shall be such that the speakers are so located as to ensure that there are no dead zones between adjacent speakers due to interference or any other reason.	In typical metro system telephones are used for calling purpose. Secondly this PAS control panel is standalone to make announcment within station in case of HMI failure similar functionality implemented in all other metro projects. we Suggest to please modify this clause by removing Inter panel calling facility.	Please follow Bid Conditions
1016	2			81	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.4.2.8Through acoustic modelling the relevant system performance shall be validated to comply with the following requirements: 3))Frequency Response - All areas 100 Hz to 16 khz at - 10 dB and In case of horn speaker 500 Hz to 4.5 khz at - 10dB.	System should have a minimum frequency response from 170Hz to 20KHz at -10 dB. and in case of horn speaker 550 hz – 5.0 kHz at -10 dB. Request NCRTC to consider the changes accordingly to have more options of OEM Selection.	Please Refer Addendum and Corrigendum-02B

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1017	2			82	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.4.4.1 The minimum overall system frequency response for the PAS from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB excluding PA from depots.	System should have a minimum frequency response from 170Hz to 20KHz at -10 dB. and in case of horn speaker 550 hz – 5.0 kHz at -10 dB. Request NCRTC to consider the changes accordingly to have more options of OEM Selection.	Please Refer Addendum and Corrigendum-02B
1018	2			82	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.4.4.2The corresponding system frequency response from a radio input channel shall be 100 Hz to 16 kHz, ± 3 dB or better.	The corresponding system frequency response from a radio input channel shall be 170Hz to 20KHz, ± 3 d B. Request NCRTC to consider the changes accordingly to have more options of OEM Selection.	Please Refer Addendum and Corrigendum-02B
1019	2			83	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.4.6.22.4.6.2 The loudspeakers used shall comply with all relevant provisions of the EN/IEC 60065.	Applicable EN standard for Loudspeaker is EN54-24, Please modify the clause.	Please follow Bid Conditions
1020	2			84	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.4.8.7 There shall be a hot standby controller available in the rack to take over from the primary controller in the event of the failure of the primary controller	As per clause 2.4.8.6 it is asked to provide primary controller in Primary Rack and Secondary controller in secondary rack to work in Active-Active mode. We believe there will be no Hotstandby controller as both controller will work in Active-Active mode. However if it is an additional requirement to give Hotstandby Controller in each rack then the number of controllers will be four. Please confirm & clarify.	Please follow Bid Conditions
1021	2			86	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.4.1PAS zones shall be fully coordinated with the fire protection zones in all stations. The contractor shall coordinate with Civil Works project contractor to obtain all the latest fire protection zoning details necessary for his design engineering.	Requirements mentioned under clause 2.5.4.1 and 2.5.3.1 are contradictory, Please confirm, which requirement needs to be considered.	Please follow Bid Conditions
1022	2			86	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.6.2The contractor has to provide a PAS rack for full coverage of OCC and BCC similar to a PAS rack provided at a typical elevated station with expansion capacity. Provision of hardwired control panel, complete with microphone and station-wise zone selection shall be made for OCC and BCC to make live audio broadcasts to any zone or group of zones or all zones there.	As per our understanding Hard wired PA control panel complete with microphone to be provided at OCC and BCC to make live announcement at selected zone. Is it required to be broadcast on all zones in OCC and BCC. Please confirm.	Please follow Bid Conditions
1023	2			90	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.9.5 Live audio broadcast relating to emergency, fire and evacuation messages from OCC/ BCC shall be recorded in the Centralized Voice Recording system at OCC/ BCC. Similar broadcasts made from SCR / PCBs shall be recorded at the SCR / TER in the PAS station server or the MMI itself. It shall however be possible to retrieve any message so recorded and save the same on an external storage device like a memory stick for future reference.	Please share the duration of recording in days for Live audio broadcast recorded files to be kept in OCC/BCC & Station server.	Please Refer Addendum and Corrigendum-02B
1024	2			90	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.10.2The PAS shall have the facility to broadcast live FM/AM (Govt. Channels/ Frequencies or any other channel).	Please guide on the Input source for those FM/AM channel frequencies to broadcast. A PAS system only procees the input feed given to it and route it to output zones. So to process and give an output; an Input source needed, Bidder requests to share where be the input source and who will provide this AM/FM facilities.	Please Refer Addendum and Corrigendum-02B
1025	2			92	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.13.1Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 17) VIII-One look Status bar- This status bar shall show the Operational status of all the available PIDS, PAS Zones etc.	As per our understanding, one look status means all the equipment failure alarm to be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
1026	2			93	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.15.2 (xiv) Failure of hard wired MMI for Platform.	Please correct & amend this clause as there is no MMI on Platforms.	Please Refer Addendum and Corrigendum-02B
1027	2			94	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.5.15.2(5) Contractor shall state the display capabilities of the proposed system	Please explain the requirement of this clause for better understanding.	Please follow Bid Conditions
1028	2			97	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.2.2 1)-The amplifier total harmonic distortion shall be less than 0.5% at 1 kHz with full power.	The amplifier harmonic distortion should <0.3% (@ 1 kHz) @ 50% of output power. Please do consider the changes accordingly for better performance.	Please follow Bid Conditions
1029	2			97	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.2.3 (1) -The minimum overall system frequency response for the PAS from 100 Hz to 16 khz at -10dB and In case of horn speaker 500Hz - 4.5khz at -10dB.	The minimum overall system frequency response for the PAS from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB . Please do consider the changes accordingly for better performance & fair participation of more OEM's	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1030	2			101	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.3.5(3)The monitor speaker with volume adjustment control on the PAS control panel shall be used for real time monitoring of any message being broadcast to the pre-defined zones. There can be a separate Monitoring speaker, which can be provided in SCR for continuous monitoring of Broadcast messages.	As per our understanding, , monitoring speaker to be provided on SCR either inbuilt with PAS control panel or separate speaker to continuously monitor the broadcast messages. Please do consider the changes accordingly .	Please follow Bid Conditions
1031	2			101	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.3.5(6) Inter Panel calling facility shall also be available.	As per our understanding, interpanel calling facility means operator is able to initiate a call on selcated zones or all zones from all the panels as and when required. Similar zone selction facility should be available on all panel. Please confirm if our understanding is correct or please do share the use case of inter panel calling facility.	Please follow Bid Conditions
1032	2			102	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.3.8 Minimum two 200 W Class-D power amplifier shall be provided for each zone at each station.	Specification of power capacity (of minimum 200 W) is not necessary & relevant as other capacity power amplifier will also serve the purpose of application. Therofore bidder requests to replace 200 W capacity with "Suitable power capacity as per design".	Please follow Bid Conditions
1033	2			103	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.3.12(8) Loudspeakers shall have a minimum frequency response from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB.	All Loudspeakers should have minimum frequncy response from 170Hz to 20KHzat -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB . Please consider the changes accordingly for better performace and more option for OEM selection.	Please Refer Addendum and Corrigendum-02B
1034	2			103	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.3.12 (6)Horn loudspeakers should not be supplied except in plant rooms.	It is requested to please allow Horn loudspeakers for Depot areas, As Horn speakers are more preferrable for Depot areas and implemented in other metro projects as well because it has dense diaphragm and the less-dense air this result in greater acoustic output power which is better for a open area in depot.	Please Refer Addendum and Corrigendum-02B
1035	2			103	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.3.1213) All speakers should preferably be from same OEM as that of PAS System Supplier.	It is requested to please allow different OEM's for loudspeakers and the PAS system supplier. The loudspeakers sourced will meet the loudspeaker technical requirements and have proven record in similar metro/railway projects.	Please refer Corrigendum & Addendum- 01B
1036	2			104	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.6.4.1 The management system shall be equipped with a proven operating system to support the specified management functions. The NMS at OCC & BCC shall have jurisdiction over entire Delhi-Ghaziabad-Meerut RRTS corridor. NMS should be available for access in other than CSS/ CER. The PAS and PIDS NMS shall be on the same server / workstation.	As per clause 2.5.15.1 (1) The NMS should not be available for access in other than CSS / CER. Please confirm which requirement need to be considered. Bidder requests to clarify if NMS should be accessible from outisde CSS/CER ?	Please Refer Addendum and Corrigendum-02B
1037	2			107	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.8.4.1Telecom contractor shall coordinate with civil works project contractors to ensure that all requirements of the specifications pertaining to interfaces between PAS and the civil works project contractors are properly satisfied as per Appendix A of chapter 11 under Part -2 (PS-Telecom).	Bidder requests NCRTC to kidnly elaborate / specify the requirements related to acoustic simulation. Bidder assumes that the Civil work project contractor will provide NCR values of finished material used in particular location before simulation. Kindly confirm	Please follow Bid Conditions
1038	2			108	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) 2.8.10.1 An interface with the security alarm system will be provided. This interface will be used for making security announcements in case of security or safety-based events. This interface should either be IP level or hard wired. In event of hard-wired interface, the interface box shall be placed in the TER. Wiring to the PAS server beyond the interface box shall be responsibility of PAS (Telecom) Contractor.	As per our understanding, interface box will provide Hardwired Interface and shall be the responsibility of other contractor. Please confirm.	Please Refer Addendum and Corrigendum-02B
1039	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System General	TFT and LED Display size and below details are missing in requirements. 1. Surface Luminunce details.(Nits/candulance required) 2. Contrast ratio details. 3. Display Colors 4. Display Pixel Resolution details. 5. Display Viewing Angle. 6. Number of Character and its Height (For LED Display) Please update.	Please follow Bid Conditions
1040	2			111	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.4.1.4The information on display boards shall be displayed in turn in English and then in Hindi language. Each displayed message shall last for specific period of up to 60 seconds and shall be adjustable from the control centre.	As we understand, displayed message shall last for upto 60second, irrespective of length of message. Please confirm.	Please follow Bid Conditions

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S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
1041	2			111	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.4.1.6The PIDS displays shall produce images with a minimum contrast ratio of 20:1 when operating in all ambient lighting conditions including artificial lighting and natural lighting, up to full sunlight conditions.	Kindly clarify contrast ratio 20:1 is for which display type LED Display Board or TFT.	Please follow Bid Conditions
1042	2			112	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.4.1.123.4.1.12 The PC-based control equipment shall be industrial grade PC model. The PC- based control equipment shall function normally from -5°C to +55°C (ambient) and with relative humidity ranging up to 99%.	Please clarify - For TFT type display operating temprature of 55° C is not realistic and imposes the bidder to consider a highly cost prohibitive solution. We request you to relax this to OEM recommended range for the TFT module which is 0°C to 50°C. Humidity 99% is not measurable in labratories. We request to consider a more concrete and real 95% as usually required in extremely high humidity complete as required. Please update the clause accordingly.	Please follow Bid Conditions
1043	2			114	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.5.1.1 4 (i) (b)Display Line 2: Train information like destination information, arrival & departure time, train length, train occupancy details etc (in both Hindi and English as per requirement) or Scrolling/ flipping train data for the next 2-3 trains or any advertisement related message or any public information. Information pertaining to current date, time, temperature and air quality index shall also be displayed.	Need More detail on the source of Information for Air Quality Index data along with type of interface with Telecom System.	Please Refer Addendum and Corrigendum-02B
1044	2			116	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.5.1.16(xii) All the PIDS must be provided with maintenance sockets for connecting maintenance equipment (Maintenance lamp/ cleaner etc.).	As We understand , one spare 3 pin socket with switch will be required inside PIDS cabinet, Please confirm.	Please follow Bid Conditions
1045	2			113	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.5.1.1 (1) (ii) : Contractor shall propose integrated servers and HMIs for PAS & PIDS System. Contractor to ensure all functional requirement and RAMS requirement as mentioned in the Particular Specification.	As per clause 3.5.1.1 (2) (i) , Integrated PAS/PIDS MMI in the SCR will be preferably integrated in station server and not a separate workstation. Hence, we propose an Intgrated Machine for Station Server and HMI installed in TER. Please confirm.	Please follow Bid Conditions
1046	2			118	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.5.1.1 (8)Asset Management feature	Please clarify that what are the perameters of asset management feature?	Please Refer Addendum and Corrigendum-02B
1047	2			116	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.5.1.1 The PIDS display housing shall provide cable access from the top and bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Cable access should be either from top or bottom. Therefore, clause may be revised to as below. The PIDS display housing shall provide cable access either from the top or bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Please follow Bid Conditions
1048	2			117	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.5.1.17 IX): The displayed information shall provide full clarity and legibility when viewed at the required distances and at positions of up to ±70°, vertically, from the normal viewing axis. The viewing angle shall be min. ±80° contained within the arc where at the extremity the illumination intensity drops to half of the peak intensity	There seems to be typographical error in view angle. The view angle should be +/- 40 deg. In place of +/- 80 deg. SMD LEDs with +/-80 deg. View angle are not available commercially.	Please follow Bid Conditions
1049	2			147	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-4-Master Clock System 4.6.2.1(1) Master Clock (vi) A Master Clock Server to deliver Network Time Protocol (NTP) or Precision Time Protocol (PTP) as required by other subsystems. Subsystems that are not compliant to IEEE-1588 shall receive NTP. Subsystems compliant to IEEE-1588 shall receive PTP.	As we understand all other sub-systems support NTP Protocol, hence, PTP protocol output should be optional for Master Clock Server. Please confirm.	Please follow Bid Conditions
1050	2			149	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-4-Master Clock System 4.6.2.1(3) Display Clocks Outdoor Double-Sided Analog Clocks 1. 60 cm diameter double faced suspended,	We understand that 60 centimeter diameter refers to dial and display diameter of 60 centimeter excluding length / size of analogue clock housing. Please confirm our understanding.	Please follow Bid Conditions
1051	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System GeneralHeadquerter building	Do we need to consider the CCTV system for HQ separately or HQ is part of OCC/BCC location where we need to consider additional camera and MMI . Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1052	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System GeneralCCTV Coverage	Please provide a list of total number of proposed Skyway, Parking area of Stations/Depots/OCC/BCC/HQ, escape routes on the viaducts, train sidings, Mid shafts (tunnel shafts), Ancillary buildings, level crossing, other exit points on the viaduct and special security booth(s) at the relevant station as required in clause 5.5.1.7(2).	Please refer Employer's drawings- section 6F
1053	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System GeneralCCTV Coverage	With reference to Interface requirement mentioned in item 2 of S. No. 17 of clause 9.4 of Appendix A of Section 6B , clause 5.2.3 (1) and 5.5.2.1 of Chapter 5 of Section 6C, we understand that exterioer of TOM/EFO needs to be covered with CCTV Coverage, not TOM/EFO Rooms. Please confirm.	Please follow Bid Conditions
1054	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System GeneralCCTV Coverage	With reference to clause 5.2.3 and 5.5.2.1, we understand that CCTV Coverage for Entry/Exit of Control and Operations room , equipment rooms, Plant Rooms of Stations, Depot, Electrical Sub-station, OCC and BCC needs to be considered. Please confirm.	Please follow Bid Conditions
1055	2			158	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.5.1.4 The CCTV Coverage to be provided by provision of fixed cameras only. The PTZ Fisheye cameras shall not be counted for CCTV coverage calculation.	Bidder requests to consider Fisheye cameras also to be counted for CCTV coverage as it can view in all directions at same time.	Please follow Bid Conditions
1056	2			159	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.5.1.73) Any other location to be decided by the Employer's representative at the time of detailed design.	With reference to clause 5.5.1.7 (3),We understand that only one no. of CCTV HMI with two Monitor needs to be provided for HQ location (Appendix F) and location for same will be decided during detailed design , . Please confirm..	Please follow Bid Conditions
1057	2			160	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.5.1.11 Some of the cameras in depot, signal crossings, RSS, parking, specifically identified theft prone area etc. are required to be installed outdoor i.e. outside the buildings with no covering shed. A proper weatherproof mounting arrangement complying with IP 66 or better along with wiper arrangement shall be provided for housing these cameras including any other accessories /equipment required shall also be provided as part of this contract.	As per our understanding for outdoor location bidder has to consider camera with outdoor housing with IP 66 or better with heater and window defroster with self-cleaning glass feature instead of external wiper which will fullfil the requirement . Please confirm our understanding is correct & amend the clause suitably	Please refer Corrigendum & Addendum- 01B
1058	2			162	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5 5.5.5.7 The Contractor to note that the financial bid gives the minimum BOQ to be covered as part of the scope of work and any other item or enhancement of the listed items required to complete the Telecom Contract shall also be provided as part of this fixed lump sum Contract. Additionally, Contractor to please also note that all responsibilities and costs for materials, services, interface with all other relevant contractors etc in connection with integration of videos with the existing video wall shall be borne by telecom Contractor as part of this lump sum contract with no additional cost.	As we understand that this is a greenfield project and currently, there is no video wall. Please update the clause accordingly.	Please follow Bid Conditions
1059	2			163	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.5.6.1 All alarm status of the CCTV system equipment including CCTV cameras, video recorders, L2 Switches etc as necessary and approved by the Employer's representative shall be monitored by CCTV Management System/Network Management System in the CER at the OCC & BCC and shall automatically generate an audio/visual alarm on the CCTV Management System on occurrence of an alarm.	As per our understanding Monitoring of IT equipment hardware failure like Workstation , Servers and L-2 switched to be monitor from standard NMS. Rest other alarms related to CCTV system has to come on CCTV Management system .Please amend the clause accordingly	Please follow Bid Conditions
1060	2			179	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.171) Workstation for CCTV MMIs shall be kept in Telecom Equipment Room (TER) and the extension of Video, Keyboard and Mouse to the OCC Controllers, Station Control Room (SCR), Security Rooms and Platform Supervisor Booths (PSB) in OCC/stations shall be done through KVM Extenders. The distance between TER and SCR/Security Rooms/PSB in some cases may be more than 150 mts. The KVM extenders shall be selected keeping in view of the distance and the screen resolution of MMI.	As per Appendix-F of PS Ch-11 and clause 5.5.2.3 ,there is no provision of CCTV MMI at Platform Supervisor Booth. Please confirm.	Please follow Bid Conditions
1061	2			180	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.186) Abandoned/Unattended Object Detection	This clause states that - "Detects an unattended bag on a crowded platform. Immediately detects and notifies if an object has been permanently placed on the concourse, ticketing area, **technical room**, SCR area and on the Platform". Please ammend this clause inline with clause 5.2.3 as "Detects an unattended bag on a crowded platform. Immediately detects and notifies if an object has been permanently placed on the concourse, ticketing area, **technical room corridor**, SCR area and on the Platform."	Please follow Bid Conditions
1062	2			180	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.187) Depot/OCC/BCC/Ramp Perimeter Protection:	With reference to clause 5.6.2.18 (2) (viii), we understand that CCTV System with Video Analytics needs to be provided for Perimeter Protection of Depot, Ramp and RSS only. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1063	2			186	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.19 (4) Viewing Client - (III) - t)- One look Status bar- This status bar shall show the Operational status of all the available cameras (Total cameras, Cameras with recording issue etc).	As per our understanding, one look status means all the equipment failure alarm shall be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
1064	2			188	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.198)Mobile Viewing Client	The Wi-Fi Infrastructure should be available at location for this functionality. Please confirm if this will be made available to the bidder.	Please follow Bid Conditions
1065	2			315	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-11, Appendix-F 1.2.6.1 5) The Large Screen Graphics Wall shall be installed in the Control Room at OCC & BCC . The Large screen Graphics Wall shall be made up of 10 Rear Projection Modules fitted in 5 columns wide and 2 rows high and the overall screen size shall be approximately 7750 (w) mm x 1744 (h) mm.	Refer Financial BID, Annexure 2, Schedule 5: Supply and Delivery of CCTV SYSTEM, item 11, Projection Display System is required at OCC Security Control Room only, however, as per requirement of PS Ch-11, Appendix-F, clause 1.2.6.1 (5), Projection Display System is required at OCC & BCC Security Contoller. Please clarify.	Please Refer Addendum and Corrigendum-02B
1066	2			192	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.2Overview of Telephone System	As per our understanding, there is a requirement of 3 types of system as IP PBX system, Direct line telephone system and Voice over IP phone system (UMA clause ref. 6.5.3.1, 6.5.3.1.6). Please confirm.	Please follow Bid Conditions
1067	2			192	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.2.1IP PBX Network	Kindly confirm , as we understand Independent hotstandby IP pbx required at each station, HQ and Depot/OCC.	Please follow Bid Conditions
1068	2			192	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.2.1.1 It shall be a highly reliable State of the art, non-blocking, ISDN compatible IP PBX Telephone network for voice, facsimile and data communication services throughout the RRTS Corridor. Telephone sets (where applicable) shall be provided in the control rooms, , administration offices, HQ, rooms for operation, maintenance, security and equipment rooms, mid tunnel shaft, emergency evacuation routes at stations, staff rooms in the OCC/BCC, depot, RSS and all stations. Each OCC/BCC controller position shall also be provided with IP PBX telephones.	Please provide the list and location of Mid Tunnel Shaft, Emergency Evacuation Routes at Stations.	Please Refer Addendum and Corrigendum-02B
1069	2			199	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.1.3 Network Features ,The IP PBX switch network shall provide feature transparency across all the IP PBX switches new and the existing throughout RRTS	As per our understanding, this is a Green field project and there are no existing IP PBX System. Please ammend the clause accordingly.	Please follow Bid Conditions
1070	2			216	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.3.1.13 IP PBX should be type approved for latest TEC GR (Interface Type Approved).	Please accept TEC IR also as both IR and GR are valid for any Interface Requirement as per TEC guide lines . TEC Approval as per GR is available with very limited vendors and thus this restricts participation. We request to change it to "**IP PBX should be type approved for latest TEC GR /IR (Interface Type Approved)."**	Please follow Bid Conditions
1071	2			222	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.4.5Voice Mail System (VMS)	How many ports and no of users in OCC/BCC/HQ/DEPOT needs to be considered? Please specify.	Please follow Bid Conditions
1072	2			198	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.1.1.2 Requirements of IP PBX Telephone System are given in Table 5-1 below. Table 6.2: IP PBX Telephone System Requirements	The quantity asked in s. no. 3 for each stations is 20 as basic analog phone, and for OCC/BCC/Depot/HQ is 1570 total quantity for these four locations. Please confirm.	Please Refer Addendum and Corrigendum-02B
1073	2			198	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.1.1.2 Requirements of IP PBX Telephone System are given in Table 5-1 below. Table 6.2: IP PBX Telephone System Requirements	The quantity asked in s. no. 4 for each stations is 5 as Digital phone, and for OCC/BCC/Depot/HQ is 70 total quantity for these four locations. Please confirm.	Please Refer Addendum and Corrigendum-02B
1074	2			198	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.1.1.2Requirements of IP PBX Telephone System are given in Table 5-1 below. (9) PFCT (For CO Lines)	With referene to Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM-item 16, 4 nos. of PFCT is mentioned, however, as per clause 6.5.1.1.2 (9), 6 nos of PFCT is mentioned for OCC/BCC/Depots/HQ. Please ammend the clause 6.5..1.1.2 (9) in line with BOQ.	Please Refer Addendum and Corrigendum-02B
1075	2			207	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.2.1.7For provision of Direct Line Console in the OCC, BCC and the Depot refer to MMI Provision Schedule Appendix F of chapter 11 under Part -2 (PS-Telecom). System capacity for OCC shall be same for BCC. The Stations/Depot/OCC/BCC shall have 9 numbers each of Direct Line Telephones and 01 number at each RSS, which shall be programmed for the required Direct Lines, to be reviewed by Employers representative.	Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM (INCL. DC SUPPLY SYSTEM) FOR EVERY LOCATION, s. no. 6, the quatity is 175, as per calculation Tender clause the quantity comes is 270 nos. kindly confirm which quantity to consider	Please Refer Addendum and Corrigendum-02B
1076	2			209	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.2.4 Emergency Telephones at cross passages in Tunnels.	Kindly confirm the type of interface from PBX, as we recommend it should be Analog. Also confirm these phone category minimum IP65/66.	Please Refer Addendum and Corrigendum-02B
1077	2			209	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.2.5 Help Points (5 at Each Station)	Kindly confirm the type of interface from PBX, as we recommend it should be Analog. Also confirm these phone category minimum IP65/66.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1078	2			209	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.2.5Help Points (5 at each station)	As we understand, maximum of 5 Help Points per station will be provided. Exact location will be defined during design phase. Please confirm.	Please follow Bid Conditions
1079	2			211	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.3.1.4 Requirements of IP PBX System are given in Table 6.4 below as a minimum. S. no. 8	for s. no. 8 , phone quantity is not asked in Boq of Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM, kindly confirm the quantity.	Please Refer Addendum and Corrigendum-02B
1080	2			211	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.3.1.4 Requirements of IP PBX System are given in Table 6.4 below as a minimum. S. no. 12	for s. no. 12 , phone user licences quantity is not matching, it should be 300 as per clause ref. 6.5.3.1.6. Please confirm the quantity.	Please Refer Addendum and Corrigendum-02B
1081	2			217	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.3.1.25 s. no. 2, L3 Stackable Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2 10G SFP+ for Uplink, 4 combo 10GBase-T CX-4 ports, Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto 100 kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	As these switches will be going to connected behind the DTS backbone, so we request to change SFP module type from 100 kms to 300m. Kindly confirm.	Please follow Bid Conditions
1082	2			222	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.4.5Voice mail system (VMS)	As we understand the voice mail system shall be centralized only at OCC and have voice mail facility at all stations/ depot/ HQ/BCC.	Please follow Bid Conditions
1083	2			227	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.4.6.11.1IP PBX Telephones - 1) Desktop Voice Phone (from OEM of IP PBX)*	This particular phone has not been asked in the price sheet annexure -2 and this phone a part of UMA solution clause ref. 6.5.3.1.4 & 6.5.3.1.6, we request you to provide the details with quantity for the same.	Please Refer Addendum and Corrigendum-02B
1084	2			227	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-6-Telephone System 6.5.4.6.11.1IP PBX Telephones - 1) Desktop Voice Phone (from OEM of IP PBX)* point no. xii. Two 10/100 BT PC port, POE Type Class 1/2	The IP phone port 10/100 BT is obslete and currently it is 10/100/1000BT, we request you to modify with latest one.	Please follow Bid Conditions
1085	2			239	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.2.10The DTS shall consist of a duplicated multi-channel transmission system employing carrier grade GE IP switches / routers utilizing optical fibres as the interconnecting media. The DTS shall be configured with duplicated fibre optic rings with diverse transmission path to ensure that in the event of equipment or transmission media failure, no circuit carried by the DTS are affected except those connected to the failed node.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. please change the clause as **"The DTS shall consist of a duplicated multi-channel transmission system employing carrier grade GE IP switches/routers utilizing optical fibers as the interconnecting media. The FOTS shall be configured with single fiber optic ring connected to each devices with dual transmission path to ensure that in the event of equipment or transmission media failure, no circuits carried by the FOTS are affected except those connected to the failed node. "**	Please follow Bid Conditions
1086	2			244	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.5.1.4 The transmission system used as the backbone for operational communications will be a GE based IP network consisting of carrier grade IP elements. The system shall be based on duplicated fibre optic ring structure with necessary IP protocols and suitable protection switching (< 50 ms) to provide tolerance in the network to multiple faults in the OFC back bone.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. please change the clause as **"The DTS shall consist of a duplicated multi-channel transmission system employing carrier grade GE IP switches/routers utilizing optical fibers as the interconnecting media. The FOTS shall be configured with single fiber optic ring connected to each devices with dual transmission path to ensure that in the event of equipment or transmission media f ailure, no circuits carried by the FOTS are affected except those connected to the failed node. "**	Please follow Bid Conditions
1087	2			245	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.5.2.2The DTS network shall be SDN ready and incorporate a central monitoring system to gather operational data for performance checking, historical trend analysis, and maintenance. This monitoring system shall provide facilities to handle filing, storage, display, and printing of historical records.	For entire network infrastructure (Core, distribution and also includes access layer carrier grade and industrial grades switches) for open environment that will be managed, monitored and configured by centralized NMS. Since SDN feature is not required for Access layer industrial grade/non-industrial grade . Hence, Request you to kindly make SDN feature as optional to have flexibility in design.	Please Refer Addendum and Corrigendum-02B
1088	2			247	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.5.5.1.1The Giga Ethernet backbone shall be based on suitable protection to achieve convergence time of <50 msec in event of any link failure and or any network disruptions along with conditions defined in above paras.	The ring will have two fibre optic with diverse path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. The convergence time for less then 50ms on dual fibre ring is impossible to achieve. Because ERPv2 open standard Ring protection protocol with dual fibre ring with single point of failure will give max 250 ms. if we want to achive 50ms converge time the fibre must have single ring with dual connection at Core/distribution (up/down) to connected devices at WAN level which will give 100% redundancy . If the dual ring clause remains unchanged then please change the **50ms** to **less then 250ms**.	Please follow Bid Conditions
1089	2			248	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.5.5.3.1 3) The equipment shall be Commercial off the Shelf (COTS) products and shall be for industrial purposes and harsh environment like MRTS/Railway, widely deployed across a wide range of commercial networks.	As per our understanding the Core switches,Distribution switches and Access switches will be installed in temperature controlled areas hence all switches may not be rugged (Industrial grade with high temperature 75 degree for outdoor/closed high temperature areas like tunnel,open area) switches. For outdoor area, industrial grade switches can be proposed. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1090	2			252	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.6.2.4(iii) The 10GE DTS backbone shall have dual fibre rings will dual homed on OCC on BCC Core Switches.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. Hence, please replace dual ring with single ring.	Please follow Bid Conditions
1091	2			265	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.2.1 A highly secure and reliable Access Control and Intruder Detection System, with fast response times, shall be installed throughout the entire Delhi Meerut RRTS Corridor sites.	Please specify the meaning of " Fast response times".	Please follow Bid Conditions
1092	2			265	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.2.4 (3)At other critical locations related with safety or security;	Please specify Critical locations related with Safety and Security , so as to freeze the design.	Please follow Bid Conditions
1093	2			266	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.2.9.4 (1)It shall be able to display all the operational status and send the alarm signals to the ACS local server. It shall also be able to detect sensor failure and the damage of connecting wires.	As per Industry standard design, ACS System has Centralized Server. Please explain the use case of ACS local server.	Please Refer Addendum and Corrigendum-02B
1094	2			268	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.3.2.1 (5) IP controller 4/8 I/O for intrusion detection, with flashlight and hooter wherever required;	The count of I/O per IP Controller depands on Site and Design requirements. Please keep it flexible (not just 4/8 I/O).	Please follow Bid Conditions
1095	2			269	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.1.4 It shall be possible to conduct essential software maintenance without disrupting server operation.	Please clarify meaning of essential software maintanance.	Please follow Bid Conditions
1096	2			170	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.2(9)A local alarm sound shall be activated at the operator's MMI and locally at the door, gate or turnstile to alert security personnel to the location of the forced entry. Reset of the forced entry shall be security protected.	Please provide the specification, locations and count for Gates.	Please follow Bid Conditions
1097	2			270	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.2.1 (1)Automatic self-test facility, which shall detect automatically the installed Proximity ID Card and reader technology and shall configure automatically the installed facilities ready for use.	Configuration of card readers is manual process as naming port definition is needed.. Kindly clarify the meaning of automatic self test facility.	Please follow Bid Conditions
1098	2			271	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.3.7Intruder Detection facilities shall be installed in and around the perimeter of the depots and electrical sub-stations, which may comprise combinations of palisade fencing, boundary walls and open areas (such as at the permanent way entry/exit within the depots) with power fencing cables along with PCUs associated with zone processors for identification of the exact locations at the security control room on the video wall or on the MMI.	With reference to requirement of clause 8.3.2.1 (7) and 8.5.3.8, we understand that Perimeter Controller Unit and Zone Processor Module with Power Fencing Cables needs to be provided only for Depots Perimeter. We request to ammend clause 8.5.3.7 by removing "**electrical sub-stations"**.	Please follow Bid Conditions
1099	2			272	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.3.15Handover shall be provided between different cameras to maintain effective tracking of the intruder throughout the site area.	We understand that Site Area mentioned herewith pertains to specific Zones of Depot Perimeter. Please confirm.	Please follow Bid Conditions
1100	2			272	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.4.13 (xi)Monitor and report compliance;	Need exact explanation and meaning of monitor and report compliance.	Please follow Bid Conditions
1101	2			274	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.5.5.1 (2)The CCTV System shall automatically display to the MMI Operator CCTV images on a local CCTV display monitor on occurrence of the following alarmed events:	As per clause 8.5.4.1 (6) its asked that CCTV to be shown as part of ACIDS GUI. In this clause it asks to be shown in CCTV MMI. Kindly clarify if CCTV view for alarms is required in ACIDS GUI or on the CCTV MMI? Please clarify.	Please follow Bid Conditions
1102	2			275	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.The Access Control and Intrusion Detection System shall be a fully IP based solution including as a minimum, following elements as shown in the typical schematic diagram	Given Typical Schematic Diagram should be considered just as a guideline, as there are some elements, which are Vendor specific. Example: Drawing shows access controller with display. Display on ACIDS controller is specific feature of a particular make. Please amend the clause accordingly.	Please refer Corrigendum & Addendum- 01B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1103	2			276	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.11) A central access control server (with hardware redundancy and disk mirroring) shall be installed in CER within the OCC & BCC, which shall control and monitor all of the access control and Intruder Detection facilities installed within all of the Delhi-Ghaziabad-Meerut RRTS sites. Central Access Control Server shall be able to integrate with Integrated Security Communication Server.	We understand that there is no requirement of Integrated Security Communicaion System. Please amend requirement of clause 8.6.1.1 accordingly.	Please Refer Addendum and Corrigendum-02B
1104	2			310	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Appendix D 1.5 ACCESS CONTROL AND INTRUSION DETECTION SYSTEM (1) Single door/Double Doors with entry IP reader, IP controller and exit Push button 13.56 MHz contactless/smart 50 mm read range keypad, fingerprint, LCD with integrated Security Communication.	We request to amend this requirement, as there is no requirement of Integrated Security Communication. Please share the required count of individual components, instead of 40 set count.	Please Refer Addendum and Corrigendum-02B
1105	2			277	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.2(1)Access Point Controllers shall be installed at the entry side of access point (door, barrier or turnstile) either individually for each door/barrier/turnstile or for a group of doors/barriers/turnstiles (as per the detailed design of the Bidder, in such a way as to meet all prescribed functional & performance requirements):	We request to provide the total quantity and locations of Boom Barrier and Turnstile Gates to be supplied and installed by other contractors.	Please Refer Addendum and Corrigendum-02B
1106	2			277	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.2.c. Visual Display; d. Keypad;	Display and keypad on controller is specific feature of a particular make. Please remove these requirement to have more flexiblity in choosing the OEM.	Please Refer Addendum and Corrigendum-02B
1107	2			277	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.2 1 (d) Keypad	As per Industry standard, keypad is part of card reader, not access point controller. Please calrify.	Please Refer Addendum and Corrigendum-02B
1108	2			277	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.3 (2) (i) Provision and installation of electro-mechanical locks (EML) on the doors to be provided with access control.	8.3.2.1 (19) states that electro magnetic locks are required and not electro mechanical locks. Please clarify which clause to refer	Please Refer Addendum and Corrigendum-02B
1109	2			278	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.3 (4) (iii) Where an egress button is not required and access is to be initiated, via either a door handle or crash-bar, then a suitable sensor shall be incorporated in these devices to enable the access point controller to release the lock. Such locations shall be determined during the Detailed Design.	Doors in such locations shall give input to access controller. it should be part of Stations & Depot Civil contractor responsible for supply & installation of doors. Please clarify.	Please follow Bid Conditions
1110	2			278	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.43) The card readers shall be able to operate with at least two separate and modern technologies namely with the proximity cards and bio-metric identification systems (with required accessories), and these are to be provided on all doors with access control.	As per Financial BID, Annexure 2, Schedule 8: Supply and Delivery of ACID SYSTEM, S. No. 1 and 6, 550 nos of Card Reader and 54 nos of Bio-metric Reader needs to supplied. As we understand, we have to provide 550 nos of Card Reader without Keypad facility and 54 nos. of Card Reader with the Keypad and Biometric facility. Please confirm.	Please Refer Addendum and Corrigendum-02B
1111	2			280	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.6.1.101) The following areas shall have controlled access, via the Access Control System, viz; Stations, Ventilation Shafts, Electrical Sub stations, OCC, BCC, ramp areas and Depot complexes	Refer to requirement of Financial BID, Annexure 2, Schedule 8: Supply and Delivery of ACID SYSTEM-S. No.1, We understand that Headquarters (HQ) location is not required (as per clause 8.6.1.10). Please clarify.	Please Refer Addendum and Corrigendum-02B
1112	2			286	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-9-CVRS 9.5.13 The Contractor shall design the CVRS to export selected retrieved voice files to a non-proprietary PC format.	It is advisable to share the files in an encrypted file format which can then be played using a specific media player. This reduces the chances of any mishandling of the recorded data.	Please follow Bid Conditions
1113	2			284	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-2-PAS 9.5.111) All emergency or fire messages broadcast on station PAS initiated from OCC & BCC, Station's SCR and on train borne PAS.	As per clause 2.5.9.5 of PS Ch-2, broadcasts made from SCR / PCBs shall be recorded at the SCR / TER in the PAS station server or the MMI itself . We request to ammend the requirement of clause 9.5.1(11) as below - "All emergency or fire messages broadcast on station PAS initiated from OCC & BCC and on train borne PAS".	Please follow Bid Conditions
1114	2			283	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-9-CVRS 9.2.2 Integrated recorder shall be provided for recording all calls on the corridor. The recorder shall be highly reliable and secure and shall be provided with redundancy and shall comply with ITU-T recommendation and Indian regulations, as appropriate	We understand that recording of calls will be done as detailed in clause 9.5.1 of PS Ch-9. Please confirm.	Please follow Bid Conditions
1115	2			283	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-9-CVRS 9.3.3.2 In addition, the Contractor shall interface and coordinate with relevant contractors for telephone System, PAS, Rolling Stock, RADIO etc.	As we understand, there is no interface of CVRS with Rolling Stock. Please ammend this clause accordingly.	Please follow Bid Conditions
1116	2			285	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-9-CVRS 9.5.4 (3) user log-in of system recorded (TEL, RADIO, PAS, EMERGENCY PHONES & HELP POINTS, OCC)	Request NCRTC to remove this requirment as in Metro environment this is not needed.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1117	2			313	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-10-TSCADA APPENDIX-FMMI & VIDEO WALL PROVISION SCHEDULE 1.1 MMI PROVISION	MMI Provision schedule for TSCADA is missing. Request to kindly update the Appendix F	Please follow Bid Conditions
1118	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.4.1.2 The OEM for CCTV system shall be registered in India with self-owned service centre for more than 10 years without joint venture.	Is it mandatory as per the above clause for the OEM of the CCTV to be registered in india with Self-owned service center for more than10 years without joint venture.	Please Refer Addendum and Corrigendum-02B
1119	2				Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.4.1.3 The OEM shall have implemented an end to end CCTV solution in the minimum 3 Indian metro environment.	Does the above clause mean 3 indian Metro project for the OEM of the CCTV System	Please Refer Addendum and Corrigendum-02B
1120	2			295	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-10-TSCADA 10.5.1.21 The T-SCADA MMI shall have GUI features with auto discovery features and should have access to all sub systems of all stations. The GUI should follow the hierarchy of Corridors, Stations, and Systems.	We understand that TSCADA will be provided only for Alarm monitoring of Telecom Sub-systems.We request to remove requirement of "access to all sub-systems".	Please follow Bid Conditions
1121	2			190	**Vol-2, Section – 6C: Particular Specifications –Telecommunications, Chapter-5-CCTV System** **5.8.6 Emergency Phones/ Help Points** 5.8.6.1 For automatic camera view of activated Emergency phones and Help Point Telephones.	As per requirement of clause 6.5.2.4.2(2), Emergency Phone also need to be provided at Cross-Passages. Please confirm, if CCTV Coverage needs to considered for Cross-Passage locations.	Please Refer Addendum and Corrigendum-02B
1122	2			111	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-3-PIDS System 3.2.9 At all Platforms (Elevated/ Underground/At Grade station) & Concourse (Elevated station) the PIDS shall be of LED type. For all other locations (Concourse of UG station, **Interchanges** etc.) the display panels shall be of TFT type. All PIDS for concourse, platforms and other public areas should be as per latest specifications. TFT display screens shall provide additional facilities for display of commercial messages/ video clips along with train running information. The Contractor shall submit details of LED display panels and TFT display screens for Employer's representative for approval before procurement.	With reference to Part 2-Section 6B: PS-Signalling and Train control, Appendix-R, clause 1.5, a total of 5nos. of Interchange Stations with DMRC is mentioned. We request to provide the location and count of TFT to be provided at these stations.	Please Refer Addendum and Corrigendum-02B
1123	2			55	Vol-2, Section – 6C: Particular Specifications – Telecommunications 1.11.4.28 Cable & Pipes transit entry Sealing	**Please confirm if our understanding is correct.** -All the telecom cabinet/rack/cubicle inside TER/CER shall have bottom cutout & cable entry points with gromet and after completion of work remaining cutout shall be closed with fire resistant sealing solution. -All the cabinet in station (Platform/concourse/Entry/Exit) for field switch shall have PVC cable gland for cable entry. -All the trackside (Outdoor) enclosure shall have the IP66 cable gland for cable entry. -All the cable & pipe passing through the walls & duct inside the TER/CER shall be closed with fire resistance material.	Please follow Bid Conditions
1124	2			49	Vol-2, Section – 6C: Particular Specifications – Telecommunications/Chapter 1 General Requirements 1.11.1.30 Bird repellent spikes shall be used for all outdoor installations (PAS/ PIDS/ MCS/ CCTV etc.).	Bird repellent spikes are not a standard product offered from OEM's. Request you to kindly amend this requirement & or remove it. As per our understanding, PAS/PIDS/MCS/CCTV outdoor equipment shall be installed within the station area premises hence these spikes may not be required.	Please follow Bid Conditions
1125	2			Pg157/359	Section 6C_Particular Specification_ Telecommunication, 5.4.1.3	Request to modify as follows: 5.4.1.3 The OEM shall have implemented end to end CCTV solution in minimum 3 Indian metro environment/ or any other smart cities/ city surveillance projects	Please Refer Addendum and Corrigendum-02B
1126	2			Pg239/359	Section 6C_Particular Specification_ Telecommunication 7.2.19 The DTS shall be from a proven OEM with previous implementation in a Railway/ Mass Rapid Transit System (MRTS) project	Request to change it to The DTS shall be from a proven OEM with previous implementation in a Railway/ Mass Rapid Transit System (MRTS) project/Smart City/Safe City/Campuswide project	Please follow Bid Conditions
1127	2			Pg 146/359	Section 6C_Particular Specification_ Telecommunication CHAPTER 4 – MASTER CLOCK SYSTEM (MCS) Funtional requirement At least 2 working references of minimum 12 slave clocks in the last 5 years in each of the works in Indian Metro/Railway Environment.	Please change to at least 2 working references of for slave clocks in the last 5 years in each of the works in Indian Metro/Railway Environment/smart city/safe city.	Please follow Bid Conditions
1128	2			Pg 229/359	Section 6C_Particular Specification_ Telecommunication Chapter 6 Telephone System The Emergency Telephone shall be a proven make and model, which has been in use previously in an Underground Railway or Indian Metro environment for at least 2-3 years.	Please change to "The Emergency Telephone shall be a proven make and model, which has been in use previously in an Underground Railway or Indian Metro environment/smart city/safe city for at least 2-3 years.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1129	2			Pg 271/359	Section 6C_Particular Specification_ Telecommunication Chapter 8 ACIDS Intruder Detection facilities for portals and ramps shall not be triggered by the presence of trains and shall mainly identify the presence of personnel and animals, adopting one of the above types of detection, which is proven and implemented in other railway/metro networks.	Intruder Detection facilities for portals and ramps shall not be triggered by the presence of trains and shall mainly identify the presence of personnel and animals, adopting one of the above types of detection, which is proven and implemented in other railway/metro networks/smart city/safe city	Please Refer Addendum and Corrigendum-02B
1130	2			Pg155/359	Section 6C_Particular Specification_ Telecommunication 5.2 OVERVIEW OF SYSTEM 5.2.6 In emergencies or as required it shall, however, be possible, without any additional resources, to view images from any / all cameras and / or record any dynamically selected location on the system.	We understand requirement is primary recording locally at the stations itself and mirror recording at adjacent station, Viewing require from local station & from OCC, BCC. Please confirm.	Please follow Bid Conditions
1131	2			Pg156, 175/359	Section 6C_Particular Specification_ Telecommunication 5.3.2.1:14) Layer-2 Field switches- POE (Industrial Grade) for all locations (stations, depots, ramps, mid shafts etc) 5.6.2.11 Layer 2 Switches for Field 1) Field Switches (industrial grade) shall be provided at Platforms, Concourses and in Depot areas, where air-conditioning environment is not available. Ethernet output from the IP cameras (Fixed and PTZ) shall be directly connected to the field switch through data cable and suitable protection devices. The outputs of the field switch shall be connected to the two aggregate switches (installed in TER as part of DTS) by using 2 x 1 Gigabit Fibre Uplinks through separate optical fibre cable to the redundant ports available in TER switches.	In concourse, switch will be in closed area, so industrial grade switch not require. Request approval for non industrial grade switches in concourse.	Please follow Bid Conditions
1132	2			Pg157/359	Section 6C_Particular Specification_ Telecommunication 5.3.2.1: 19) Laptops pre-loaded with CCTV system software	Need clarification on application of CCTV software pre loaded on laptops.	Please follow Bid Conditions
1133	2			Pg157/359	Section 6C_Particular Specification_ Telecommunication 5.5.1 General 5.5.1.9 The CCTV system shall have control equipment located in the TER at all stations, Depot, OCC & BCC. CCTV control equipment for RSSs /Mid shafts/ ramp/ viaduct escape routes, SPC etc. shall be installed in the TER of adjacent station / depot.	Need clarification on application of control equipment.	Please follow Bid Conditions
1134	2			Pg160/359	Section 6C_Particular Specification_ Telecommunication 5.5.1 General 5.5.1.12 The station and depot surveillance CCTV control equipment, for connection to the equipment located in the CERs at OCC & BCC for remote viewing, recording and control, shall be interfaced through Layer-3 Switch Network at every station/Depot /OCC/BCC. There shall be minimum 4x1 Gbps optical ports and 10x10/100/1000 Base-T ports available for CCTV system on each Layer-3 switch at stations/depots and 24x10/100/1000 Base-T redundant ports will be available at OCC & BCC for CCTV system. All the cameras in the station/Depot /OCC/BCC shall be connected to the layer-2 switches (as part of this contract) and no cameras will be directly connected to the layer-3 network.	Can we optimize switch & port qty as per our requirement?	Please follow Bid Conditions
1135	2			Pg162/359	Section 6C_Particular Specification_ Telecommunication 5.2 OVERVIEW OF SYSTEM 5.2.5 Video recording system shall provide primary recording locally at the stations itself and mirror recording at adjacent station for all Delhi-Ghaziabad-Meerut RRTS stations. 5.5.5 Video Recording and Retrieving 5.5.5.1 Video recording system shall provide primary recording locally at the respective station and mirrored recorded at adjacent station for all stations. The Network Video Recording system shall provide Fail over and Redundancy.	Requirement of 5.2.5 & 5.5.5.1 are contradictory. 5.2.5 is asking for mirror recording & 5.5.5.1 is asking for failover recording. Both mirror recording & failover are not possible at same time. Please clarify what shall we consider, as per 5.2.5 (primary recording locally at the stations itself and mirror recording at adjacent station) or 5.5.5.1 (The Network Video Recording system shall provide Fail over).	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1136	2			Pg155, 163& Pg181/359	5.2.11 Central Server shall be installed in OCC and redundant central servers in BCC. 5.6.2.19 CCTV Video Surveillance Software 1) General System Description (iii) The video management system shall offer centralized management with failover facilities of all devices, servers and users for centralized monitoring, reporting, and alarm management, software configuration uploads and downloads to client stations, firmware and software upgrades. These functionalities shall be implemented on two terminal in each OCC & BCC. 5.6 DESIGN REQUIREMENTS Section 6C_Particular Specification_ Telecommunication 5.6.1 General 7) The CCTV central management system in OCC shall be installed on servers with in a cluster of two servers or more. In case a server in the cluster fails, another server in the cluster shall automatically take over the failed server's job running the management system. To have additional redundancy backup server to be provided at BCC against each server. Once the complete system at OCC is down the CCTV system can be operated from BCC or Bidder may propose Virtualized solution by having redundancy to all service applications, alarm management, Database, Management servers including other system applications in Virtualized manner to optimize the solution hardware etc. whereas Contractor to design virtual network on physical hardware in such a way that system is capable of capturing live backup of the system in Backup server (Physical in N:N redundancy), in case of fail over mode all services, alarm management, control management should be transferred to redundant server without any delay and operational interruption.	Both statement are contradictory: From 5.2.11 it seems Primary will be OCC & redundant at BCC. But from "(iii) These functionalities shall be implemented on two terminal in each OCC & BCC & 7) The CCTV central management system in OCC shall be installed on servers with in a cluster of two servers or more." it seams Management software with failover require at OCC & BCC. Need clarity if to consider primary at OCC & redundant at BCC as asked in 5.2.11 OR to comply with 7) The CCTV central management system in OCC shall be installed on servers with in a cluster of two servers or more.	Please follow Bid Conditions
1137	2			Pg182/359	Section 6C_Particular Specification_ Telecommunication 5.6.2.19 CCTV Video Surveillance Software 1) General System Description (xii) The video management system shall support encryption of video for export purposes.	Request to modify "(xii) The video management system shall support encryption/password protection of video for export purposes.	Please follow Bid Conditions
1138	2			Pg185/359	Section 6C_Particular Specification_ Telecommunication 5.6.2.19 CCTV Video Surveillance Software 3) Network Video Recording Server (x) System should ensure that once recorded, the video cannot be altered, ensuring the audit trail is intact for evidential purposes. This has to be achieved using Authentication with SHA-256 hashing function, combined with 1024-bit RSA public-private key pair. Water marking alone for ensuring temper proof recording is not sufficient.	Different OEMs achieve requirement using different ways. Request approval for Digital Signatures instead of Authentication with SHA-256 hashing function, combined with 1024-bit RSA public-private key pair.	Please Refer Addendum and Corrigendum-02B
1139	2			Pg187/359	Section 6C_Particular Specification_ Telecommunication 5) Maps (vi) The map function shall support graphical at-the-glance visualization of the system status through color coding. Graphical tool illustrating health status of various equipment on a single screen, such as graphical representation, normal status of all equipment at a station shown in Green colour and fault status shown in Red colour. The Contractor may propose alternate graphical scheme for review and acceptance of the Employer's representative. (vii) The map function shall support status details for cameras and servers.	Request to modify :(vi) The map function shall support graphical at-the-glance visualization of the system status through color coding /alphanumeric visualization of the system status. Graphical/alphanumeric tool illustrating health status of various equipment on a single screen, such as graphical / alphanumeric representation, normal status of all equipment at a station shown in Green colour and fault status shown in Red colour.	Please follow Bid Conditions
1140	2			Pg265/359	Section 6C_Particular Specification_ Telecommunication 8.2.4 Intruder Detection equipment shall be installed at selected sites: 1) Around building entrances including stations and depots (round the clock for normally un-manned buildings and outside normal working hours for sites manned for a part of the day); 2) Depots area fence; 3) At other critical locations related with safety or security; 4) Station equipment rooms, control and monitoring rooms and operating rooms	Can we get BOQ/firm location for Intrusion detection system consideration.	Please follow Bid Conditions
1141	2			Pg266/359	Section 6C_Particular Specification_ Telecommunication 8.2.9.4 Sensor Controller 1) It shall be able to display all the operational status and send the alarm signals to the ACS Local server. It shall also be able to detect sensor failure and the damage of connecting wires.	Detection of damage of connecting wires is not possible. Require dilution of same.	Please Refer Addendum and Corrigendum-02B

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S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
1142	2			Pg52/359	Section 6C_Particular Specification_ Telecommunication 1.11.4.1.1 At Elevated & Underground stations, cross passages, tunnels area, OCC, BCC, Administrative Buildings, Depot & RSS, all indoor & Outdoor Power cables to be laid in Primary Cable Containment shall be Armoured type. 1.11.4.1.2 All Power & data Cable, patch cords shall be LSZH (low smoke zero halogen) type to install at the tunnel area underground section (including stations, entry exit, cross passages).	We understand all data cables, PAS cables, ACS cables & other ELV signal cables within station will be unrmoured. Please confirm.	Please follow Bid Conditions
1143	2			Pg52/359	Section 6C_Particular Specification_ Telecommunication 1.11.4.1.12 No surface mounted conduits shall be provided by E & M contractors. Conduits as required for laying of cables for outdoor equipment such as Public Address System, Passenger Information Display System, Master Clock System, Cameras, CCTV Monitors etc shall be surface mounted and provided by Telecom contractor. Conduits and Accessories shall comply with the requirements listed in Appendix K of chapter 11 under Part -2 (PS-Telecom).	By outdoor area our understanding is areas which are geographically out of station. Kindly confirm.	Please follow Bid Conditions
1144	2			Pg56/359	Section 6C_Particular Specification_ Telecommunication 1.11.4.28.8 All outdoor location / junction Box shall be of stainless steel.	Request approval for MS.	Please follow Bid Conditions
1145	2			**165**	**5.6.2.6 High Definition IP Fixed Box Camera (Day/Night):** **5.6.2.3 Varifocal Lenses 1. Focal length** **12 mm – 50 mm/ 4.1- 9mm**	**Please allow for Internal/External Lens**	Please follow Bid Conditions
1146	2			161	5.5.3 CCTV Standards :-1) The TV standard to be employed shall be ITU-T, PAL, 25 frames per second with progressive scan. Advanced video compression techniques, such as MPEG – 4 and H.264 as minimum, shall be employed to minimize transmission bandwidth and recorder storage capacity without compromising the subjective quality of the displayed video images.	Please make H.265 as mandatory compression for Camera.	Please follow Bid Conditions
1147	2			167	5.6.2.6 :High Definition IP Fixed Box Camera (Day/Night):	Please allow for Box /Bullet Camera with Internal /External IR Option which is already approved @ Certain Metro Projects	Please follow Bid Conditions
1148	2			167	5.6.2.6 / High Definition IP Fixed Box Camera (Day/Night)/ Sensitivity (@ F1.2, 30 IRE or better) @F1.2, 30 IRE or better	Please allow below for maximum OEM Participation :- Day/Night)/ Sensitivity (@ F1.6, 30 IRE or better) @F1.6, 30 IRE or better	Please follow Bid Conditions
1149	2			167	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 6 Compression technology Two independently configurable H.264 streams: Stream 1: 5MP @ 25 FPS & 1080P @25 FPS Stream 2: 5MP @ 25 FPS & 1080P @2 FPS	Maximum Camera are supporting Multicast hence 2 Streams on 5MP are not required. Two Streams on 5MP are not available with major OEM's . Hence allow for Single Stream @ 5Mp @25FPS and Second Stream @ 1080P @ 25FPS	Please follow Bid Conditions
1150	2			167	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): POE 802.3af compliant and 12VDC/24VAC dual power options	Please allow for POE 802.3af/802.3at compliant and 12VDC/24VAC dual power options	Please follow Bid Conditions
1151	2			168	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 3. On board trusted platform module (TPM), Public key infrastructure (PKI) Support	Please remove it for maximum OEM Participation. PKI is a properitry to Single OEM	Please Refer Addendum and Corrigendum-02B
1152	2			168	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): SD CARD Support Built in SD card slot with support up to 2 TB with Class 10 speed	2 TB SD card is not the practical requirement . Please allow for 128 GB SD card for maximum OEM Participation. Even 2 TB SD card is not available in market	Please follow Bid Conditions
1153	2			169	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) 5.6.2.7 / High Definition IP Fixed Box Camera (Day/Night)/ Sensitivity ((@ F1.3 , 30 IRE or better)	Please allow below for maximum OEM Participation :- Day/Night)/ Sensitivity (@ F1.6, 30 IRE or better) @F1.6, 30 IRE or better	Please follow Bid Conditions
1154	2			169	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-6 Compression technology Two independently configurable H.264 streams: Stream 1: 5MP @ 25 FPS & 1080P @25 FPS Stream 2: 5MP @ 25 FPS & 1080P @2 FPS	Maximum Camera are supporting Multicast hence 2 Streams on 5MP are not required. Two Streams on 5MP are not available with major OEM's . Hence allow for Single Stream @ 5Mp @25FPS and Second Stream @ 1080P @ 25FPS	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1155	2			169	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-11 :-POE 802.3af compliant	Please allow for POE 802.3af/802.3at compliant and 12VDC/24VAC dual power options	Please follow Bid Conditions
1156	2			170	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-25:-. On board trusted platform module (TPM), Public key infrastructure (PKI) Support	Please remove it for maximum OEM Participation. PKI is a properitry to Single OEM	Please Refer Addendum and Corrigendum-02B
1157	2			171	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :- SD CARD Support Built in SD card slot with support up to 2 TB with Class 10 speed	2 TB SD card is not the practical requirement . Please allow for 128 GB SD card for maximum OEM Participation. Even 2 TB SD card is not available in market	Please Refer Addendum and Corrigendum-02B
1158	2			171	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) 6 Compression technology Two independently configurable H.264 streams: Stream 1: H.264, 1080p @ 25 FPS, Stream 2: H.264, 1080p @25fps & 720p @50/60	Maximum OEM Camera are supporting Multicast hence 2 Streams on 2 MP are not required. Two Streams on 2 MP are not available with major OEM's . Hence allow for Single Stream @ 2 Mp @25FPS and Second Stream @ 720P @ 25FPS	Please follow Bid Conditions
1159	2			172	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) :- Wide Dynamic Range 69 dB or better	WDR Must be atleast 120 dB for Better image as per Metro Station scenarios, please confirm	Please follow Bid Conditions
1160	2			172	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) :PoE As per IEEE 802.3af compliant	Please allow for POE 802.3af/802.3at/High POE compliant and 12VDC/24VAC dual power options	Please follow Bid Conditions
1161	2			174	5.6.2.10 IR Illuminator 4 IR distance 150m	Please allow for Internal/External IR distance 100m	Please follow Bid Conditions
1162	2			181	5.6.2.19 CCTV Video Surveillance Software (iv) The video management system shall allow a minimum 1,00,000 number of cameras, recording servers and clients to be connected to management server across multiple sites.	Having 100000 no of cameras is not Practical. Please allow for 10000	Please Refer Addendum and Corrigendum-02B
1163	2			183	(vii) The management server shall be installed on multiple servers clustered together. In case a server in the cluster fails, another server in the cluster shall automatically take over the failed server's job running the management server.	Please allow for Virtualization as cluster is always a Weak Solution	Please follow Bid Conditions
1164	2			185	System should ensure that once recorded, the video cannot be altered, ensuring the audit trail is intact for evidential purposes. This has to be achieved using Authentication with SHA-256 hashing function, combined with 1024-bit RSA public-private key pair. Water marking alone for ensuring temper proof recording is not sufficient.	SHA-256 is specific to single Oem . Please allow for SHA-128 Bit and 128 bit RSA	Please Refer Addendum and Corrigendum-02B
1165	2			Page 84 of 359	Section 2.4.8.7 There shall be a hot standby controller available in the rack to take over from the primary controller in the event of the failure of the primary controller.	As per section clause no. 2.4.8.6 at page no. 84 even no. of speakers are connected in Primary rack amplifier channels & odd no. of speakers in secondary rack amplifiers channels. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability so for distributed system amplifier installed in primary & secondary rack will be connected with seperate controllers. So in case of controller/amplifier failure 50% system will be active, please confirm	Please follow Bid Conditions
1166	2			Page 98 of 359	Section 2.6.3.1 Clause (1) PAS Control Equipment 1) The hardware and software of the PAS shall be easily expandable to the requirements of the zoning functionalities to a required extent. Addition of input and output ports/ devices for the switching equipment shall be achieved by simple addition of plug in cards or inputs or input output modules, any other devices including amplifiers or dsp(s) which should be preferably of a hot swappable type.	For addition on input & outputs shall be achieved by addition of interface unit which is fulllly hot swappable.	Please follow Bid Conditions
1167	2			Page 98 of 359	Section 2.6.3.1 Clause (9) The PAS control equipment shall be fail safe and shall be capable of being manually bypassed to maintain all zone broadcast availability, if necessary, on failure of the audio matrix switch.	For distributed system audio matrix in inbuilt into controller so in case of any controller failure zone broadcasting can be achived by connectivity of call station with two controllers.	Please follow Bid Conditions
1168	2			Page 103 of 359	Section 2.6.3.12 Clause (8) Loudspeakers shall have a minimum frequency response from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB.	For Speech trasmission Frequency response(-10 dB) 300 Hz ~ 15 KHz is sufficient so it may vary as per application requirement & type of speakers for example Ceiling Speaker 180 Hz - 20 KHz Projection Speaker 150 Hz ~ 20 KHz Column Speaker 300 Hz ~ 15 KHz Wall Mount Mpeaker 300 Hz ~ 15 KHz	Please Refer Addendum and Corrigendum-02B
1169	2			116/359	3.5.1.1 7)Positionining of PIDS Display a)PIDS design, specifications, size and location for installation at each individual station	1. Concourse and underground station platform LED/LCD PIDS Display size (inches) and brigthness (nits) are not mentioned. 2. Elevated station platform LED Display specifications are not mentioned. Kindly mentioned pitch, brightness, colour (amber), size of the display etc. With the latest LED technology, it is possible to achieve full colour on LED as well by using multi-colour LEDs. This will provide the added features of displaying full colour text, images and videos on the LED PIDS also	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1170	2			77/359	2.2.5-The PAS at stations shall be accessed from the following locations as a minimum: 2)Wall mountable Station Announcement Equipment at each Platform/ PSBs (wherever applicable)	As per our understanding PA control panel to be consider for PSB with wall mount arrangement . Please confirm.	Please Refer Addendum and Corrigendum-02B
1171	2			79/359	2.3.3.7- One Hard wired PA Control panels, complete with microphone, zone selection facility and inter- panel- calling facility shall be provided at designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in each zone/ all zones. The PAS shall provide uniform broadcast coverage throughout all areas of each site within which staff or members of the public may gain access to. The design shall be such that the speakers are so located as to ensure that there are no dead zones between adjacent speakers due to interference or any other reason.	As per our understand, One Hard wired PA Control panels, complete with microphone, zone selection to be consider on designated positions in OCC & BCC, Crisis rooms, Depots (DCC, PPIO), Stations (Station Control Room and at every PF) and HQ for announcement in the respective areas so that, in case of emergency, announcement can be done in their respective locations each zone/ all zones. please confirm.	Please follow Bid Conditions
1172	2			81/359	2.4.2.8 -Through acoustic modelling the relevant system performance shall be validated to comply with the following requirements: 3))Frequency Response - All areas 100 Hz to 16 khz at - 10 dB and In case of horn speaker 500 Hz to 4.5 khz at - 10dB.	System should have a minimum frequency response from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hz – 5.0 kHz at -10 dB. Please do consider the changes accordingly .	Please Refer Addendum and Corrigendum-02B
1173	2			82/359	2.4.4.1- The minimum overall system frequency response for the PAS from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB excluding PA from depots.	The minimum overall system frequency response for the PAS should from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB excluding PA from depots. Please do consider the changes accordingly .	Please Refer Addendum and Corrigendum-02B
1174	2			82/359	2.4.4.2-The corresponding system frequency response from a radio input channel shall be 100 Hz to 16 kHz, ± 3 dB or better.	The corresponding system frequency response from a radio input channel shall be 170Hz to 20KHz, ± 3 d B , please do consider the changes accordingly.	Please Refer Addendum and Corrigendum-02B
1175	2			84/359	2.4.8.6-The PAS shall have two Racks/Amplification systems (Circuits) at each Station as Primary & Secondary, the Primary Rack will feed to Even No. speakers of all Zones & Secondary Rack will feed to Odd numbered speakers of all Zones. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability. The PAS shall ensure that each zone is driven from two separate amplifier channels and that there is in addition, a standby amplifier in a ratio of >10% to provide automatic substitution in the event of a duty amplifier failing.	The PAS shall have two independent Amplification systems at each Station as Primary & Secondary, the Primary amplification will feed to Even No. speakers of all Zones & Secondary amplification will feed to Odd numbered speakers of all Zones. Failure of Primary amplification shall not hamper functionality of secondary amplification hence maintaining 50% Speakers availability. The PAS shall ensure that each zone is driven from two separate amplifier channels and that there is in addition, a standby amplifier in a ratio of >10% to provide automatic substitution in the event of a duty amplifier failing. please do consider the changes accordingly.	Please follow Bid Conditions
1176	2			86/359	2.5.6.2 -The contractor has to provide a PAS rack for full coverage of OCC and BCC similar to a PAS rack provided at a typical elevated station with expansion capacity. Provision of hardwired control panel, complete with microphone and station-wise zone selection shall be made for OCC and BCC to make live audio broadcasts to any zone or group of zones or all zones there.	As per our understanding Hard wired PA control panel complete with microphone to be provided at OCC and BCC to make live announcement at selected zone or all zone on OCC and BCC itself. Please confirm.	Please follow Bid Conditions
1177	2			87/359	2.5.7.1.1 - (1)The OCC/BCC shall have full announcement facilities as described for the SCR / MMI and shall be provided with the necessary facilities to access every station.	As per our understanding OCC and BCC shall have facility to made live announcement from OCC and BCC to station using HMI. Please confirm.	Please follow Bid Conditions
1178	2			90/359	2.5.12.2 - The PAS shall have the necessary facilities to mute or attenuate selected PAS locations or zones either manually or under time mode control in areas where broadcasts may disturb the public. This facility shall also be available from the MMI.	As per our understanding PA system should has facility to mute or attenuate selected PA locations or zones manually and same feature will be accessible remotely via HMI. Please confirm.	Please follow Bid Conditions
1179	2			91/359	2.5.13.1- Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 12)- Each MMI position shall be equipped with a PAS control panel including a microphone to enable live broadcast messages to be made even when the MMI and DVA equipment fail. Hence PAS control panel shall work as a manual backup to MMI (including the DVA) at all locations i.e. stations and OCC & BCC.	As per our understanding PA system each MMI equipped with PAS control panel including microphone to enable live broadcast messages to their respective locations zones to be made even when the MMI and DVA equipment fail. Please confirm.	Please follow Bid Conditions
1180	2			92/359	2.5.13.1- Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 17) VIII-One look Status bar- This status bar shall show the Operational status of all the available PIDS, PAS Zones etc.	As per our understanding, one look status means all the equipment failure alarm (to be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
1181	2			92/359	2.5.13.1- Man-Machine Interface (MMI)/Human-Machine Interface (HMI) 17) IX-Self-Health Test- This feature shall facilitate a maintenance personnel to retrieve the current health status of the PA System.	As per our understanding, one look status means all the equipment failure alarm (to be available on alarm window on GUI . Please confirm.	Please follow Bid Conditions
1182	2			97/359	2.6.1.9 -The system shall be capable of playing all standard available audio formats and shall not use any proprietary audio formats.	As per our understanding, , system should capable of playing standard available audio formats ex. Wav . Please confirm.	Please follow Bid Conditions
1183	2			97/359	2.6.2.2 - Distortion 1)-The amplifier total harmonic distortion shall be less than 0.5% at 1 kHz with full power.	The amplifier harmonic distortion should <0.3% (@ 1 kHz) @ 50% of output power. Please do consider the changes accordingly for better performance.	Please follow Bid Conditions
1184	2			97/359	2.6.2.3- (1) -The minimum overall system frequency response for the PAS from 100 Hz to 16 khz at -10dB and In case of horn speaker 500Hz - 4.5khz at -10dB.	The minimum overall system frequency response for the PAS from 170Hz to 20KHz at -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB . Please do consider the changes accordingly for better performance.	Please Refer Addendum and Corrigendum-02B
1185	2			98/359	2.6.3.1- (2)- The PAS control equipment shall be provided with suitable redundant modules / cards to prevent single point of failure that affects overall system operation at a particular location including critical components so as to achieve the RAMS requirement laid down. The PAS control equipment shall have hot redundancy of the controller in both OCC & BCC to prevent failure that affects overall system operations.	As per our understanding, , The PAS control equipment shall be provided with suitable redundant modules to prevent single point of failure that affects overall system operation at a particular location including critical components so as to achieve the RAMS requirement laid down. The PAS control equipment shall have hot redundancy of the controller in all locations (Station ,Depot ,OCC and BCC) to prevent failure that affects overall system operations. please do consider the changes accordingly.	Please follow Bid Conditions & Refer Addendum and Corrigendum -01B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1186	2			101/359	2.6.3.5- (3)The monitor speaker with volume adjustment control on the PAS control panel shall be used for real time monitoring of any message being broadcast to the pre-defined zones. There can be a separate Monitoring speaker, which can be provided in SCR for continuous monitoring of Broadcast messages.	As per our understanding, , monitoring speaker to be provided on SCR either inbuilt with PAS control panel or separate speaker to continuous monitoring of broadcast messages. Please do consider the changes accordingly .	Please follow Bid Conditions
1187	2			101/359	2.6.3.5- (6)-Inter Panel calling facility shall also be available.	As per our understanding, interpanel calling facility means operator is able to initiate a call on selcated zones or all zones from all the pannels as and shen required. similar zone selction ficility should be availble on all panel. Please confirm if my understanding is correct or please do share the use case of inter panel calling facility.	Please follow Bid Conditions
1188	2			102/359	2.6.3.8- (4) Adequate standby arrangements shall be provided to achieve system availability. At each station 2 Sets of amplifiers each shall be provided, set 1 shall be in Rack/ Circuit 1 & Set 2 shall be installed at Rack/ Circuit 2. Rack/Circuit 1 shall feed Even Numbered speakers & Rack/ Circuit 2 Shall feed Odd numbered speaker circuits, Failure of Rack/ Circuit 1 will not affect Rack/ Circuit 2 & hence maintain system availability. Electric Power supply for Rack/Circuit 1 & Rack/ Circuit 2 should be separately Routed with different cable to avoid single point of failure.	Adequate standby arrangements shall be provided to achieve system availability. At each station 02 set of Amplifier channels to be provided for each zones and each zone is driven from two separate amplifier channels with separate power supply of module to make sure the availabilty of 50% loudspeaker in zone. please consider the chnages accordingly.	Please follow Bid Conditions
1189	2			103/359	2.6.3.12 - (8)- Loudspeakers shall have a minimum frequency response from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB.	All Loudspers should have minimum frequncy response from 170Hz to 20KHzat -10 dB and in case of horn speaker 550 hHz – 5.0 kHz at -10 dB . Please consider the changes accordingly for better performace.	Please Refer Addendum and Corrigendum-02B
1190	2				General	All LoudSpeaker shall meet Emergency standards EN 54-24 complied. Please do consider the requirement as per international standard of the PA system.	Please follow Bid Conditions
1191	2				General	PA System shall meet Emergency standards EN 54-24 complied. Please do consider the requirement as per international standard for PA system.	Please follow Bid Conditions
1192	2				General	Do we need to consider PA control Panel for CSS at OCC and BCC . please confirm as per Appendix-F CSS location PA control panel is not considered.	Please follow Bid Conditions
1193	2				General	Do we need to ocnsider the PA system for HQ seprately or HQ is part of OCC/BCC location where we need to consider additional speakers and PA Control Panel only for annoucement. Please confirm.	Please follow Bid Conditions
1194	2			61	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-1, Clause 1.12.5.1.1** Supervision and planning The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Employer's Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer.	Contractor/LTE OEM assumes this scope is applicable post DLP of 3 years and tenure can go upto 6 months post expiry of DLP. Pls confirm.	Please follow Bid Conditions
1195	2			62	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-1, Clause 1.12.5.3.2** Supervisory Staff - The total of 30 man-months SOM shall be provided by contractor. Distribution of man-months for each telecom sub-system shall be done as per employer's discretion.	Pls clarify if this scope is also applicable post the DLP.	Please follow Bid Conditions
1196	2			62	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-1, Clause 1.12.6.1.2**- Support during DLP Staff of employer/O&M agency shall be deputed at suitable locations for first line of maintenance. Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses.	Pls clarify the scope distribution - is Contratcor/LTE OEM expected to perform only L2 Operations support during DLP or complete L1 & L2 operations from Field and NOC (FCAPS)? LTE OEM's resources required in shift are applicable in NOC or Field? - Pls clarify as it is mentioned location shall be decided by NCRTC.	Please follow Bid Conditions
1197	2			63	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-1, Clause 1.12.6.1.9** The Contractor shall provide comprehensive DLP support for items supplied by him and provide call-out services to the Employer as required restoring the System to normal operation in case of faults and defects are found.	Does NCRTC mean NOC activities e.g. Alarm surveillance & L1 fault management is to be performed by Contratcor/LTE OEM? Since it is mentioned that normal day to day maintenance shall be done by NCRTC, will NCRTC share the SOW to be performed by them and the manpower that will be performing those tasks so that contractor/LTE OEM's solution doesn't duplicate responsibilities?	Please follow Bid Conditions
1198	2			64	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-1, Clause 1.12.6.5** Support and Call- out Services 1.12.6.5.1 The support and call-out services shall be available 24 hours per day and 7 days per week. 1.12.6.5.3 The Contractor shall provide a list of maintenance staff together with the contact mobile telephone numbers who can be contacted for support and call-out services. List of all the Contractor's staff responsible for attending the failure during DLP shall be displayed at all the stations with their address and contact numbers.	"support and call-out services" is only applicable for DLP period or shall be extended after expiry of DLP? If yes, Kindly specify the support period after DLP.	Please follow Bid Conditions
1199	2			79	**Part-2: Section: 6C - Particluar System (PAS)** **Clause: 2.3.3.4** The Main and B 1) The Main MMI's shall be provid 2) The Backup MMI's shall be pr	Our understanding only one MMI will be operated at a time, other will be standby. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1200	2			81	**Part-2: Section: 6C - Particluar System (PAS) Clause 2.4.2.5** The Acoustic Con ntative, on the S	In place of STIPA report for each individual site, similar sites may be grouped together and one station from each group may be selected for STIPA report. The Acoustic contractor should be made responsible for submission of report for approval of the Employer. Therefore clause may be amended as below: The Acoustic contractor shall submit a report, for approval of the Employer, on the STIPA performance of each group of similar site which shall inter-alia include the following...	Please follow Bid Conditions
1201	2			84	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.4.8.6** The PAS shall have two Racks/Amplification systems (Circuits) at each Station as Primary & Secondary, the Primary Rack will feed to Even No. speakers of all Zones & Secondary Rack will feed to Odd numbered speakers of all Zones. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability.	This functionality is possible with one Rack/ Amplification system also by dedicating separate amplifiers for odd & even no. of loudspeakers. Therefore this clause may be deleted.	Please follow Bid Conditions
1202	2			93	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause: 2.5.15.1 (1)** The PAS / PIDS NMS shall monitor system alarm status on real time basis; alarm data shall also be stored for future inquiries. It is envisaged that one NMS and a corresponding workstation shall be provided. The NMS at OCC & BCC shall have jurisdiction over all corridors and shall extend a workstation to OCC/BCC. The NMS should not be available for access in other than CSS / CER. The PAS and PIDS NMS shall be on the same server / workstation. However, no monitoring or control of depot PAS system is required as it is a standalone system.	For different OEM, common/Integrated NMS may not be possible for PAS and PIDS. Therfore our understanding is PAS and PIDS NMS application can be installed in common/different Hardware . Please confirm.	Please follow Bid Conditions
1203	2			102	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2: Public Address System (PAS) Clause 2.6.3.8 (2)** Minimum two 200 W Class-D power amplifier shall be provided for each zone at each station.	Specification of power capacity (of minimum 200 W) is not necessary & relevant as other capacity power amplifier will also serve the purpose of application. Therofore 200 W capacity to be replaced with "Suitable power capacity".	Please follow Bid Conditions
1204	2			102	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.6.3.8 (6, 1)** RMS power output - 200W-500W RMS or as required by individual or paralleled modular units;	Same explaination as at clause 2.6.3.8 (2) above.	Please follow Bid Conditions
1205	2			103	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2: Public Address System (PAS) Clause 2.6.3.12 (13):** All speakers should preferably be from same OEM as that of PAS supplier.	OEMs of Loudspeakers & PA system may be different. Loudspeaker is one of the components in the large PA system only and linking same OEM of loudspeaker with PA system will limit the no. of OEMs. Therefore this clause may be deleted.	Please refer Corrigendum & Addendum- 01B
1206	2			104	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause: 2.6.5.1** All equipment of the PAS shall work from 240 volts ±20 % AC single phase power supply and connected to a dedicated UPS supply.	Power supply to the PAS equipment is from UPS which is a controlled power supply. Therefore, power input to all the PAS equipment may be changed to 240 V AC single phase with a variation of +/- 10%.	Please follow Bid Conditions
1207	2			111	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.2.9:** At all Platforms (Elevated/ Underground/At Grade station) & Concourse (Elevated station) the PIDS shall be of LED type. For all other locations (Concourse of UG station, Interchanges etc.) the display panels shall be of TFT type.	Kindly specify size of LED PIDS and TFT/LCD panels as it will have commercial implications and other contractors may offer different size of PIDS boards.	Please follow Bid Conditions
1208	2			111	**Part-2: Section: 6C - Particluar Spe on Display System (PIDS) Clause 3.4.1.5** The PI PEG2/4 format, while supporting both SD & HD al, as a minimum on applicable display panels	This clause should be applicable for TFT types of PIDS only. The asked functionalities are not possible on LED types of PIDS panels.	Please follow Bid Conditions
1209	2			116	**Part-2: Section: 6C - Particluar Spe on Display System (PIDS) Clause 3.5.1.1 (4, I)** E ent the following information: a. Display Line , train length, train occupancy details etc (in b rrent date, time, temperature and air quality index ation informati require ny public informati yed	Kindly specify how platform and concourse PIDS panels shall display information of temperature and air quality index. What will be the source of this information and how this information will be received by PIDS panels.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1210	2			116	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (6, VIII)** The PIDS display housing shall provide cable access from the top and bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Cable access should be either from top or bottom. Therefore, clause may be revised to as below. The PIDS display housing shall provide cable access either from the top or bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Please follow Bid Conditions
1211	2			117	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (7, ix)** The displayed information shall provide full clarity and legibility when viewed at the required distances and at positions of up to ±70°, vertically, from the normal viewing axis. The viewing angle shall be min. ±80° contained within the arc where at the extremity the illumination intensity drops to half of the peak intensity	There seems to be typographical error in view angle. The view angle should be +/- 40 deg. In place of +/- 80 deg. SMD LEDs with +/-n80 deg. View angle are not available commercially.	Please follow Bid Conditions
1212	2			125	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.6.5.1 (7)** It shall be possible for platform LED PIDS, to display special information like emergency messages in different colours	Kindly clarify whether asked LED PIDS is mono colour PIDS or Multi colour PIDS? If Multi colour PIDS, then how many colours are required for display of information on LED PIDS.	Please follow Bid Conditions
1213	2			145	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause 4.5.1.5 (3)** The Master Clock System shall include, but not be limited to, the following: 3) Sub-Master Clocks shall further distribute the synchronized signal to all slave clocks. In the absence of valid Sub- Master Clock signal, the Slave clocks shall operate in free running mode with an internal clock supplying the time signals. On restoration of the Sub-Master clock signal the Slave clocks shall validate the signal. After the successful validation, the Slave clocks shall self-correct, if necessary. The Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours.	**Point 1:** Referring to clause 4.5.1.5 8) "Slave clocks shall preferably have provision of configuration of at least three NTP server IP as source for Redundancy", We understand that during the absence of valid Sub-Master clock synchronized signal, the slave clocks shall take the timing reference from Master clock (installed at OCC & BCC) over the LAN/WAN to achieve the redundancy in terms of synchronize. The slave clocks shall operate in free run mode only when it is not getting valid synchronization signal from Sub-Masterclock & Masterclocks. **Point 2:** Further, we understand that to retain internal time during power failure, the Sub- master and Slave clocks (digital) shall have internal battery backup of at least 4 hours to its RTC (Real Time clock / Quartz). Please confirm our understanding.	Please follow Bid Conditions
1214	2			146	**Part-2: Section: 6C - Particluar Specifications Clause 4.5.1.5 (6)** The Master Clock System sh 6) The Sub-Master Clock system shall provide a reference distribution. The type and quantities of requirements of the subsystems (PAS, PIDS, R project contractors (Traction, Fare Collection, T r RS232 or LAN connections) for clock output int	We understand that the Master Clock System (and not Sub-master clock) shall provide appropriate clock output interfaces for sub-master clock (and not master clock) and timing and reference distribution. Please confirm our understanding.	Please Refer Addendum and Corrigendum-02B
1215	2			147	**Part-2: Section: 6C - Particluar Specifications Clause 4.6.2.1 (1) Master Clock** (vi) A Master Clock Server to deliver Network Ti other subsystems. Subsystems that are not co 1588 shall recei	We understand that a compatible Master clock system to deliver both Network Time Protocol (NTP) as well as Precision Time Protocol (PTP) shall be proposed. Subsystems that are not compliant to IEEE-1588 shall receive NTP whereas Subsystems compliant to IEEE-1588 shall receive PTP at the same time. Please confirm our understanding.	Please follow Bid Conditions
1216	2			148	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause Clause 4.6.2.1(3)** The design of the display/ slave clocks shall be of high quality and blend into the architecture of the area in which they are located. All digital slave clocks shall be programmable both for 12 hours and 24 hours and shall display 4 characters viz., time in HH:MM format, date in DD/MM format and temperature. The digital clock shall be configured in such a way that it shall display Date, Temperature or Time alternatively as per client's requirement	Kindly specify how digital clocks shall display information of temperature. What will be the source of this information and how this information will be received by digital clocks.	Please follow Bid Conditions
1217	2			149	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause 4.6.2.1 (3) Display Clocks** Outdoor Double-Sided Analog Clocks 1. 60 cm diameter double faced suspended,	We understand that 60 centimeter diameter refers to dial and display diameter of 60 centimeter excluding length / size of analogue clock housing. Please confirm our understanding. Moreover please specify, if the clock dial should consist of numerals or line marks with suitable hands for a clear visibility and even distribution of LED illumination throughout the dial.	Please follow Bid Conditions
1218	2			154	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) Clause5.2.3 (1) Stations:** Platforms (for monitoring of entraining and detraining of passengers), Concourses (both Paid & Unpaid), Lounges, Commercial Areas, AFC Gates, Ticket Vending Machine (TVM), Ticket Office Machine (TOM) Room, customer care centres Elevators, Escalator, Staircases, Help Points, Station Entrances & Exits, Sky walks (wherever applicable), Security Checking points and machines, Back of House Rooms/ corridor, Station Control Room, Cash Room, Cash Transfer Route, Technical Room Corridor, Entry to via-duct and Via-duct (overview), escape routes on the viaducts (wherever applicable), tunnel entries, ramps, train sidings), all signalling point crossings at tracks, etc.	Please provide the details of Sky walks (wherever applicable) to be constructed on which all stations.	Please refer Employer's drawings- section 6F
1219	2			157	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.3.2.1 (19)** Laptops pre-loaded with CCTV system software	Are these Laptops mentioned in CCTV system different from laptop to be provided in PAS system if yes then please define the quantity	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1220	2			158	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.4.2.3** The Contractor shall ensure that the CCTV system equipment supplied under the Contract shall comply with the reliability figures here in: Video Display Units (monitors) > 35,000	It is not possible to get the MTBF values of workstation from the OEMs as per previous experience. Kindly remove this from the clause	Please follow Bid Conditions
1221	2			159	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.5.1.10** For RSS, full coverage shall be provided to the extent possible by providing cameras mounted on pole or the wall. In case, a pole is required f Contractor. The Optical Fiber Connectivity for cameras to the nearest station/ Depot TER. Th re and shall be installed inside the RSS in an on ai all- weatherproof complying IP- 66 or better. They means of fans and proper locking facility. Th r protection from direct sunlight and rains. The station building), and any other type of the su provided by Telecom Contractor.	1. It is assumed that the 230 AC power provided to the Cameras from RSS or station building will be UPS backed up power. 2. It is assumed that the Cable and accessories for drawing power is in Telecom contractor's scope	Please follow Bid Conditions
1222	2			160	**Part-2: Section: 6C - Particluar Specificati System (CCTV) 5.5.1.11** Some of the cameras prone area etc. weatherproof m r housing these contract.	As per understanding and definition of IP66 Camera, is the one that has housing that provides complete protection from dust and water jets and can stand with heavy rainfal, wind and snow outdoors. Therefore, Is Wiper arrangement mandatory or optional. Kindly clarify the clause	Please refer Corrigendum & Addendum- 01B
1223	2			167	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6** POE: 802.3af compliant and 12VDC/24VAC dual power options	As mentioned in the Tender Documenl of Telecommunication System, PoE shall be compliance with IEEE 802.af/IEEE 803.at.	Please follow Bid Conditions
1224	2			177	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.14.1 (24)** Approvals The workstation shall be UL/FCC approved and shall be from reputed makes to meet the above specifications.	kindly ammend the clause as "The workstation shall be UL /FCC/CSA/RoHS certification approved or shall be from reputed makes to meet the above specifications"	Please follow Bid Conditions
1225	2			178	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.15.1 (24)** Approvals UL or EN & FCC	kindly ammend the clause as "UL/FCC/CSA/RoHS certification"	Please follow Bid Conditions
1226	2			194 & 195	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.2.5.2** IP PBX, Direct Line Telephone System, Voice over IP Phone (IP PBX) system and IP Network shall be monitored, supervised and controlled by Network Management Systems. The Contractor can propose a common NMS for IP PBX, Direct Line Telephone System, Voice over IP Phone (IP PBX), IP Network. The number of NMS MMI should be minimum keeping the availability of space in mind. **Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.3.2.5.2** IP PBX, Direct Line Telephone System, IP PBX system and IP Network shall be monitored, supervised and controlled by Network Management Systems. The Contractor can propose a common NMS for IP PBX, Direct Line Telephone System, IP PBX, IP Network. The number of NMS MMI should be minimum keeping the availability of space in mind.	Our understanding is IP PBX, Direct Line Telephone System, IP PBX system will be monitored by Telephone system NMS and IP Network will be Monitored by Data Transmission System (DTS). Please clarify.	Please follow Bid Conditions
1227	2			198	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.5.1.1.1.(2)** The IP PBX's shall be installed in TER at all locations. The IP PBX shall be connected to each other through ethernet links of the DTS to form the IP PBX switch network. The ethernet channels shall be provided by DTS on a L3 Switch in the TER.	Our understanding is IP-PBX will be installed in OCC, BCC and Station TER and telephone connectivity to nearest building/locations like Depot, TSS, ASS etc. will be provided from nearest IP-PBX system.	Please follow Bid Conditions
1228	2			210	**Part-2: Section: 6C - Particluar Spe** The managed switches shall be installed in rough Ethernet links of the DTS to form the IP S by Contractor in the TER's and CER.	The Ethernet ports required for Telephone system can be taken from DTS. Separate Managed switch maay not be required. Please revise the clause.	Please follow Bid Conditions
1229	2			206	**Part-2: Section: 6C - Particluar Spe** Direct Line Communication system shall be logical RRTS network.	Our understanding is Direct Line Communication system and IP PBX Switch will share common Hardware but will be logically separated.	Please follow Bid Conditions

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1230	2			209	**Part-2: Section: 6C - Particluar Spe** E OVER IP Switch network	Our understanding is Voice Over IP is an Independent System. Required to install in OCC and BCC in addition to IP PBX and DLC System which is explined in clause 6.5.1 and 6.5.2. please confirm	Please follow Bid Conditions
1231	2			238, 241 & 243 & 92,93	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.2.4** The DTS backbone infrastructure shall provide dedicated dark fibres as required for telecom subsystems and non-telecom subsystems of the Delhi- Ghaziabad-Meerut RRTS project. **Clause 7.2.5** The DTS backbone infrastructure shall provide dedicated dark fibres as required for lease-out facilities to others. **Clause 7.3.3.3** Branching outdoor optical fibre cables shall be provided for equipment in all RSSs, and other locations, requiring optical access from the nearest station Telecommunication Equipment Room (TER). The core count of the branching optical fibre cables to RSSs shall be of min 24 Fibres, determined from the design of the related Subsystems or interfacing requirements with relevant Designated Contractors. **Clause 7.5.1.1** The DTS shall provide the communication support for carrying voice, data, and video signals and guarantee the associated quality of service requested by each subsystem. In order to cover this broad range of services and interfaces, the DTS shall offer the most technically appropriate solution, based on the respective standards and fully conforming to the ITU-T Recommendations: 1) Fibre-Optic Communication Network (Minimum 144 Fibres) for Telecom backbone. 2) Minimum 24 Fibres for the spur routes 3) Giga Ethernet (10 GE) backbone (Wide Area Network) **Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 5.42.3:** Three separate OFC cables shall be laid by S&T contractor on both sides of track (UP and DN track) as mentioned below: (a) Separate OFC cable for Signalling- Min 24 Fibres, to be used for but not limited to: - 1) TMS backbone, 2) IXL-IXL connectivity, 3) IXL-Object Controller connectivity 4) IXL-RBC Connectivity, 5) AXL Counter to Axle Counter connectivity etc. (b) Separate OFC cable for LTE- Min 96 Fibres, to be used for but not limited to:- 1) BBU-RRU Connectivity, 2) BBU-EPC Connectivity, 3) LTE Backbone etc. (c) Separate OFC cable for Telecom- Min 144 Fibres (Refer Telecom PS)	It is assumed that total fibers to be supplied in the RRTS project are as follows: 1. Signalling- Min 24 Fibres 2. LTE- Min 96 Fibres 3. Telecom- Min 144 Fibres. 4. 24 Fibers for Spur Routes or branching OFC to RSS. please specify if there is any other requirement of additional fiber other than mentioned above	Please follow Bid Conditions
1232	2			239 & 263	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.2.17** The DTS shall also serve as the backbone connectivity for Wi-Fi system. **Clause 7.9.1 (9)** Wifi System - Dark Fibre	Wi-Fi system will be working on Dark Fibers as mentioned in Clause 7.9. It is assumed that Wi-Fi system will not be the scope of this tender as there are no specification provided	Please refer Addendum & Corrigendum -01B& 02B
1233	2			239	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.2.18** Separate transmission backbone and network should be used for Signalling & Train Control System (ETCS).	It is assumed that Signalling and ETCS will be using 24 fibers provided for signalling system	Please follow Bid Conditions
1234	2			241	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.3.2** Internet connectivity and hardware firewalls to local service provider for internet service for OA/IT.	Does Hardare Firewall also part of scope of supply for DTS system. If yes, what will be the initial firewall performance requirement like 1 Gbps/2 Gbps /3 Gbps/4 Gbps? Also there are no specifications provided for firewall	Please follow Bid Conditions
1235	2			242	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.4.2.3 of PS Telecom** The D Workstation >50000 hours	It is not possible to get the MTBF values of workstation from the OEMs as per previous experience. Kindly remove this from the clause	Please follow Bid Conditions
1236	2			248	**Part-2: Section: 6C - Particluar Specifica (DTS) Clause 7.5.5.2.5 (3) of PS telecom** Each portable service terminal shall be po continuous time without recharging.	Engineering terminal wil be provided with UPS and battery workable for 4 hours normal continuous time without recharging and without mains power	Please follow Bid Conditions
1237	2			248	**Part-2: Section: 6C - Particluar Specifica (DTS) Clause 7.6.2.1** The figure below sho the Delhi- Ghaziabad-Meerut RRTS align (GE) based system in the DTS network **and Clause 7.6** The Junction active-active backbone rin	1. If Junction signal boost switches are not required then third and fourth ring as shown in clause 7.6.2.1 should be direct from OCC to Rithani and OCC to MES Colony respectively or it has to be connected to Duhai station.	Please follow Bid Conditions
1238	2			251	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.6.2.1 of PS telecom** The figure below shows a typical outline schematic of the sites and route on the Delhi- Ghaziabad-Meerut RRTS alignment which shall be served by the IP (GE) based system in the DTS network.	Is it compulsory to use the ring architecture as shown in **fig - RRTS Sites and Typical Design with 10 GE fiber network** or any alternate design can be used	Please follow Bid Conditions

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1239	2			408 & 251	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Appendix R 1.1** The Delhi-Ghaziabad- Meerut corridor consists of 25 stations, 2 depots and one stabling yard for a total length of approx. 82 km (Refer track plan). The following table shows for each station the progressive, the type of service and the type of station (elevated or underground). **and** **Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.6.2.1** The figure below shows a typical outline schematic of the sites and route on the Delhi- Ghaziabad-Meerut RRTS alignment which shall be served by the IP (GE) based system in the DTS network. **Delhi-Meerut Track Plan Drawing no. NCRTC/CO/DES/DM00/TRK/TRP/01**	In Appendix R section 1.1 of PS signalling it is showing that total 25 stations with Jaganpura station as first station and Modipuram and Modipuram depot station In clause 7.6.2.1 **fig - RRTS Sites and Typical Design with 10 GE fiber network,** the stations starts from Sarai Kalekhan, also Modipuram, Modipuram Depot station and Modipuram Depot has been shown. And in Delhi-Meerut Track Plan Drawing no. NCRTC/CO/DES/DM00/TRK/TRP/01, it has been shown 24 stations (including Duhai Depot Station and Modipuram Depot Station) **Kindly clarify which statement is correct**	Please follow Bid Conditions
1240	2			271	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.5.3.8** The perimeter area, for both the depots, shall be sub-divided into zones, with each zone equipped with its own CCTV cameras and associated Intruder Detection Facilities.	Specification of CCTV cameras will be similar as mentioned in CCTV system for Box and PTZ camera	Please follow Bid Conditions
1241	2			272	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.5.3.14** On initiation of an alarm, CCTV cameras within the affected zone shall employ automatic positioning and shall continuously adjust pan, tilt and zoom to keep the intruder within the cameras field of view.	It is assumed that intruder alarm will be displayed in Access control MMI and CCTV cameras shows the position of the intruder in CCTV MMI	Please Refer Addendum and Corrigendum-02B
1242	2			273	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.5.4.1 - 6-ii)** The MMI at the OCC & BCC and the other sites shall, as a minimum, support the following functions, as appropriate to each specific site: GUI Functions ii) Select and view CCTV image at each access point location, individually or in combination;	It is assumed that Selection and view of CCTV image at each access point location, individually or in combination will be from CCTV MMI and GUI.	Please Refer Addendum and Corrigendum-02B
1243	2			& 276	**Part-2: Section: 6C - Particluar Specifications - T Detection System (ACIDS) Clause 8.6.1** The Access Con solution including as a minimum, following elements as sho	Please provide the specification of Special Cameras as shown in figure System Architecture and Functional Requirement of Acess Control System.	Please follow Bid Conditions
1244	2			287	**Part-2: Section: 6C - Particluar Specifications - T** The Contractor shall design the CVRS to playback the rec with 1) More than 45dB signal-to-noise ratio 2) Frequency response within 3dB of 300Hz to 3500Hz 3) Less than 3% distortion 4) Less than 1.0% added wow and flutter 5) Better than 60dB crosstalk	This specification is applicable for Analoge Type Voice Recording System. Digital VRS this is not required. Please confirm	Please follow Bid Conditions
1245	2			284	**Part-2: Section: 6C - Par** voice conversations to	Please specify the interface for Emergency Incident.	Please follow Bid Conditions
1246	2			Financial Bid Annexure- 2	8) PA Loudspeaker-unidirectional/ceiling/wall loudspeaker	Speaker type split, should be provided to quote appropriate speaker models	Please follow Bid Conditions
1247	2			Financial Bid Annexure- 2	9) PALoudspeakers- Depot, OCC & BCC Loudspeakers	Speaker type to be mentioned here like Wall/ceiling or Horn etc..	Please follow Bid Conditions
1248	2			2.4.6.2	The loudspeakers used shall comply with all relevant provisions of the EN/IEC 60065.	This is not required for Loudspeakers. Our loudspeaker comply to **UL 1480** (Speakers for Fire Alarm and Signaling Systems) and **UL 2043** (Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces).	Please follow Bid Conditions
1249	2			2.6.3.12	3) Loudspeaker output power shall be limited to provide a maximum SPL of 100 dB (A).	As per clause 2.4.2.10, Max SPL levels required should not exceed 95dBA, so speaker should also be allowed with a max SPL of 95dBA	Please follow Bid Conditions
1250	2			2.6.3.12	13) All speakers should preferably be from same OEM as that of PAS System Supplier.	Best of the transportation hubs across the world, have deployed systems which have been integrated using various OEM products, including the large airports/Metros/railway stations etc. in INDIA. SO, in order to have the most efficient PAVA system, SI should be allowed to choose from reputed brands available across various product categories, required in a PA system, eg Amps, speakers, DSPs etc... NO, preferential treatment should be given to OEMs, who can supply speakers as well as PAS system as it may limit the overall system performance	Please refer Corrigendum & Addendum- 01B
1251	2			19	Part-2:Section6C/ Particular Specifications – Telecommunications/ General Specification/ 1.3.5	"Relevant Codes and Specifications". 1.3.5.1 The Sub-system and its constituent parts shall comply with the relevant latest version of British Standards, International Electromechanical Commission (IEC) standards, International Organization for Specification (ISO) Standards, European Standard (EN) or UL Standards (Underwriters Laboratory) etc. as specified below **Please clarify the relevant standards are for which items.**	Please follow Bid Conditions

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1252	2			19	Part-2:Section6C/ Particular Specifications – Telecommunications/ Relevant Codes and Specifications/ 1.3.5	Please clarify following equivalent standards are acceptable for Chapter 7 – DATA TRANSMISION SYSTEM (DTS) and not for EPBAX System and L2 and L3 switches. We would request for following changes for larger participations **Power Transformers: IEC 60076, EN 60076 or IEC 61850-3 (2002)** **Surge Protective Devices:** IEC 61643 – 1, UL1449 or equivalent standard (equal or more stringent) **or IEC/EN 61000-4-5** **EMC – Immunity:** IEC 60801, EN 60801 or EN 55024 or EN 300386 **EMC – Emission:** VDE 0875 or IEC 60555, EN 60555 or EN55022, class A or CISPR22, class A **Inter system EMC:** EN 50082, EN 50121, ~~EN 50123, EN 50155, IEC 571, IEC 1000 or equivalent:~~ Level measuring systems utilizing ionising radiation with continuous or switching output: IEC 60982 or FCC CFR47 Part 15, Class A **Sound Level of Noise Source:** ISO 3746, BS 4196–6 or Network Equipment Building Standards (NEBS) GR-63-Core Issue 5 **Flammability Tests**: IEC 60707 or Reduction of Hazardous Substances (ROHS) Code of practice for Earthing: IEEE1100, NFPA 780, IEC1024 or equivalent in GR-63-CORE and GR-1089-CORE **Transient Protection:** MIL-STD-7041A or IEC/EN 61000-4-5 **Lightning Protection:** BS-6651 or IEC/EN 61000-4-5 **Electromagnetic Compatibility (EMC):** Generic standards immunity for Industry environments: BS EN 61326 (Annex A) or EN 300 386, class A **Specification for safety requirements for equipment to be connected to telecommunication networks:** BS EN 41003:1999 or EN 60950-1, 2005 **Safety requirements for electrical equipment for measurement, control & laboratory use. Part 1:** General requirements: BS 61010-1:2003/A2:1995 or EN 60950-1, 2005 **Secondary protectors for Communication Circuits.**: Underwriters Laboratory safety std 497A or safety in GR-63-CORE, GR-1089-CORE **Following are not applicable for Telecommunication system equipment :** Valve Regulated Sealed Lead Acid Rechargeable Single Cells:, Low-voltage Switchgear and Control gear Assemblies	Please follow Bid Conditions
1253	2			30	Section6C/Particular Specifications – Telecommunications/ General Specification /1.5.6.3 to 1.5.6.5	Kindly suggest follwoing changes for Telecommunications equipments 1.5.6.3 The maximum levels of radiated and conducted EMI of the System shall not exceed the levels specified in EN50081-1/ EN 61000-6-3:2007+A1:2011 **or GR-1089-CORE** 1.5.6.5 For PAS/PIDS, EMC emission according to BS EN 55032:2012 & EMC immunity according to EN 55103 – 2 EMC certified to meet EN50121-4 or GR-1089-CORE	Please follow Bid Conditions
1254	2			31	Part-2:Section 6C/ Particular Specifications – Telecommunications/ General Specification /1.5.7	Inter-system EMC 1.5.7.1 The contractor shall ensure that all equipment are design and constructed in accordance with latest versions of EMC standards including but not limited to latest version EN50082, EN50121, EN 50123, EN50155, IEC571, IEC1000 or equivalents to ensure proper functioning or or GR-1089-CORE	Please follow Bid Conditions
1255	2			60	Part-2:Section 6C/ Particular Specifications – Telecommunications / 1.12.4 Software Support	Kindly clarify that fo 24x7 TAC support for any offered should be in place. **The offered product should be supported by 24x7x365 TAC Support from the OEM of the Product with toll free number**	Please follow Bid Conditions
1256	2			79	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause: 2.3.3.4 The Main and Backup MMI shall be provided as under: 1) The Main MMI's shall be provided at OCC. 2) The Backup MMI's shall be provided at BCC	Our understanding only one MMI will be operated at a time, other will be standby. Please confirm.	Please follow Bid Conditions
1257	2			81	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.4.2.5 The Acoustic Consultancy shall submit a report, for approval of the Employer's Representative, on the STIPA performance of each site which shall inter-alia include the following.	In place of STIPA report for each individual site, similar sites may be grouped together and one station from each group may be selected for STIPA report. The Acoustic contractor should be made responsible for submission of report for approval of the Employer. Therefore clause may be amended as below: The Acoustic contractor shall submit a report, for approval of the Employer, on the STIPA performance of each group of similar site which shall inter-alia include the following...	Please follow Bid Conditions
1258	2			84	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.4.8.6 The PAS shall have two Racks/Amplification systems (Circuits) at each Station as Primary & Secondary, the Primary Rack will feed to Even No. speakers of all Zones & Secondary Rack will feed to Odd numbered speakers of all Zones. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability.	This functionality is possible with one Rack/ Amplification system also by dedicating separate amplifiers for odd & even no. of loudspeakers. Therefore this clause may be deleted.	Please follow Bid Conditions

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1259	2			84	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS)Section 2.4.8.7 There shall be a hot standby controller available in the rack to take over from the primary controller in the event of the failure of the primary controller.	As per section clause no. 2.4.8.6 at page no. 84 even no. of speakers are connected in Primary rack amplifier channels & odd no. of speakers in secondary rack amplifiers channels. Failure of Primary Rack shall not hamper functionality of secondary rack hence maintaining 50% Speakers availability so for distributed system amplifier installed in primary & secondary rack will be connected with seperate controllers. So in case of controller/amplifier failure 50% system will be active, please confirm	Please follow Bid Conditions
1260	2			93	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause: 2.5.15.1 (1) The PAS / PIDS NMS shall monitor system alarm status on real time basis; alarm data shall also be stored for future inquiries. It is envisaged that one NMS and a corresponding workstation shall be provided. The NMS at OCC & BCC shall have jurisdiction over all corridors and shall extend a workstation to OCC/BCC. The NMS should not be available for access in other than CSS / CER. The PAS and PIDS NMS shall be on the same server / workstation. However, no monitoring or control of depot PAS system is required as it is a standalone system.	For different OEM, common/Integrated NMS may not be possible for PAS and PIDS. Therfore our understanding is PAS and PIDS NMS application can be installed in common/different Hardware . Please confirm.	Please follow Bid Conditions
1261	2			98	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Section 2.6.3.1 Clause (1) PAS Control Equipment 1) The hardware and software of the PAS shall be easily expandable to the requirements of the zoning functionalities to a required extent. Addition of input and output ports/ devices for the switching equipment shall be achieved by simple addition of plug in cards or inputs or input output modules, any other devices including amplifiers or dsp(s) which should be preferably of a hot swappable type.	For addition on input & outputs shall be achieved by addition of interface unit which is fullly hot swappable.	Please follow Bid Conditions
1262	2			98	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Section 2.6.3.1 Clause (9) The PAS control equipment shall be fail safe and shall be capable of being manually bypassed to maintain all zone broadcast availability, if necessary, on failure of the audio matrix switch.	For distributed system audio matrix in inbuilt into controller so in case of any controller failure zone broadcasting can be achived by connectivity of call station with two controllers.	Please follow Bid Conditions
1263	2			102	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2: Public Address System (PAS) Clause 2.6.3.8 (2) Minimum two 200 W Class-D power amplifier shall be provided for each zone at each station.	Specification of power capacity (of minimum 200 W) is not necessary & relevant as other capacity power amplifier will also serve the purpose of application. Therofore 200 W capacity to be replaced with "Suitable power capacity".	Please follow Bid Conditions
1264	2			102	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.6.3.8 (6, 1) RMS power output - 200W-500W RMS or as required by individual or paralleled modular units;	Same explaination as at clause 2.6.3.8 (2) above.	Please follow Bid Conditions
1265	2			103	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2: Public Address System (PAS) Clause 2.6.3.12 (13): All speakers should preferably be from same OEM as that of PAS supplier.	OEMs of Loudspeakers & PA system may be different. Loudspeaker is one of the components in the large PA system only and linking same OEM of loudspeaker with PA system will limit the no. of OEMs. Therefore this clause may be deleted.	Please refer Corrigendum & Addendum- 01B
1266	2			103	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 PAS Section 2.6.3.12 Clause (8) Loudspeakers shall have a minimum frequency response from 100 Hz to 16 kHz at -10 dB and in case of horn speaker 500 Hz – 4.5 kHz at -10 dB.	For Speech trasmission Frequency response(-10 dB) 300 Hz ~ 15 KHz is sufficient so it may vary as per application requirement & type of speakers for example Ceiling Speaker 180 Hz - 20 KHz Projection Speaker 150 Hz ~ 20 KHz Column Speaker 300 Hz ~ 15 KHz Wall Mount Mpeaker 300 Hz ~ 15 KHz	Please Refer Addendum and Corrigendum-02B
1267	2			104	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause: 2.6.5.1 All equipment of the PAS shall work from 240 volts ±20 % AC single phase power supply and connected to a dedicated UPS supply.	Power supply to the PAS equipment is from UPS which is a controlled power supply. Therefore, power input to all the PAS equipment may be changed to 240 V AC single phase with a variation of +/- 10%.	Please follow Bid Conditions
1268	2			111	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.2.9: At all Platforms (Elevated/ Underground/At Grade station) & Concourse (Elevated station) the PIDS shall be of LED type. For all other locations (Concourse of UG station, Interchanges etc.) the display panels shall be of TFT type.	Kindly specify size of LED PIDS and TFT/LCD panels as it will have commercial implications and other contractors may offer different size of PIDS boards.	Please follow Bid Conditions
1269	2			111	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.4.1.5 The PIDS shall support multimedia functions to display video information in MPEG2/4 format, while supporting both SD & HD resolutions, H.264, AVCHD, fullduplex and stereo effects for audio signal, as a minimum on applicable display panels	This clause should be applicable for TFT types of PIDS only. The asked functionalities are not possible on LED types of PIDS panels.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1270	2			116	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (4, I) Each platform display shall incorporate a number of display lines to present the following information: a. Display Line 1: Train information like destination information, arrival & departure time, train length, train occupancy details etc (in both Hindi and English as per requirement). Information pertaining to current date, time, temperature and air quality index shall also be displayed. b. Display Line 2: Train information like destination information, arrival & departure time, train length, train occupancy details etc (in both Hindi and English as per requirement) or Scrolling/ flipping train data for the next 2-3 trains or any advertisement related message or any public information. Information pertaining to current date, time, temperature and air quality index shall also be displayed	Kindly specify how platform and concourse PIDS panels shall display information of temperature and air quality index. What will be the source of this information and how this information will be received by PIDS panels.	Please Refer Addendum and Corrigendum-02B
1271	2			116	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (6, VIII) The PIDS display housing shall provide cable access from the top and bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Cable access should be either from top or bottom. Therefore, clause may be revised to as below. The PIDS display housing shall provide cable access either from the top or bottom of the unit and shall be equipped with internal cable termination facilities together with an earth terminal for termination of external cables	Please follow Bid Conditions
1272	2			117	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (7, ix) The displayed information shall provide full clarity and legibility when viewed at the required distances and at positions of up to ±70°, vertically, from the normal viewing axis. The viewing angle shall be min. ±80° contained within the arc where at the extremity the illumination intensity drops to half of the peak intensity	There seems to be typographical error in view angle. The view angle should be +/- 40 deg. In place of +/- 80 deg. SMD LEDs with +/-n80 deg. View angle are not available commercially.	Please follow Bid Conditions
1273	2			125	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.6.5.1 (7) It shall be possible for platform LED PIDS, to display special information like emergency messages in different colours	Kindly clarify whether asked LED PIDS is mono colour PIDS or Multi colour PIDS? If Multi colour PIDS, then how many colours are required for display of information on LED PIDS.	Please follow Bid Conditions
1274	2			145	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause 4.5.1.5 (3) The Master Clock System shall include, but not be limited to, the following: 3) Sub-Master Clocks shall further distribute the synchronized signal to all slave clocks. In the absence of valid Sub-Master Clock signal, the Slave clocks shall operate in free running mode with an internal clock supplying the time signals. On restoration of the Sub-Master clock signal the Slave clocks shall validate the signal. After the successful validation, the Slave clocks shall self-correct, if necessary. The Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours.	Point 1: Referring to clause 4.5.1.5 8) “Slave clocks shall preferably have provision of configuration of at least three NTP server IP as source for Redundancy”, We understand that during the absence of valid Sub-Master clock synchronized signal, the slave clocks shall take the timing reference from Master clock (installed at OCC & BCC) over the LAN/WAN to achieve the redundancy in terms of synchronize. The slave clocks shall operate in free run mode only when it is not getting valid synchronization signal from Sub-Masterclock & Masterclocks. Point 2: Further, we understand that to retain internal time during power failure, the Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours to its RTC (Real Time clock / Quartz). Please confirm our understanding.	Please follow Bid Conditions
1275	2			146	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause 4.5.1.5 (6) The Master Clock System shall include, but not be limited to, the following: 6) The Sub-Master Clock system shall provide appropriate clock output interfaces for master clock and timing and reference distribution. The type and quantities of the clock output interfaces shall be determined by the interfaces requirements of the subsystems (PAS, PIDS, Radio, CCTV, CDRS, Telephone System etc) and relevant interfacing project contractors (Traction, Fare Collection, Train Control and Signalling etc.). Suitable interfaces (such as RS 422 or RS232 or LAN connections) for clock output interfaces shall be supported.	We understand that the Master Clock System (and not Sub-master clock) shall provide appropriate clock output interfaces for sub-master clock (and not master clock) and timing and reference distribution. Please confirm our understanding.	Please Refer Addendum and Corrigendum-02B
1276	2			147	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause 4.6.2.1 (1) Master Clock (vi) A Master Clock Server to deliver Network Time Protocol (NTP) or Precision Time Protocol (PTP) as required by other subsystems. Subsystems that are not compliant to IEEE-1588 shall receive NTP. Subsystems compliant to IEEE-1588 shall receive PTP.	We understand that a compatible Master clock system to deliver both Network Time Protocol (NTP) as well as Precision Time Protocol (PTP) shall be proposed. Subsystems that are not compliant to IEEE-1588 shall receive NTP whereas Subsystems compliant to IEEE-1588 shall receive PTP at the same time. Please confirm our understanding.	Please follow Bid Conditions
1277	2			148	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause Clause 4.6.2.1(3) The design of the display/ slave clocks shall be of high quality and blend into the architecture of the area in which they are located. All digital slave clocks shall be programmable both for 12 hours and 24 hours and shall display 4 characters viz., time in HH:MM format, date in DD/MM format and temperature. The digital clock shall be configured in such a way that it shall display Date, Temperature or Time alternatively as per client’s requirement	Kindly specify how digital clocks shall display information of temperature. What will be the source of this information and how this information will be received by digital clocks.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1278	2			149	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4: Master Clock System (MCS) Clause 4.6.2.1 (3) Display Clocks Outdoor Double-Sided Analog Clocks 1. 60 cm diameter double faced suspended,	We understand that 60 centimeter diameter refers to dial and display diameter of 60 centimeter excluding length / size of analogue clock housing. Please confirm our understanding. Moreover please specify, if the clock dial should consist of numerals or line marks with suitable hands for a clear visibility and even distribution of LED illumination throughout the dial.	Please follow Bid Conditions
1279	2			154	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) Clause5.2.3 (1) Stations: Platforms (for monitoring of entraining and detraining of passengers), Concourses (both Paid & Unpaid), Lounges, Commercial Areas, AFC Gates, Ticket Vending Machine (TVM), Ticket Office Machine (TOM) Room, customer care centres Elevators, Escalator, Staircases, Help Points, Station Entrances & Exits, Sky walks (wherever applicable), Security Checking points and machines, Back of House Rooms/ corridor, Station Control Room, Cash Room, Cash Transfer Route, Technical Room Corridor, Entry to via-duct and Via-duct (overview), escape routes on the viaducts (wherever applicable), tunnel entries, ramps, train sidings), all signalling point crossings at tracks, etc.	Please provide the details of Sky walks (wherever applicable) to be constructed on which all stations.	Please refer Employer's drawings- section 6F
1280	2			157	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.3.2.1 (19) Laptops pre-loaded with CCTV system software	Are these Laptops mentioned in CCTV system different from laptop to be provided in PAS system if yes then please define the quantity	Please follow Bid Conditions
1281	2			157	Section 6C_Particular Specification_ Telecommunication, 5.4.1.3	Request to modify as follows: 5.4.1.3 The OEM shall have implemented end to end CCTV solution in minimum 3 Indian metro environment/ or any other smart cities/ city surveillance projects	Please Refer Addendum and Corrigendum-02B
1282	2			158	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.4.2.3 The Contractor shall ensure that the CCTV system equipment supplied under the Contract shall comply with the reliability figures here in: Video Display Units (monitors) > 35,000	It is not possible to get the MTBF values of workstation from the OEMs as per previous experience. Kindly remove this from the clause	Please follow Bid Conditions
1283	2			159	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.5.1.10 For RSS, full coverage shall be provided to the extent possible by providing cameras mounted on pole or the wall. In case, a pole is required for installing a camera, it will be supplied, erected & installed by Contractor. The Optical Fiber Connectivity for this equipment to be provided by Telecom Contractor for connecting these cameras to the nearest station/ Depot TER. These equipment shall be compact and unsuitable wall mounting enclosure and shall be installed inside the RSS in an on air-conditioned environment. The racks/ enclosures thus used must be all-weatherproof complying IP- 66 or better. They should particularly be dust and rainwater resistant, with ventilation by means of fans and proper locking facility. These racks must possess an additional canopy (apart from its top cover) for protection from direct sunlight and rains. The AC 230 V commercial supply shall be taken from the RSS (if not within station building), and any other type of the supply converter / regulator, if required, to operate the system is to be provided by Telecom Contractor.	1. It is assumed that the 230 AC power provided to the Cameras from RSS or station building will be UPS backed up power. 2. It is assumed that the Cable and accessories for drawing power is in Telecom contractor's scope	Please follow Bid Conditions
1284	2			160	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.5.1.11 Some of the cameras in depot, signal crossings, RSS, parking, specifically identified theft prone area etc. are required to be installed outdoor i.e. outside the buildings with no covering shed. A proper weatherproof mounting arrangement complying with IP 66 or better along with wiper arrangement shall be provided for housing these cameras including any other accessories /equipment required shall also be provided as part of this contract.	As per understanding and definition of IP66 Camera, is the one that has housing that provides complete protection from dust and water jets and can stand with heavy rainfal, wind and snow outdoors. Therefore, Is Wiper arrangement mandatory or optional. Kindly clarify the clause	Please refer Corrigendum & Addendum- 01B
1285	2			161	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.5.3 CCTV Standards :-1) The TV standard to be employed shall be ITU-T, PAL, 25 frames per second with progressive scan. Advanced video compression techniques, such as MPEG – 4 and H.264 as minimum, shall be employed to minimize transmission bandwidth and recorder storage capacity without compromising the subjective quality of the displayed video images.	Please make H.265 as mandatory compression for Camera.	Please follow Bid Conditions
1286	2			165	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 5.6.2.3 Varifocal Lenses 1. Focal length 12 mm – 50 mm/ 4.1- 9mm	Please allow for Internal/External Lens	Please follow Bid Conditions
1287	2			167	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 POE: 802.3af compliant and 12VDC/24VAC dual power options	As mentioned in the Tender Documenl of Telecommunication System, PoE shall be compliance with IEEE 802.af/IEEE 803.at.	Please follow Bid Conditions

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1288	2			167	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 :High Definition IP Fixed Box Camera (Day/Night):	Please allow for Box /Bullet Camera with Internal /External IR Option which is already approved @ Certain Metro Projects	Please follow Bid Conditions
1289	2			167	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 / High Definition IP Fixed Box Camera (Day/Night)/ Sensitivity (@ F1.2, 30 IRE or better) @F1.2, 30 IRE or better	Please allow below for maximum OEM Participation :- Day/Night)/ Sensitivity (@ F1.6, 30 IRE or better) @F1.6, 30 IRE or better	Please follow Bid Conditions
1290	2			167	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 6 Compression technology Two independently configurable H.264 streams: Stream 1: 5MP @ 25 FPS & 1080P @25 FPS Stream 2: 5MP @ 25 FPS & 1080P @2 FPS	Maximum Camera are supporting Multicast hence 2 Streams on 5MP are not required. Two Streams on 5MP are not available with major OEM's . Hence allow for Single Stream @ 5Mp @25FPS and Second Stream @ 1080P @ 25FPS	Please follow Bid Conditions
1291	2			167	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): POE 802.3af compliant and 12VDC/24VAC dual power options	Please allow for POE 802.3af/802.3at compliant and 12VDC/24VAC dual power options	Please follow Bid Conditions
1292	2			168	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 3. On board trusted platform module (TPM), Public key infrastructure (PKI) Support	Please remove it for maximum OEM Participation. PKI is a properitry to Single OEM	Please Refer Addendum and Corrigendum-02B
1293	2			168	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): SD CARD Support Built in SD card slot with support up to 2 TB with Class 10 speed	2 TB SD card is not the practical requirement . Please allow for 128 GB SD card for maximum OEM Participation. Even 2 TB SD card is not available in market	Please Refer Addendum and Corrigendum-02B
1294	2			169	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) 5.6.2.7 / High Definition IP Fixed Box Camera (Day/Night)/ Sensitivity ((@ F1.3 , 30 IRE or better)	Please allow below for maximum OEM Participation :- Day/Night)/ Sensitivity (@ F1.6, 30 IRE or better) @F1.6, 30 IRE or better	Please follow Bid Conditions
1295	2			169	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-6 Compression technology Two independently configurable H.264 streams: Stream 1: 5MP @ 25 FPS & 1080P @25 FPS Stream 2: 5MP @ 25 FPS & 1080P @2 FPS	Maximum Camera are supporting Multicast hence 2 Streams on 5MP are not required. Two Streams on 5MP are not available with major OEM's . Hence allow for Single Stream @ 5Mp @25FPS and Second Stream @ 1080P @ 25FPS	Please follow Bid Conditions
1296	2			169	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-11 :-POE 802.3af compliant	Please allow for POE 802.3af/802.3at compliant and 12VDC/24VAC dual power options	Please follow Bid Conditions
1297	2			170	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-25:-. On board trusted platform module (TPM), Public key infrastructure (PKI) Support	Please remove it for maximum OEM Participation. PKI is a properitry to Single OEM	Please Refer Addendum and Corrigendum-02B
1298	2			171	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :- SD CARD Support Built in SD card slot with support up to 2 TB with Class 10 speed	2 TB SD card is not the practical requirement . Please allow for 128 GB SD card for maximum OEM Participation. Even 2 TB SD card is not available in market	Please Refer Addendum and Corrigendum-02B

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1299	2			171	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) 6 Compression technology Two independently configurable H.264 streams: Stream 1: H.264, 1080p @ 25 FPS, Stream 2: H.264, 1080p @25fps & 720p @50/60	Maximum OEM Camera are supporting Multicast hence 2 Streams on 2 MP are not required. Two Streams on 2 MP are not available with major OEM's . Hence allow for Single Stream @ 2 Mp @25FPS and Second Stream @ 720P @ 25FPS	Please follow Bid Conditions
1300	2			172	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) :- Wide Dynamic Range 69 dB or better	WDR Must be atleast 120 dB for Better image as per Metro Station scenarios, please confirm	Please follow Bid Conditions
1301	2			172	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) :PoE As per IEEE 802.3af compliant	Please allow for POE 802.3af/802.3at/High POE compliant and 12VDC/24VAC dual power options	Please follow Bid Conditions
1302	2			174	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.10 IR Illuminator 4 IR distance 150m	Please allow for Internal/External IR distance 100m	Please follow Bid Conditions
1303	2			175	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.11(1) (CCTV - POE Switch)	Please consider *Gigabit access port (10/100/1000 Mpbs)* for Layer 2 field switches.Currently it has been asked to support 10/100 Mbps only.The switch is of 28 port including 2 Gig uplink.All the hardware is asked for longer support .We request to change the speed to 10/100/1000 considering the traffic growth of next 10-15 years. All leading OEM new product supports 10/100/1000 speed at client side also. Mjority Cameras, Access Points, sensors, Relays are comming with 1/100/1000 Mbps support. It will be imperative to position New switches considering long term support requirement of Gigabit access port (10/100/1000 Mpbs)	Please follow Bid Conditions
1304	2			175	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.11.2(8) (CCTV - POE Switch)	Current Specification only ask for Port Security (IP/MAC). With increase in threat and criticality of network we suggest to include the following protocols also as part of secuirty. Shall have Port security (IP/MAC), Secure boot, 802.1x, Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, BPDU guard, IPv6 RA gurad and IPv6 DHCP guard.	Please follow Bid Conditions
1305	2			175	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.11.2(5) (CCTV - POE Switch)	Current specification asks for Operating temperature **0°C to + 60°C**, Humidity up to 90% (non-condensing). Switch shall be without any moving parts (no fans). We would request to. **Change the operating temperature to 0 to 70C. This will help in reducing the hardware failure of switch.**	Please follow Bid Conditions
1306	2			175	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.11.2(3) (CCTV - POE Switch)	The curret clause is asking for only IGMP support for multicast but there are different versions of IGMP protocol which is required to run for Sparse and source specific multicast. Sparse mode and source specific multicast widely deployed.IGMP snooping is key feature to determine whihc all ports are intrested in a perticular stream and bringing a single copy of data which is the essence of multicast. So we reuest you to add **IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier and MLD Snooping also as requirement for running multicast.**	Please follow Bid Conditions
1307	2			176	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.11.2(9) (CCTV - POE Switch)	The RFP mentionas that the Switches shall meet all the above specifications and shall be from the reputed OEM. To ensure that quoated product is from reputed OEM pls allow **OEM from Gartner Magic Quadrant leader and Challenger Quadrant category in Wired and Wireless for the year 2019.**	Please follow Bid Conditions
1308	2			176	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.11.3 (CCTV - POE Switch)	RFP requires 4/8- port Layer- 2 Industrial grade switches which may be used for connecting the CCTV cameras outside the stations to the nearest station .**We under stand that the specification for same is similar to the 28 port switch**. Please clarify also clarify whether 4 port port or 8 port POE switch would be required?	Please follow Bid Conditions
1309	2			177	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.14.1 (24) Approvals The workstation shall be UL/FCC approved and shall be from reputed makes to meet the above specifications.	kindly ammend the clause as "The workstation shall be UL /FCC/CSA/RoHS certification approved or shall be from reputed makes to meet the above specifications"	Please follow Bid Conditions
1310	2			178	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.15.1 (24) Approvals UL or EN & FCC	kindly ammend the clause as "UL/FCC/CSA/RoHS certification"	Please follow Bid Conditions
1311	2			181	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) 5.6.2.19 CCTV Video Surveillance Software (iv) The video management system shall allow a minimum 1,00,000 number of cameras, recording servers and clients to be connected to management server across multiple sites.	Having 100000 no of cameras is not Practical. Please allow for 10000	Please Refer Addendum and Corrigendum-02B

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1312	2			183	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) (vii) The management server shall be installed on multiple servers clustered together. In case a server in the cluster fails, another server in the cluster shall automatically take over the failed server's job running the management server.	Please allow for Virtualization as cluster is always a Weak Solution	Please follow Bid Conditions
1313	2			185	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV) System should ensure that once recorded, the video cannot be altered, ensuring the audit trail is intact for evidential purposes. This has to be achieved using Authentication with SHA-256 hashing function, combined with 1024-bit RSA public-private key pair. Water marking alone for ensuring temper proof recording is not sufficient.	SHA-256 is specific to single Oem . Please allow for SHA-128 Bit and 128 bit RSA	Please Refer Addendum and Corrigendum-02B
1314	2			185		RFP requres support of advanced security features include VPN/DMVPN, VRFs and firewall. **We request to add the below features to enhance the security:** 1.The device should have built-in security features so that firewalling, intrusion prevention, point to point & point to multipoint automated IP tunnels (GRE, IPSEC) based upon traffic pattern to encrypt the data (using industry standard security protocols like DES, 3DES, AES encryption) between source & destination nodes can be provided to protect network from external threats, such as viruses/trojans. 2.Gateway should support following VPN Protocols & Features : L2tp, L2tpV3, Ipsec Vpn, should support the functionality of forming dynamic tunneless Vpn, should support IKEv2, should support ipv6 for IPsec & Ikev2, Should support 3Des, AES, MD5, SHA-1 algorithms, support GRE protocol, DMVPN 3.Router should be able to support atleast 10 IP sec tunnels for secure VPN connectivty.	Please follow Bid Conditions
1315	2			192	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter Telephone System 6.2.1.1	**RFP requirement:** It shall be a highly reliable State of the art, non-blocking, ISDN compatible IP PBX Telephone network for voice, facsimile and data communication services throughout the RRTS Corridor. Telephone sets (where applicable) shall be provided in the control rooms, , administration offices, HQ, rooms for operation, maintenance, security and equipment rooms, mid tunnel shaft, emergency evacuation routes at stations, staff rooms in the OCC/BCC, depot, RSS and all stations. Each OCC/BCC controller position shall also be provided with IP PBX telephones. **We would request to change as below:** The technology is shifting towards IP based voice communication. We request the IP PBX to be 100% IP Compatible	Please follow Bid Conditions
1316	2			198	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.5.1.1.1.(2) The IP PBX's shall be installed in TER at all locations. The IP PBX shall be connected to each other through ethernet links of the DTS to form the IP PBX switch network. The ethernet channels shall be provided by DTS on a L3 Switch in the TER.	Our understanding is IP-PBX will be installed in OCC, BCC and Station TER and telephone connectivity to nearest building/locations like Depot, TSS, ASS etc. will be provided from nearest IP-PBX system.	Please follow Bid Conditions
1317	2			205		**RFP Requirement: Digital Feature Telephone** We would request to change as below: **IP phones are better than Digital Phones. We request you give flexibility to the bidder to quote IP Phones with same features and functionality instead of digital phones**	Please follow Bid Conditions
1318	2			206	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.5.2.1.2 The Direct Line Communication system shall be logically independent of the IP PBX network on the Delhi-Ghaziabad-Meerut RRTS network.	Our understanding is Direct Line Communication system and IP PBX Switch will share common Hardware but will be logically separated.	Please follow Bid Conditions
1319	2			209	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.5.3.1 VOICE OVER IP Switch network	Our understanding is Voice Over IP is an Independent System. Required to install in OCC and BCC in addition to IP PBX and DLC System which is explined in clause 6.5.1 and 6.5.2. please confirm	Please follow Bid Conditions
1320	2			210	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.5.3.1.3 (3) The managed switches shall be installed in TER at all locations. The switches shall be connected to each other through Ethernet links of the DTS to form the IP PBX switch network. The Ethernet link shall be provided as part of DTS by Contractor in the TER's and CER.	The Ethernet ports required for Telephone system can be taken from DTS. Separate Managed switch maay not be required. Please revise the clause.	Please follow Bid Conditions
1321	2			217	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, EPBAX POE Switch 6.5.3.1.25	The Layer 3 Managed and Layer 2 Managed switches at OCC, BCC, Depots, HQ and Stations to be provided as per table 6.5 to meet overall design requirement 1. L2 Managed Switch 8 Ethernet 10/100/1000BT PoE Ports supporting IEEE 802.3AF and 802.3AT compliant PoE (dynamic PoE allocation) with 2 combo 10/100/1000Base-T/SFP ports for Uplink, **1K VLANS**. Basic L3 features for Static routing, IPv4 and IPv6 support. Provision for local/remote configuration backups. We would recomend 256 VLANs instead 1K VLANs for larger participation	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1322	2			217	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, EPBAX POE Switch 6.5.3.1.25	We would request for following changes L3 Stackable **or 10G port other than uplink ports and** Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2x10G SFP+ for Uplink~~, 4 combo 10GBase-T CX-4 ports,~~ **(this is a not a industry standard , so request to delete 10G BaseT)** Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto **80** ~~100~~ kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	Please Refer Addendum and Corrigendum-02B
1323	2			217	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, EPBAX POE Switch 6.5.3.1.25	**L3 and L2 Switch should have Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, BPDU guard, IPv6 RA gurad and IPv6 DHCP guard**.	Please follow Bid Conditions
1324	2			217	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, EPBAX POE Switch 6.5.3.1.25	We would recommend to add: "The switch should support features like dying gasp/core dump to ensure logs are captured before switch goes down in case of any outage".	Please follow Bid Conditions
1325	2			217	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, EPBAX POE Switch 6.5.3.1.25	We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
1326	2			217	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, EPBAX POE Switch 6.5.3.1.25	We would recommend to add: "The Switch must support features like RSPAN"	Please follow Bid Conditions
1327	2			239	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.2.18 Separate transmission backbone and network should be used for Signalling & Train Control System (ETCS).	It is assumed that Signalling and ETCS will be using 24 fibers provided for signalling system	Please follow Bid Conditions
1328	2			241	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.3.2 Internet connectivity and hardware firewalls to local service provider for internet service for OA/IT.	Does Hardare Firewall also part of scope of supply for DTS system. If yes, what will be the initial firewall performance requirement like 1 Gbps/2 Gbps /3 Gbps/4 Gbps? Also there are no specifications provided for firewall	Please follow Bid Conditions
1329	2			242	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.4.2.3 of PS Telecom The DTS equipment shall comply with the reliability figures herein: Workstation >50000 hours	It is not possible to get the MTBF values of workstation from the OEMs as per previous experience. Kindly remove this from the clause	Please follow Bid Conditions
1330	2			243	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS/7.4.4.3	General Carrier Grade Data Transmission systems life is not beyond Seven years. So, kindly change long term support till 10 years, instead of 25 years. Similarly for Servers, it should be Seven Years	Please follow Bid Conditions
1331	2			248	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.5.5.2.5 (3) of PS telecom Engineering Terminal Each portable service terminal shall be powered by an internal rechargeable battery with more than 4 hours normal continuous time without recharging.	Engineering terminal wil be provided with UPS and battery workable for 4 hours normal continuous time without recharging and without mains power	Please follow Bid Conditions
1332	2			248	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.6.2.1 The figure below shows a typical outline schematic of the sites and route on the Delhi- Ghaziabad-Meerut RRTS alignment which shall be served by the IP (GE) based system in the DTS network and Clause 7.6.2.4 (viii) of PS telecom Core Layer The Junction signal boost switches (to be provided only if required) in active-active redundancy shall be used on 10G fibre links of DTS backbone ring which are more than 35Kms.	1. If Junction signal boost switches are not required then third and fourth ring as shown in clause 7.6.2.1 should be direct from OCC to Rithani and OCC to MES Colony respectively or it has to be connected to Duhai station.	Please follow Bid Conditions
1333	2			248	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)7.5.5.2.4	Network Management System 1) An SDN ready Management workstation with GUI features shall be installed in OCC and BCC to provide the necessary control, supervision, maintenance, configuration and performance management. The design shall cater for standard NMS functions. For network support with SDN ready, the network equipmentts must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
1334	2			248	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)7.5.5.2.4	The equipment shall be Commercial off the Shelf (COTS) products and shall be for industrial purposes and harsh environment like MRTS/Railway, widely deployed across a wide range of commercial networks. **Kindly add the device should be as per EN50121 compliant**	Please follow Bid Conditions
1335	2			249	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)7.5.5.3.2	**We would request following changes :** 7.5.5.3.2 Network Synchronization 4) The core DTS equipment shall support Ethernet synchronization preferably SyncE to IEEE 1588V2 standard **with T-BC and G.8275.1 Telecom Profile and NTP**. The synchronization shall have frequency as well as phase synchronization, NTP Server and Client functionality.	Please follow Bid Conditions
1336	2			251	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.6.2.1 of PS telecom The figure below shows a typical outline schematic of the sites and route on the Delhi- Ghaziabad-Meerut RRTS alignment which shall be served by the IP (GE) based system in the DTS network.	Is it compulsory to use the ring architecture as shown in fig - RRTS Sites and Typical Design with 10 GE fiber network or any alternate design can be used	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1337	2			252	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) 7.6.2.4 / Core Layer (ii)	**We would request following changes , as in thenetwork generally Redundancy occurs through Active-Standby mode instead of Active-Active mode** The OCC and BCC shall each be equipped with Carrier Grade Core Switch of 40G in **active-~~active~~ Standby** redundancy and operate as one logical Layer 3 switch.	Please follow Bid Conditions
1338	2			252	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) 7.6.2.4 / 2) Distribution & Access Layer	We would request following changes , as in thenetwork generally Redundancy occurs through **Active-Standby mode instead of Active-Active mode** 2) Distribution & Access Layer (i) The station CER/TER shall be equipped with distribution switches in active-**~~active~~** Standby redundancy and shall operate logically as one layer 3 switch.	Please follow Bid Conditions
1339	2			252	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) 7.6.2.4 / 2) Distribution & Access Layer	We would request clarity on the Industrial grade in Data Transmission Systems is in terms of **Industial Temperature till 65 DegreC** (vii) At the outdoor locations/platform level, the switches shall be of industrial grade with a minimum of 16 ports, and all the edge devices shall terminate on outdoor switches. (viii) The industrial grade switches shall be connected in 1G fibre ring with sub 50ms ring protection and shall be dual homed on cluster of distribution switches.	Please follow Bid Conditions
1340	2			252	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/7.6.2.4 / 2) Distribution & Access Layer	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
1341	2			252	SPart-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/7.6.2.4 / Core Layer (ii)	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
1342	2			256	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/7.7	Kindly clarify to introduce 100G instead of 40G, as majority of new network are using 100G instead of 40G. To have redundancy in the link in each direction, we would recommend to hav**e 4x100G in each Core Switch**	Please follow Bid Conditions
1343	2			256	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/7.7	Kindly clarify this Port requirement table is related to Core and Distribution Layer.	Please follow Bid Conditions
1344	2			256	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS/7.7	Kindly clarify Distribution Layer should have more 10G and more 1G Fiber interfaces instead of elctrical interfaces to connectivity to station switches and reachability to tthose switches. **We would recommend Stations/ Depot Layer -3 Switch should have 8x10G SFP+, 2x100G for connectivity between to two switch and 8x1GSFP and 4x1G RJ45**	Please follow Bid Conditions
1345	2			257	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/ Core Layer / 7.7.1.2 Security Features	We recomend to following change, as per Industry standry standard with **full duplex** requirement Performance Specifications 1) Backplane Bandwidth shall support non-blocking wire speed for current ports including future expansion ports as well. However, the core switch should support minimum **800 Gbps Full Duplex non-blocking switching fabric capacity.**	Please follow Bid Conditions
1346	2			259	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/ Core Layer / 7.7.1.6 Security Features	**802.1X is a security feature is a security feature of POE End Switches, not for Core or Distribution switches. Kindly delete this clauses** 7.7.1.6 Security Features should be deleted related to 802.1X 17) 802.1x Network Security and Authentication. Support for the 802.1x standard allows users to be authenticated regardless of which LAN port they are accessing and provides unique benefits to customers who have a large base of mobile (wireless) users accessing the network. 18) 802.1x with VLAN assignment allows a dynamic VLAN assignment for a specific user regardless of where the user is connected. 19) 802.1 x and assigning VLAN and priority for IP phones automatically, simplifying network configuration and maintenance. 20) 802.1x with port security for authenticating the port and managing network access for all MAC addresses, including that of the client.	Please follow Bid Conditions
1347	2			260	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/7.7.2 Distribution Switch	We would request following changes 7.7.2.1 Switch Architecture 1) Distribution Switch should have Redundant Power supply. 2) **Dedicated ~~stacking~~ Ports supporting 2x100 Gbps.** 7.7.2.2 Performance Specifications: 1) Backplane Bandwidth: minimum **200 Gbps non-blocking full duplex** 2) Layer 2/3 Forwarding Performance: minimum **300 Mpps**	Please follow Bid Conditions
1348	2			271	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.5.3.8 The perimeter area, for both the depots, shall be sub-divided into zones, with each zone equipped with its own CCTV cameras and associated Intruder Detection Facilities.	Specification of CCTV cameras will be similar as mentioned in CCTV system for Box and PTZ camera	Please follow Bid Conditions
1349	2			272	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.5.3.14 On initiation of an alarm, CCTV cameras within the affected zone shall employ automatic positioning and shall continuously adjust pan, tilt and zoom to keep the intruder within the cameras field of view.	It is assumed that intruder alarm will be displayed in Access control MMI and CCTV cameras shows the position of the intruder in CCTV MMI	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1350	2			273	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.5.4.1 - 6-ii) The MMI at the OCC & BCC and the other sites shall, as a minimum, support the following functions, as appropriate to each specific site: GUI Functions ii) Select and view CCTV image at each access point location, individually or in combination;	It is assumed that Selection and view of CCTV image at each access point location, individually or in combination will be from CCTV MMI and GUI.	Please follow Bid Conditions
1351	2			284	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-9, Clause: 9.5.1 (12) OCC theatre voice conversations to provide record of staff performance during emergency incident	Please specify the interface for Emergency Incident.	Please follow Bid Conditions
1352	2			287	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-9, Clause: 9.6.7 The Contractor shall design the CVRS to playback the recorded voice messages with 1) More than 45dB signal-to-noise ratio 2) Frequency response within 3dB of 300Hz to 3500Hz 3) Less than 3% distortion 4) Less than 1.0% added wow and flutter 5) Better than 60dB crosstalk	This specification is applicable for Analoge Type Voice Recording System. Digital VRS this is not required. Please confirm	Please follow Bid Conditions
1353	2			194 & 195	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.2.5.2 IP PBX, Direct Line Telephone System, Voice over IP Phone (IP PBX) system and IP Network shall be monitored, supervised and controlled by Network Management Systems. The Contractor can propose a common NMS for IP PBX, Direct Line Telephone System, Voice over IP Phone (IP PBX), IP Network. The number of NMS MMI should be minimum keeping the availability of space in mind. Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6, Clause: 6.3.2.5.2 IP PBX, Direct Line Telephone System, IP PBX system and IP Network shall be monitored, supervised and controlled by Network Management Systems. The Contractor can propose a common NMS for IP PBX, Direct Line Telephone System, IP PBX, IP Network. The number of NMS MMI should be minimum keeping the availability of space in mind.	Our understanding is IP PBX, Direct Line Telephone System, IP PBX system will be monitored by Telephone system NMS and IP Network will be Monitored by Data Transmission System (DTS). Please clarify.	Please follow Bid Conditions
1354	2			238, 241 & 243 & 92,93	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.2.4 The DTS backbone infrastructure shall provide dedicated dark fibres as required for telecom subsystems and non-telecom subsystems of the Delhi- Ghaziabad-Meerut RRTS project. Clause 7.2.5 The DTS backbone infrastructure shall provide dedicated dark fibres as required for lease-out facilities to others. Clause 7.3.3.3 Branching outdoor optical fibre cables shall be provided for equipment in all RSSs, and other locations, requiring optical access from the nearest station Telecommunication Equipment Room (TER). The core count of the branching optical fibre cables to RSSs shall be of min 24 Fibres, determined from the design of the related Subsystems or interfacing requirements with relevant Designated Contractors. Clause 7.5.1.1 The DTS shall provide the communication support for carrying voice, data, and video signals and guarantee the associated quality of service requested by each subsystem. In order to cover this broad range of services and interfaces, the DTS shall offer the most technically appropriate solution, based on the respective standards and fully conforming to the ITU-T Recommendations: 1) Fibre-Optic Communication Network (Minimum 144 Fibres) for Telecom backbone. 2) Minimum 24 Fibres for the spur routes 3) Giga Ethernet (10 GE) backbone (Wide Area Network) Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 5.42.3: Three separate OFC cables shall be laid by S&T contractor on both sides of track (UP and DN track) as mentioned below: (a) Separate OFC cable for Signalling- Min 24 Fibres, to be used for but not limited to: - 1) TMS backbone, 2) IXL-IXL connectivity, 3) IXL-Object Controller connectivity 4) IXL-RBC Connectivity, 5) AXL Counter to Axle Counter connectivity etc. (b) Separate OFC cable for LTE- Min 96 Fibres, to be used for but not limited to:- 1) BBU-RRU Connectivity, 2) BBU-EPC Connectivity, 3) LTE Backbone etc. (c) Separate OFC cable for Telecom- Min 144 Fibres (Refer Telecom PS)	It is assumed that total fibers to be supplied in the RRTS project are as follows: 1. Signalling- Min 24 Fibres 2. LTE- Min 96 Fibres 3. Telecom- Min 144 Fibres. 4. 24 Fibers for Spur Routes or branching OFC to RSS. please specify if there is any other requirement of additional fiber other than mentioned above	Please follow Bid Conditions
1355	2			239 & 263	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.2.17 The DTS shall also serve as the backbone connectivity for Wi-Fi system. Clause 7.9.1 (9) Wifi System - Dark Fibre	Wi-Fi system will be working on Dark Fibers as mentioned in Clause 7.9. It is assumed that Wi-Fi system will not be the scope of this tender as there are no specification provided	Please follow Bid Conditions & Refer Addendum and Corrigendum -01B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1356	2			258 & 269	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS)/Core 7.7.1.4 and Distribution Switch / 7.7.2.4	We would recommend to have futuristic L3 Routing features and SDN related features for Core and Distribution Router/Switches 7.7.2.4 and 7.7.1.4 Layer 3 Features Support: **Router shall have unicast IPv4/IPv6 routing protocols (BGP, OSPF, IS-IS, RIP etc).** **Router should support TI-LFA, R-LFA,** **Router shall support Segment Routing and Segment Routing Traffic Engineering (SR-TE), EVPN, Segment Routing for IPv6,On demand next hop ,Any cast SID, support of minimum 5 label depth** **The router should support Black hole filtering, RTBH and BGP Flow Spec: dropping of traffic destined for a specific prefix at wire speed.**	Please follow Bid Conditions
1357	2			275 & 276	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.6.1 The Access Control and Intrusion Detection System shall be a fully IP based solution including as a minimum, following elements as shown in the typical schematic diagram	Please provide the specification of Special Cameras as shown in figure System Architecture and Functional Requirement of Acess Control System.	Please follow Bid Conditions
1358	2			New (175) in POE Switch	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: **"The switch should support Swapping of drive which has all config from the faulty switch to New switch to ensure faster restoration without sending skilled person on field"**	Please follow Bid Conditions
1359	2			New (175) in POE Switch	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV)/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The switch should support features like dying gasp/core dump to ensure logs are captured before switch goes down in case of any outage".	Please follow Bid Conditions
1360	2			New (175) in POE Switch	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV)/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
1361	2			New (175) in POE Switch	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The Switch must support features like RSPAN"	Please follow Bid Conditions
1362	2			New (175) in POE Switch	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-5: Closed Circuit Television System (CCTV/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The POE Switch must support EN-50121 compliant, as per Railway standard".	Please follow Bid Conditions
1363	2			Page 3R1 of 7	PS – Telecommunication – Employer's Requirements: Part 2 :Chapter – 11 Appendices (R1) 3. SCHEDULE OF KEY DATES Liquidated Damages (LD) for delays in achievement of Key Dates- 0.001% of total contract amount per day of delay for the key date	Request you to amendemend this caluse as:- 0.001% of total undeliverd portion of the milestone amount per week of delay for the key date	Please Refer Addendum and Corrigendum-02B
1364	2			85	Section – 6C: Particular Specifications – Telecommunications 2.5.1.4 PAS announcement shall be capable of being originated from designated radio sets also to a set of pre-defined PAS zones at each station. It should be possible to make simultaneously Radio to PAS announcement at minimum 5 different stations. This needs to be coordinated, planned, executed and demonstrated by the contractor along with the Radio and Telephone contractor.	Radio set is not part of this RFP.So assuming that this integration is required for future requirements.Please clarify	Please follow Bid Conditions
1365	2			257	Section – 6C: Particular Specifications – Telecommunications 7.7.1.1 Core Switch Architecture 1) Core data switch (Redundant Switches installed at OCC/BCC) consisting of Primary Management module and Redundant Management module functioning in Active Passive mode.	The active-passive mode is leagcy and not in use any more due to high convergence time. We recommend to consider active-active redudnancy for high avaliability. Request you to change clause as 1) Core data switch (Redundant Switches installed at OCC/BCC) consisting of Primary Management module and Redundant Management module functioning in Active active mode.	Please Refer Addendum and Corrigendum-02B
1366	2			257	Section – 6C: Particular Specifications – Telecommunications 7.7.1.1 Core Switch Architecture 5) The Core Data Switch shall have (ii) Number of Slots - Minimum of 6 slots	Considering the future expansion of 30% and upcoming corridors, we recommend to cosndier min chassis of 12 slots. With 30% expansion, only 3-4 slots will be avaliable for usage, which are insufficient to cater the DTS requirements. Please change clause as (ii) Number of Slots - Minimum of 12 slots	Please follow Bid Conditions
1367	2			147	Section – 6C: Particular Specifications – Telecommunications 4.6.2.1 The Master Clock components shall be fully duplicated in hardware, cabling and software so that Master Clock service survives during any one failure of hardware, cabling and software.	To meet this requirement ,Our understanding is that two master clock hardware interlinked in both OCC and BCC to achieve full redundancy.Furthermore in case of failure of GPS of one masterclock, the other masterclock shall provide the time information received from its GPS to this masterclock through the redundant link.Please confirm	Please follow Bid Conditions
1368	2			156	Section – 6C: Particular Specifications – Telecommunications 5.3.2.1 Video wall of size 5x2x70" in Security controller Room	As per Financial Bid- Annexure -2 schedule 5 only one such video wall is required at OCC and not all station SCR .Please confirm	Please follow Bid Conditions
1369	2			239	Section – 6C: Particular Specifications – Telecommunications 7.2 The DTS shall provide transport for the OA/IT network but the OA/IT network shall be totally isolated from the DTS services serving the rail subsystems.	As per this clause, bidder needs to provide a separate set of core switch to establish OA &IT network. But the qty of such switch is not mentioned in the Financial bid. Please clarify	Please follow Bid Conditions
1370	2			Page 192 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.2 Overview of Telephone System	Kindly confirm, as our understanding is the requirements of 3 types of system as IP PBX system, Direct line telephone system and Voice over IP phone system (UMA clause ref. 6.5.3.1, 6.5.3.1.6)	Please follow Bid Conditions
1371	2			Page 192 of 359	Section – 6C: Particular Specifications – Telecommunications Chapter 6 – Telephone System, Clause 6.2.1 IP PBX Network	Kindly confirm, as we understand Independent hotstandby IP pbx required at each station, HQ and Depot/OCC.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1372	2			Page 195 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.3.2.4 IP PBX Phones - 1) Automatic exchange/processor unit with line and trunk interfaces.	For High Availability and Reliability, we recommend that the all CPU, call server, call controller have dual redundant Ethernet port. Works in hotstandby mode with Ethernet interface 10/100/1000BT.	Please follow Bid Conditions
1373	2			Page 195 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.3.2.4 IP PBX Phones - 2) Gateways for interface between the LAN and switched circuit network	For High Availability and Reliability, we recommend that the all gateway, media gateway, gateway controller have dual redundant Ethernet port. Works in hotstandby mode with Ethernet interface 10/100/1000BT.	Please follow Bid Conditions
1374	2			Page 196 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.4.2.3 The Telephone System equipment supplied under the contract shall comply with the reliability figures given below:	For High Availability and Reliability, we recommend the MTBF to be added for IP phone , Digital Phone & DLT phone should be minimum >600000 Hrs. for for help point and emergency phone should be >100000 Hrs.	Please follow Bid Conditions
1375	2			Page 196 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.4.2.3 The Telephone System equipment supplied under the contract shall comply with the reliability figures given below:	For High Availability and Reliability, we recommend the MTBF to be modify because of the latest technology as below:- Switching module >300,000 Processor module >400,000 Memory module >400,000 Line Module >200,000 Trunk Module >125000 Multifunction direct line console >50,000 Gateway >250,000	Please follow Bid Conditions
1376	2			Page 198 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System , Clause 6.5.1.1.2 Requirements of IP PBX Telephone System are given in Table 5-1 below. Table 6.2: IP PBX Telephone System Requirements	Please confirm, The quantity asked in s. no. 3 for each stations is 20 as basic analog phone, and for OCC/BCC/Depot/HQ is 1570 total quantity all together.	Please Refer Addendum and Corrigendum-02B
1377	2			Page 198 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.1.1.2 Requirements of IP PBX Telephone System are given in Table 5-1 below. Table 6.2: IP PBX Telephone System Requirements	Please confirm, The quantity asked in s. no. 4 for each stations is 5 as Digital phone, and for OCC/BCC/Depot/HQ is 70 total quantity all together.	Please Refer Addendum and Corrigendum-02B
1378	2			Page 204 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.1.6.1 Telephone instruments shall be provided and equipped with minimum components as follows: 2) IP Telephones (HQ)	we request to kindly add the feature as, Last 100 nos. call details on phone (Dialed, received & Missed)	Please follow Bid Conditions
1379	2			Page 204 of 359	Section – 6C: Particular Specifications –Telecommunications Chapter 6 – Telephone System Clause 6.5.1.6.1 Telephone instruments shall be provided and equipped with minimum components as follows: 2) IP Telephones (HQ),	For High Availability and Reliability, we recommend, The IP, Digital & DLT phone should be from the same make of OEM IP- PBX system.	Please follow Bid Conditions
1380	2			Page 205 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.1.6.1 Telephone instruments shall be provided and equipped with minimum components as follows: 3) Digital Telephones.	For High Availability and Reliability, we recommend, The IP, Digital & DLT phone should be from the same make of OEM IP- PBX system.	Please follow Bid Conditions
1381	2			Page 205 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.1.6.1 Telephone instruments shall be provided and equipped with minimum components as follows: 3) Digital Telephones.	we request to kindly add the feature as, Last 100 nos. call details on phone (Dialed, received & Missed)	Please follow Bid Conditions
1382	2			Page 207 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.2.2 Direct Line console	For High Availability and Reliability, we recommend, DLC should be from the same make of OEM IP-PBX system.	Please follow Bid Conditions
1383	2			Page 207, 208 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.2.3 & 6.5.2.1.7 Direct Line Telephone	For High Availability and Reliability, we recommend, DLT should be from the same make of OEM IP-PBX system.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1384	2			Page 207 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.2.1.7 For provision of Direct Line Console in the OCC, BCC and the Depot refer to MMI Provision Schedule Appendix F of chapter 11 under Part -2 (PS- Telecom). System capacity for OCC shall be same for BCC. The Stations/Depot/OCC/BCC shall have 9 numbers each of Direct Line Telephones and 01 number at each RSS, which shall be programmed for the required Direct Lines, to be reviewed by Employers representative.	Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM (INCL. DC SUPPLY SYSTEM) FOR EVERY LOCATION, s. no. 6, the quatity is 175, as per calculation Tender clause the quantity comes is 270 no. kindly confirm	Please Refer Addendum and Corrigendum-02B
1385	2			Page 209 of 359	Section – 6C: Particular Specifications – Telecommunications Chapter 6 – Telephone System Clause 6.5.2.4. Emergency Telephones at cross passages in Tunnels.	Kindly confirm the type of interface from PBX, as we recommend it should be Analog. Also confirm these phone category minimum IP65/66.	Please follow Bid Conditions. Refer Addendum and Corrigendum -02 B
1386	2			Page 209 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.2.5 Help Points (5 at Each Station)	Kindly confirm the type of interface from PBX, as we recommend it should be Analog. Also confirm these phone category minimum IP65/66.	Please follow Bid Conditions. Refer Addendum and Corrigendum -02 B
1387	2			Page 211 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.3.1.4 Requirements of IP PBX System are given in Table 6.4 below as a minimum. S. no. 8	for s. no. 8 , phone quantity is not asked in Boq of Financial BID, Annexure 2, Schedule 6: Supply and Delivery of TELEPHONE SYSTEM, kindly confirm the quantity.	Please Refer Addendum and Corrigendum-02B
1388	2			Page 211 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.3.1.4 Requirements of IP PBX System are given in Table 6.4 below as a minimum. S. no. 12	for s. no. 12 , phone user licences quantity is not matching, it should be 300 as per clause ref. 6.5.3.1.6. pls. confirm the quantity.	Please follow Bid Conditions
1389	2			Page 217 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.3.1.25 s. no. 2, L3 Stackable Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2 10G SFP+ for Uplink, 4 combo 10GBase-T CX-4 ports, Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto 100 kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	As these switch going to connect behind the DTS, so we request you to the SFP module for this may not required for 100 kms. It is only a 300m is sufficient. Kindly confirm.	Please follow Bid Conditions
1390	2			Page 222 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.4.5 Voice mail system (VMS)	Kindly confirm., the voice mail system shall be centralized & hardware only at OCC and have voice mail facility at all stations/ depot/ HQ/BCC.	Please follow Bid Conditions
1391	2			Page 222 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.4.5 Voice mail system (VMS)	we recommend, for high Reliability and Avalability the The VMS should be from the same make of OEM IP-PBX system.	Please follow Bid Conditions
1392	2			Page 227 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.4.6.11.1 IP PBX Telephones - 1) Desktop Voice Phone (from OEM of IP PBX)*	This perticular phone has not been asked in the price sheet annexure -2 and this phone a part of UMA solution clause ref. 6.5.3.1.4 & 6.5.3.1.6, we request you to provide the details for the same.	Please Refer Addendum and Corrigendum-02B
1393	2			Page 227 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.4.6.11.1 IP PBX Telephones - 1) Desktop Voice Phone (from OEM of IP PBX)* point no. xii. Two 10/100 BT PC port, POE Type Class ½	The IP phone port 10/100 BT is obslete and currently it is 10/100/1000BT, we request you to modify with latest one.	Please follow Bid Conditions
1394	2			Page 227 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.5.4.6.11.1 IP PBX Telephones - 1) Desktop Voice Phone (from OEM of IP PBX)*	we request to kindly add the feature as, Last 100 nos. call details on phone (Dialed, received & Missed)	Please follow Bid Conditions
1395	2			Page 228 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.6.2.4 Emergency Telephones at cross passages in Tunnels.	Kindly confirm the emergency phone required in tunnel should be minimum IP65/66 category	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1396	2			Page 231 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.6.4.1.7 The Telephone Network Management System shall provide the following management and administrative functions through the management Workstation:	The NMS should be as ITU-T guideline as FCAPS based. We request you to modify the same.	Please follow Bid Conditions
1397	2			Page 231 of 359	Section – 6C: Particular Specifications – Telecommunications, Chapter 6 – Telephone System, Clause 6.6.4.1.7 The Telephone Network Management System shall provide the following management and administrative functions through the management Workstation:	Kindly add below **Data** **Base Back up:-** The NMS system must have to take All Epabx system (Stations/OCC/BCC/Depot/HQ) data backup automatically without human intervention and keep maintain data base back up of system for at least one year, as and when required to restore the same in the IPPBX through NMS system.	Please follow Bid Conditions
1398	2			239 of PS	7.2.10 / The DTS shall consist of a duplicated multi-channel transmission system employing carrier grade GE IP switches / routers utilizing optical fibres as the interconnecting media. The DTS shall be configured with duplicated fibre optic rings with diverse transmission path to ensure that in the event of equipment or transmission media failure, no circuit carried by the DTS are affected except those connected to the failed node.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. please change the clause as **"The DTS shall consist of a duplicated multi-channel transmission system employing carrier grade GE IP switches/routers utilizing optical fibers as the interconnecting media. The FOTS shall be configured with single fiber optic ring connected to each devices with dual transmission path to ensure that in the event of equipment or transmission media f ailure, no circuits carried by the FOTS are affected except those connected to the failed node. "**	Please follow Bid Conditions
1399	2			244 of PS	7.5.1.4 / The transmission system used as the backbone for operational communications will be a GE based IP network consisting of carrier grade IP elements. The system shall be based on duplicated fibre optic ring structure with necessary IP protocols and suitable protection switching (< 50 ms) to provide tolerance in the network to multiple faults in the OFC back bone.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. please change the clause as **"The DTS shall consist of a duplicated multi-channel transmission system employing carrier grade GE IP switches/routers utilizing optical fibers as the interconnecting media. The FOTS shall be configured with single fiber optic ring connected to each devices with dual transmission path to ensure that in the event of equipment or transmission media f ailure, no circuits carried by the FOTS are affected except those connected to the failed node. "**	Please follow Bid Conditions
1400	2			245 of PS	7.5.2.2 / The DTS network shall be SDN ready and incorporate a central monitoring system to gather operational data for performance checking, historical trend analysis, and maintenance. This monitoring system shall provide facilities to handle filing, storage, display, and printing of historical records.	For entire network infrastructure (Core, distribution and also includes access layer carrier grade and industrial grades switches for open environment that will be managed, monitored and configured by centralized NMS. Since SDN feature is not required for Access layer industrial grade/non-industrial grade . Hence, Request you to kindly remove SDN word from this clause.	Please Refer Addendum and Corrigendum-02B
1401	2			247 of PS	7.5.5.1.1 / The Giga Ethernet backbone shall be based on suitable protection to achieve convergence time of <50 msec in event of any link failure and or any network disruptions along with conditions defined in above paras.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. The convergence time for less then 50ms on dual fibre ring is impossible to achieve. Because ERPv2 open standard Ring protection protocol with dual fibre ring with single point of failure will give max 250 ms. if we want to achive 50ms converge time the fibre must have single ring with dual connection at Core/distribution (up/down) to connected devices at WAN level which will give 100% redundancy . If the dual ring clause remains unchanged then please change the 50ms to less then 250ms.	Please follow Bid Conditions
1402	2			247 of PS	7.5.5.2.1 / 3) WAN Nodes shall interface to the optical fibre cable network which shall be configured in a highly resilient ring topology. Switching time and latency performance parameters for the WAN shall be equivalent or better than < 50 m secs so that there is no disruption in any data / voice service at time of a network (fibre / node) failure.	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. The convergence time for less then 50ms on dual fibre ring is impossible to achieve. Because ERPv2 open standard Ring protection protocol with dual fibre ring with single point of failure will give max 250 ms. if we want to achive 50ms converge time the fibre must have single ring with dual connection at Core/distribution (up/down) to connected devices at WAN level which will give 100% redundancy . If the dual ring clause remains unchanged then please change the 50ms to less then 250ms.	Please follow Bid Conditions
1403	2			248 of PS	7.5.5.2.4 / 1) An SDN ready Management workstation with GUI features shall be installed in OCC and BCC to provide the necessary control, supervision, maintenance, configuration and performance management. The design shall cater for standard NMS functions.	For entire network infrastructure (Core, distribution and also includes access layer carrier grade and industrial grades switches for open environment that will be managed, monitored and configured by centralized NMS. Since SDN feature is not required for Access layer industrial grade/non-industrial grade . Hence, kindly remove SDN word from this clause.	Please Refer Addendum and Corrigendum-02B
1404	2			248 of PS	7.5.5.3.1 / 3) The equipment shall be Commercial off the Shelf (COTS) products and shall be for industrial purposes and harsh environment like MRTS/Railway, widely deployed across a wide range of commercial networks.	As per our understanding the Core switches,Distribution switches and Access switches will be installed in temperature controlled areas hence all switches will not be rugged(Industrail grade with high temperature 75 degree for outdoor/closed high temperature areas like tunnel,open area) switches. For open area, industrial grade switches can be proposed. Please clarify.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1405	2			252 of PS	7.6.2.4 / (iii) The 10GE DTS backbone shall have dual fibre rings will dual homed on OCC on BCC Core Switches .	The ring will have two fibre optic with diversed path from distribution switches at station/depot/OCC/BCC hence duplicate fibre optic rings is not recommended. Hence, please replace dual ring with single ring.	Please follow Bid Conditions
1406	2			252 of PS	7.6.2.4 / (viii) The Junction signal boost switches (to be provided only if required) in active-active redundancy shall be used on 10G fibre links of DTS backbone ring which are more than 35Kms.	Please clarify whether these switches will be manageable or not since this is increasing hop count in network / ring which in corresponding impact covergence time.	Please follow Bid Conditions
1407	2			253 of PS	7.6.3.8 / The Layer 3 switch in OCC/BCC should be modular chassis- based switch. Bidders should provide FCAPS certified NMS Solution which can support & manage multiple vendor devices.	Request you to kindly amend the clause as "The Layer 3 switch in OCC & BCC should be modular chassis based switch and stations,depots and head quarter switches should be modular based. Bidders should provide FCAPS MODEL based NMS Solution which can support & manage multiple vendor devices. "	Please follow Bid Conditions
1408	2			253 of PS	7.6.3.17 / Shall provide flexible reporting capabilities including pre- defined and custom reports with scheduled and flexible delivery options. NMS should support Software Defined Network Management including Open Flow devices.	NMS will be used for managing, monitoring and configuring switches (Core, destribution and access) and to acomplish this SDN feature is not required. Hence request you to kindly remove this clause.	Please Refer Addendum and Corrigendum-02B
1409	2			Page 90 of PS	Clause No.: 2.5.9.5 - Live audio broadcast relating to emergency, fire and evacuation messages from OCC/ BCC shall be recorded in the Centralized Voice Recording system at OCC/ BCC. Similar broadcasts made from SCR / PCBs shall be recorded at the SCR / TER in the PAS station server or the MMI itself. It shall however be possible to retrieve any message so recorded and save the same on an external storage device like a memory stick for future reference.	Is it required to record or access the broadcasts made from SCR/PCBs?	Please follow Bid Conditions
1410	2			Page 286 of PS	Clause No.: 9.5.11 - The Contractor shall design the CVRS to provide a real- time back-up facility so that no real- time recording of conversations or announcements are lost in the event of failure of the primary CVRS.	Does this backup imply the backup of primary OCC recordings at BCC or a secondary backup which will backup all OCC data as BCC will only start recording when OCC is down?	Please follow Bid Conditions
1411	2			Page 286 of PS	Clause No.: 9.5.12 - The Contractor shall design the CVRS to support simultaneous access by multiple subsystems for recording.	Please elaborate on this point	Please follow Bid Conditions
1412	2			Page 286 of PS	Clause No.: 9.5.13 - The Contractor shall design the CVRS to export selected retrieved voice files to a non- proprietary PC format.	It is advisable to share the files in an encrypted file format which can then be played using a specific media player. This reduces the chances of any mishandling of the recorded data.	Please follow Bid Conditions
1413	2			61	1.12.5.1.1 Supervision and planning The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Employer's Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer.	Contractor/LTE OEM assumes this scope is applicable post DLP of 3 years and tenure can go upto 6 months post expiry of DLP. Pls confirm.	Please follow Bid Conditions
1414	2			62	1.12.5.3.2 Supervisory Staff - The total of 30 man-months SOM shall be provided by contractor. Distribution of man-months for each telecom sub-system shall be done as per employer's discretion.	Pls clarify if this scope is also applicable post the DLP.	Please follow Bid Conditions
1415	2			62	1.12.6.1.2- Support during DLP Staff of employer/O&M agency shall be deputed at suitable locations for first line of maintenance. Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses.	Pls clarify the scope distribution - is Contratcor/LTE OEM expected to perform only L2 Operations support during DLP or complete L1 & L2 operations from Field and NOC (FCAPS)? LTE OEM's resources required in shift are applicable in NOC or Field? - Pls clarify as it is mentioned location shall be decided by NCRTC.	Please follow Bid Conditions
1416	2			63	1.12.6.1.9 The Contractor shall provide comprehensive DLP support for items supplied by him and provide call-out services to the Employer as required restoring the System to normal operation in case of faults and defects are found.	Does NCRTC mean NOC activities e.g. Alarm surveillance & L1 fault management is to be performed by Contratcor/LTE OEM? Since it is mentioned that normal day to day maintenance shall be done by NCRTC, will NCRTC share the SOW to be performed by them and the manpower that will be performing those tasks so that contractor/LTE OEM's solution doesn't duplicate responsibilities?	Please follow Bid Conditions
1417	2			64	1.12.6.5 Support and Call-out Services 1.12.6.5.1 The support and call-out services shall be available 24 hours per day and 7 days per week. 1.12.6.5.3 The Contractor shall provide a list of maintenance staff together with the contact mobile telephone numbers who can be contacted for support and call-out services. List of all the Contractor's staff responsible for attending the failure during DLP shall be displayed at all the stations with their address and contact numbers.	"support and call-out services" is only applicable for DLP period or shall be extended after expiry of DLP? If yes, Kindly specify the support period after DLP.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1418	2			Page 145 of 359	Section 6B: PS-Telecommunication, Chapter 4 MCS 4.5.1.5 The Master Clock System shall include, but not be limited to, the following: 3) Sub-Master Clocks shall further distribute the synchronized signal to all slave clocks. In the absence of valid Sub-Master Clock signal, the Slave clocks shall operate in free running mode with an internal clock supplying the time signals. On restoration of the Sub-Master clock signal the Slave clocks shall validate the signal. After the successful validation, the Slave clocks shall self-correct, if necessary. The Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours.	**Point 1:** Referring to clause 4.5.1.5 8) "Slave clocks shall preferably have provision of configuration of at least three NTP server IP as source for Redundancy", We understand that during the absence of valid Sub-Master clock synchronized signal, the slave clocks shall take the timing reference from Master clock (installed at OCC & BCC) over the LAN/WAN to achieve the redundancy in terms of synchronize. The slave clocks shall operate in free run mode only when it is not getting valid synchronization signal from Sub- Masterclock & Masterclocks. Point 2: Further, we understand that to retain internal time during power failure, the Sub-master and Slave clocks (digital) shall have internal battery backup of at least 4 hours to its RTC (Real Time clock / Quartz). Please confirm our understanding.	Please follow Bid Conditions
1419	2			Page 147 of 359	Section 6B: PS-Telecommunication, Chapter 4 MCS 4.6.2.1 (1) Master Clock (vi) A Master Clock Server to deliver Network Time Protocol (NTP) or Precision Time Protocol (PTP) as required by other subsystems. Subsystems that are not compliant to IEEE-1588 shall receive NTP. Subsystems compliant to IEEE-1588 shall receive PTP.	We understand that a compatible Master clock system to deliver both Network Time Protocol (NTP) as well as Precision Time Protocol (PTP) shall be proposed. Subsystems that are not compliant to IEEE-1588 shall receive NTP whereas Subsystems compliant to IEEE- 1588 shall receive PTP at the same time. Please confirm our understanding.	Please follow Bid Conditions
1420	2			Page 149 of 359	Section 6B: PS-Telecommunication, Chapter 4 MCS 4.6.2.1 (3) Display Clocks Outdoor Double-Sided Analog Clocks 1. 60 cm diameter double faced suspended,	We understand that 60 centimeter diameter refers to dial and display diameter of 60 centimeter excluding length / size of analogue clock housing. Please confirm our understanding. Moreover please specify, if the clock dial should consist of numerals or line marks with suitable hands for a clear visibility and even distribution of LED illumination throughout the dial.	Please follow Bid Conditions
1421	2			Page 146 of 359	Section 6B: PS-Telecommunication, Chapter 4 MCS 4.5.1.5 The Master Clock System shall include, but not be limited to, the following:6) The Sub-Master Clock system shall provide appropriate clock output interfaces for master clock and timing and reference distribution. The type and quantities of the clock output interfaces shall be determined by the interfaces requirements of the subsystems (PAS, PIDS, Radio, CCTV, CDRS, Telephone System etc) and relevant interfacing project contractors (Traction, Fare Collection, Train Control and Signalling etc.). Suitable interfaces (such as RS 422 or RS232 or LAN connections) for clock output interfaces shall be supported.	We understand that the Master Clock System (and not Sub- master clock) shall provide appropriate clock output interfaces for sub-master clock (and not master clock) and timing and reference distribution. Please confirm our understanding.	Please Refer Addendum and Corrigendum-02B
1422	2				9.55 Two-way Radio Conversations- Radio Channels		No query
1423	2				General OFC cabling on Trackside w/o Joints	Provisioning of optical fibre cables as inter stations distance between RRTS stations varies from 5km to 8 km and no cable joints are permitted on the trackside. For the 144 F OFC it is not feasible. Kindly amend the clause.	Please follow Bid Conditions
1424	2			Page no. 176 of 359	**Section 6C/5.6.2.11.3 (CCTV - POE Switch)** 3) 4/8- port Layer- 2 Industrial grade switches may be used for connecting the CCTV cameras outside the stations to the nearest station.	We under stand that the specification for same is similar to the 28 port switch. Please clarify also clarify whether 4 port port or 8 port POE switch would be required?	Please follow Bid Conditions
1425	2			Page no. 192 of 359	**Section6C/ Telephone System 6.2.1.1** It shall be a highly reliable State of the art, non-blocking, ISDN compatible IP PBX Telephone network for voice, facsimile and data communication services throughout the RRTS Corridor. Telephone sets (where applicable) shall be provided in the control rooms, , administration offices, HQ, rooms for operation, maintenance, security and equipment rooms, mid tunnel shaft, emergency evacuation routes at stations, staff rooms in the OCC/BCC, depot, RSS and all stations. Each OCC/BCC controller position shall also be provided with IP PBX telephones.	Sicne technology is shifting towards IP based voice communication. We request the IP PBX to be 100% IP Compatible	Please follow Bid Conditions
1426	2			Page no. 205 of 359	**Section6C/ Telephone System 6.2.1.1** RFP Requirement: Digital Feature Telephone	As IP phones are better than Digital Phones. We request you give flexibility to the bidder to quote IP Phones with same features and functionality instead of digital phones	Please follow Bid Conditions
1427	2			Page no. 243 of 359	**Section6C/Data Transmission systems/7.4.4.3**	General Carrier Grade Data Transmission systems life is not beyond Seven years. So, kindly change long term support till 10 years, instead of 25 years. Similarly for Servers, it should be Seven Years	Please follow Bid Conditions
1428	2			Page no. 248 of 359	**Section6C/Data Transmission systems/7.5.5.2.4** The equipment shall be Commercial off the Shelf (COTS) products and shall be for industrial purposes and harsh environment like MRTS/Railway, widely deployed across a wide range of commercial networks.	Kindly confirm if the device should be as per EN50121 compliant.	Please follow Bid Conditions
1429	2			Page no. 252 of 359	**Section6C/Data Transmission systems/7.6.2.4 / 2)** **Distribution & Access Layer** (vii) At the outdoor locations/platform level, the switches shall be of industrial grade with a minimum of 16 ports, and all the edge devices shall terminate on outdoor switches. (viii) The industrial grade switches shall be connected in 1G fibre ring with sub 50ms ring protection and shall be dual homed on cluster of distribution switches.	We would request clarity on the Industrial grade in Data Transmission Systems is in terms of **Industial Temperature till 65 DegreC**	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1430	2			Page no. 252 of 359	**Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer**	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
1431	2			Page no. 252 of 359	**Section6C/Data Transmission systems/7.6.2.4 / Core Layer (ii)**	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
1432	2			Page no. 259 of 359	**Section6C/Data Transmission systems/ Core Layer / 7.7.1.6 Security Features** 17) 802.1x Network Security and Authentication. Support for the 802.1x standard allows users to be authenticated regardless of which LAN port they are accessing and provides unique benefits to customers who have a large base of mobile (wireless) users accessing the network. 18) 802.1x with VLAN assignment allows a dynamic VLAN assignment for a specific user regardless of where the user is connected. 19) 802.1 x and assigning VLAN and priority for IP phones automatically, simplifying network configuration and maintenance. 20) 802.1x with port security for authenticating the port and managing network access for all MAC addresses, including that of the client.	802.1X is a security feature is a security feature of POE End Switches, not for Core or Distribution switches. Kindly delete this clauses	Please follow Bid Conditions
1433	2				15- NOKIA- 4		No query
1434	2			62	1.12.5.3.2 Supervisory Staff - The total of 30 man-months SOM shall be provided by contractor. Distribution of man-months for each telecom sub-system shall be done as per employer's discretion.	Pls clarify if this scope is also applicable post the DLP.	Please follow Bid Conditions
1435	2			62	1.12.6.1.2- Support during DLP Staff of employer/O&M agency shall be deputed at suitable locations for first line of maintenance. Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses.	Pls clarify the scope distribution - is Contratcor/LTE OEM expected to perform only L2 Operations support during DLP or complete L1 & L2 operations from Field and NOC (FCAPS)? LTE OEM's resources required in shift are applicable in NOC or Field? - Pls clarify as it is mentioned location shall be decided by NCRTC.	Please follow Bid Conditions
1436	2			63	1.12.6.1.9 The Contractor shall provide comprehensive DLP support for items supplied by him and provide call-out services to the Employer as required restoring the System to normal operation in case of faults and defects are found.	Does NCRTC mean NOC activities e.g. Alarm surveillance & L1 fault management is to be performed by Contratcor/LTE OEM? Since it is mentioned that normal day to day maintenance shall be done by NCRTC, will NCRTC share the SOW to be performed by them and the manpower that will be performing those tasks so that contractor/LTE OEM's solution doesn't duplicate responsibilities?	Please follow Bid Conditions
1437	2			64	1.12.6.5 Support and Call-out Services 1.12.6.5.1 The support and call-out services shall be available 24 hours per day and 7 days per week. 1.12.6.5.3 The Contractor shall provide a list of maintenance staff together with the contact mobile telephone numbers who can be contacted for support and call-out services. List of all the Contractor's staff responsible for attending the failure during DLP shall be displayed at all the stations with their address and contact numbers.	"support and call-out services" is only applicable for DLP period or shall be extended after expiry of DLP? If yes, Kindly specify the support period after DLP.	Please follow Bid Conditions
1438	2				GENERAL	We request the Employer provides the Contractor and its Specialist Subcontractors with VPN Connectivity for remote access from project commencement onwards. Please confirm.	Please follow Bid Conditions
1439	2			175	Section 6C/5.6.2.11(1) (CCTV - POE Switch)	Please consider *Gigabit access port (10/100/1000 Mpbs)* for Layer 2 field switches.Currently it has been asked to support 10/100 Mbps only.The switch is of 28 port including 2 Gig uplink.All the hardware is asked for longer support .We request to change the speed to 10/100/1000 considering the traffic growth of next 10-15 years. All leading OEM new product supports 10/100/1000 speed at client side also. Mjority Cameras, Access Points, sensors, Relays are comming with 1/100/1000 Mbps support. It will be imperative to position New switches considering long term support requirement of Gigabit access port (10/100/1000 Mpbs)	Please follow Bid Conditions
1440	2			175	Section 6C/5.6.2.11.2(8) (CCTV - POE Switch)	Current Specification only ask for Port Security (IP/MAC). With increase in threat and criticality of network we suggest to include the following protocols also as part of secuirty. Shall have Port security (IP/MAC), Secure boot, 802.1x, Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, BPDU guard, IPv6 RA gurad and IPv6 DHCP guard.	Please follow Bid Conditions
1441	2			175	Section 6C/5.6.2.11.2(5) (CCTV - POE Switch)	Current specification asks for Operating temperature 0°C to + 60°C, Humidity up to 90% (non-condensing). Switch shall be without any moving parts (no fans). We would request to. Change the operating temperature to 0 to 70C. This will help in reducing the hardware failure of switch.	Please follow Bid Conditions
1442	2			175	Section 6C/5.6.2.11.2(3) (CCTV - POE Switch)	The curret clause is asking for only IGMP support for multicast but there are different versions of IGMP protocol which is required to run for Sparse and source specific multicast. Sparse mode and source specific multicast widely deployed.IGMP snooping is key feature to determine whihc all ports are intrested in a perticular stream and bringing a single copy of data which is the essence of multicast. So we reuest you to add IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier and MLD Snooping also as requirement for running multicast.	Please follow Bid Conditions
1443	2			176	Section 6C/5.6.2.11.2(9) (CCTV - POE Switch)	The RFP mentionas that the Switches shall meet all the above specifications and shall be from the reputed OEM. To ensure that quoated product is from reputed OEM pls allow OEM from Gartner Magic Quadrant leader and Challenger Quadrant category in Wired and Wireless for the year 2019.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1444	2			176	Section 6C/5.6.2.11.3 (CCTV - POE Switch)	RFP requires 4/8- port Layer- 2 Industrial grade switches which may be used for connecting the CCTV cameras outside the stations to the nearest station .We under stand that the specification for same is similar to the 28 port switch. Please clarify also clarify whether 4 port port or 8 port POE switch would be required?	Please follow Bid Conditions
1445	2			New (175) in POE S	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The switch should support Swapping of drive which has all config from the faulty switch to New switch to ensure faster restoration without sending skilled person on field"	Please follow Bid Conditions
1446	2			New (175) in POE Switch	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The switch should support features like dying gasp/core dump to ensure logs are captured before switch goes down in case of any outage".	Please follow Bid Conditions
1447	2			New (175) in POE S	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
1448	2			New (175) in POE Switch	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The Switch must support features like RSPAN"	Please follow Bid Conditions
1449	2			New (175) in POE Switch	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	We would recommend to add: "The POE Switch must support EN-50121 compliant, as per Railway standard".	Please follow Bid Conditions
1450	2			192	Section6C/ Telephone System 6.2.1.1	RFP requirement: It shall be a highly reliable State of the art, non-blocking, ISDN compatible IP PBX Telephone network for voice, facsimile and data communication services throughout the RRTS Corridor. Telephone sets (where applicable) shall be provided in the control rooms, , administration offices, HQ, rooms for operation, maintenance, security and equipment rooms, mid tunnel shaft, emergency evacuation routes at stations, staff rooms in the OCC/BCC, depot, RSS and all stations. Each OCC/BCC controller position shall also be provided with IP PBX telephones. We would request to change as below: The technology is shifting towards IP based voice communication. We request the IP PBX to be 100% IP Compatible	Please follow Bid Conditions
1451	2			205	Section6C/ Telephone System 6.2.1.1	RFP Requirement: Digital Feature Telephone We would request to change as below: IP phones are better than Digital Phones. We request you give flexibility to the bidder to quote IP Phones with same features and functionality instead of digital phones	Please follow Bid Conditions
1452	2			60	Section 6C / 1.12.4 Software Support	Kindly clarify that fo 24x7 TAC support for any offered should be in place. The offered product should be supported by 24x7x365 TAC Support from the OEM of the Product with toll free number	Please follow Bid Conditions
1453	2			19	Section6C/ Particular Specifications – Telecommunications/ General Specification/ 1.3.5	"Relevant Codes and Specifications". 1.3.5.1 The Sub-system and its constituent parts shall comply with the relevant latest version of British Standards, International Electromechanical Commission (IEC) standards, International Organization for Specification (ISO) Standards, European Standard (EN) or UL Standards (Underwriters Laboratory) etc. as specified below Please clarify the relevant standards are for which items.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1454	2			19	Section6C/ Relevant Codes and Specifications/ 1.3.5	Please clarify following equivalent standards are acceptable for Chapter 7 – DATA TRANSMISION SYSTEM (DTS) and not for EPBAX System and L2 and L3 switches. We would request for following changes for larger participations Power Transformers: IEC 60076, EN 60076 or IEC 61850-3 (2002) Surge Protective Devices: IEC 61643 – 1, UL1449 or equivalent standard (equal or more stringent) or IEC/EN 61000-4-5 EMC – Immunity: IEC 60801, EN 60801 or EN 55024 or EN 300386 EMC – Emission: VDE 0875 or IEC 60555, EN 60555 or EN55022, class A or CISPR22, class A Inter system EMC: EN 50082, EN 50121, ~~EN 50123, EN 50155, IEC 571, IEC 1000 or equivalent:~~ Level measuring systems utilizing ionising radiation with continuous or switching output: IEC 60982 or FCC CFR47 Part 15, Class A Sound Level of Noise Source: ISO 3746, BS 4196–6 or Network Equipment Building Standards (NEBS) GR-63-Core Issue 5 Flammability Tests: IEC 60707 or Reduction of Hazardous Substances (ROHS) Code of practice for Earthing: IEEE1100, NFPA 780, IEC1024 or equivalent in GR-63-CORE and GR-1089-CORE Transient Protection: MIL-STD-7041A or IEC/EN 61000-4-5 Lightning Protection: BS-6651 or IEC/EN 61000-4-5 Electromagnetic Compatibility (EMC): Generic standards immunity for Industry environments: BS EN 61326 (Annex A) or EN 300 386, class A Specification for safety requirements for equipment to be connected to telecommunication networks: BS EN 41003:1999 or EN 60950-1, 2005 Safety requirements for electrical equipment for measurement, control & laboratory use. Part 1: General requirements: BS 61010-1:2003/A2:1995 or EN 60950-1, 2005 Secondary protectors for Communication Circuits.: Underwriters Laboratory safety std 497A or safety in GR-63-CORE, GR-1089-CORE Following are not applicable for Telecommunication system equipment : Valve Regulated Sealed Lead Acid Rechargeable Single Cells:, Low-voltage Switchgear and Control gear Assemblies	Please follow Bid Conditions
1455	2			30	Section6C/Particular Specifications – Telecommunications/ General Specification /1.5.6.3 to 1.5.6.5	Kindly suggest follwoing changes for Telecommunications equipments 1.5.6.3 The maximum levels of radiated and conducted EMI of the System shall not exceed the levels specified in EN50081-1/ EN 61000-6-3:2007+A1:2011 or GR-1089-CORE 1.5.6.5 For PAS/PIDS, EMC emission according to BS EN 55032:2012 & EMC immunity according to EN 55103 – 2 EMC certified to meet EN50121-4 or GR-1089-CORE	Please follow Bid Conditions
1456	2			31	Section6C/Particular Specifications – Telecommunications/ General Specification /1.5.7	Inter-system EMC 1.5.7.1 The contractor shall ensure that all equipment are design and constructed in accordance with latest versions of EMC standards including but not limited to latest version EN50082, EN50121, EN 50123, EN50155, IEC571, IEC1000 or equivalents to ensure proper functioning or or GR-1089-CORE	Please follow Bid Conditions
1457	2			217	Section6C/ EPBAX POE Switch 6.5.3.1.25	The Layer 3 Managed and Layer 2 Managed switches at OCC, BCC, Depots, HQ and Stations to be provided as per table 6.5 to meet overall design requirement 1. L2 Managed Switch 8 Ethernet 10/100/1000BT PoE Ports supporting IEEE 802.3AF and 802.3AT compliant PoE (dynamic PoE allocation) with 2 combo 10/100/1000Base-T/SFP ports for Uplink, 1K VLANS. Basic L3 features for Static routing, IPv4 and IPv6 support. Provision for local/remote configuration backups. We would recomend 256 VLANs instead 1K VLANs for larger participation	Please follow Bid Conditions
1458	2			217	Section6C/ EPBAX POE Switch 6.5.3.1.25	We would request for following changes L3 Stackable or 10G port other than uplink ports and Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2x10G SFP+ for Uplink~~, 4 combo 10GBase-T CX-4 ports,~~ (this is a not a industry standard , so request to delete 10G BaseT) Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto 80 ~~100~~ kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	Please Refer Addendum and Corrigendum-02B
1459	2			217	Section6C/ EPBAX POE Switch 6.5.3.1.25	L3 and L2 Switch should have Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, BPDU guard, IPv6 RA gurad and IPv6 DHCP guard.	Please follow Bid Conditions
1460	2			217	Section6C/ EPBAX POE Switch 6.5.3.1.25	We would recommend to add: "The switch should support features like dying gasp/core dump to ensure logs are captured before switch goes down in case of any outage".	Please follow Bid Conditions
1461	2			217	Section6C/ EPBAX POE Switch 6.5.3.1.25	We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1462	2			217	Section6C/ EPBAX POE Switch 6.5.3.1.25	We would recommend to add: "The Switch must support features like RSPAN"	Please follow Bid Conditions
1463	2			243	Section6C/Data Transmission systems/7.4.4.3	General Carrier Grade Data Transmission systems life is not beyond Seven years. So, kindly change long term support till 10 years, instead of 25 years. Similarly for Servers, it should be Seven Years	Please follow Bid Conditions
1464	2			248	Section6C/Data Transmission systems/7.5.5.2.4	Network Management System 1) An SDN ready Management workstation with GUI features shall be installed in OCC and BCC to provide the necessary control, supervision, maintenance, configuration and performance management. The design shall cater for standard NMS functions. For network support with SDN ready, the network equipmentts must support automation protocols like YANG, NETCONF, RESTCONF".	Please follow Bid Conditions
1465	2			248	Section6C/Data Transmission systems/7.5.5.2.4	The equipment shall be Commercial off the Shelf (COTS) products and shall be for industrial purposes and harsh environment like MRTS/Railway, widely deployed across a wide range of commercial networks. Kindly add the device should be as per EN50121 compliant	Please follow Bid Conditions
1466	2			249	Section6C/Data Transmission systems/7.5.5.3.2	We would request following changes : 7.5.5.3.2 Network Synchronization 4) The core DTS equipment shall support Ethernet synchronization preferably SyncE to IEEE 1588V2 standard with T-BC and G.8275.1 Telecom Profile and NTP. The synchronization shall have frequency as well as phase synchronization, NTP Server and Client functionality.	Please follow Bid Conditions
1467	2			252	Section6C/Data Transmission systems/7.6.2.4 / Core Layer (ii)	We would request following changes , as in thenetwork generally Redundancy occurs through Active-Standby mode instead of Active-Active mode The OCC and BCC shall each be equipped with Carrier Grade Core Switch of 40G in active-~~active~~ Standby redundancy and operate as one logical Layer 3 switch.	Please follow Bid Conditions
1468	2			252	Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer	We would request following changes , as in thenetwork generally Redundancy occurs through Active-Standby mode instead of Active-Active mode 2) Distribution & Access Layer (i) The station CER/TER shall be equipped with distribution switches in active-~~active~~ Standby redundancy and shall operate logically as one layer 3 switch.	Please follow Bid Conditions
1469	2			252	Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer	We would request clarity on the Industrial grade in Data Transmission Systems is in terms of Industial Temperature till 65 DegreC (vii) At the outdoor locations/platform level, the switches shall be of industrial grade with a minimum of 16 ports, and all the edge devices shall terminate on outdoor switches. (viii) The industrial grade switches shall be connected in 1G fibre ring with sub 50ms ring protection and shall be dual homed on cluster of distribution switches.	Please follow Bid Conditions
1470	2			256	Section6C/Data Transmission systems/7.7	Kindly clarify to introduce 100G instead of 40G, as majority of new network are using 100G instead of 40G. To have redundancy in the link in each direction, we would recommend to have 4x100G in each Core Switch	Please follow Bid Conditions
1471	2			256	Section6C/Data Transmission systems/7.7	Kindly clarify this Port requirement table is related to Core and Distribution Layer.	Please follow Bid Conditions
1472	2			256	Section6C/Data Transmission systems/7.7	Kindly clarify Distribution Layer should have more 10G and more 1G Fiber interfaces instead of elctrical interfaces to connectivity to station switches and reachability to tthose switches. We would recommend Stations/ Depot Layer -3 Switch should have 8x10G SFP+, 2x100G for connectivity between to two switch and 8x1GSFP and 4x1G RJ45	Please follow Bid Conditions
1473	2			252	Section6C/Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
1474	2			252	Section6C/Data Transmission systems/7.6.2.4 / Core Layer (ii)	Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please follow Bid Conditions
1475	2			257	Section6C/Data Transmission systems/ Core Layer / 7.7.1.2 Security Features	We recomend to following change, as per Industry standry standard with full duplex requirement Performance Specifications 1) Backplane Bandwidth shall support non-blocking wire speed for current ports including future expansion ports as well. However, the core switch should support minimum 800 Gbps Full Duplex non-blocking switching fabric capacity.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1476	2			259	Section6C/Data Transmission systems/ Core Layer / 7.7.1.6 Security Features	802.1X is a security feature is a security feature of POE End Switches, not for Core or Distribution switches. Kindly delete this clauses 7.7.1.6 Security Features should be deleted related to 802.1X 17) 802.1x Network Security and Authentication. Support for the 802.1x standard allows users to be authenticated regardless of which LAN port they are accessing and provides unique benefits to customers who have a large base of mobile (wireless) users accessing the network. 18) 802.1x with VLAN assignment allows a dynamic VLAN assignment for a specific user regardless of where the user is connected. 19) 802.1 x and assigning VLAN and priority for IP phones automatically, simplifying network configuration and maintenance. 20) 802.1x with port security for authenticating the port and managing network access for all MAC addresses, including that of the client.	Please follow Bid Conditions
1477	2			260	Section6C/Data Transmission systems/7.7.2 Distribution Switch	We would request following changes 7.7.2.1 Switch Architecture 1) Distribution Switch should have Redundant Power supply. 2) Dedicated ~~stacking~~ Ports supporting 2x100 Gbps. 7.7.2.2 Performance Specifications: 1) Backplane Bandwidth: minimum 200 Gbps non-blocking full duplex 2) Layer 2/3 Forwarding Performance: minimum 300 Mpps	Please follow Bid Conditions
1478	2			258 & 269	Section6C/Data Transmission systems/Core 7.7.1.4 and Distribution Switch / 7.7.2.4	We would recommend to have futuristic L3 Routing features and SDN related features for Core and Distribution Router/Switches 7.7.2.4 and 7.7.1.4 Layer 3 Features Support: Router shall have unicast IPv4/IPv6 routing protocols (BGP, OSPF, IS-IS, RIP etc). Router should support TI-LFA, R-LFA, Router shall support Segment Routing and Segment Routing Traffic Engineering (SR-TE), EVPN, Segment Routing for IPv6,On demand next hop ,Any cast SID, support of minimum 5 label depth The router should support Black hole filtering, RTBH and BGP Flow Spec: dropping of traffic destined for a specific prefix at wire speed.	Please follow Bid Conditions
1479	2			175	5.6.2.11: ParticularSpecifications -Telecommunications Layer 2 Switches for Field The Switch shall be high performance, manageable and shall have minimum 28x10/100Mbps ports including 2x1Gigabit Fiber Uplink ports.	As DTS is with 15 yearsof service life, the fast ethernet switches are rarely manufactured by OEM's these days.Secondly, 28x10/100 ports are not standard port configuration and is OEM specific. Pleaserequest you to consider a16x10/10/1000 Base-T ports switch.	Please follow Bid Conditions & Refer Addendum and Corrigendum -02B
1480	2			176	Section - 6C: Particular Specifications -Telecommunications 5.6.2.11 Layer 2 Switches for Field Operating temperature 0°C to +60 c , Humidity up to 90% (non-condensing).	Please clarify, do we need to consider a NEMA-TS2 certified industrial switch to meet the temperature to meet the temperature requirements? The NEMA-TS-2 certification,certifies switch for its high temperature operability.	Please follow Bid Conditions
1481	2			176	5.6.2.11 3) 4/8- port Layer- 2 Industrial grade switches may be used for connecting the CCTV cameras outside the stations to the nearest station.	RFP requires 4/8- port Layer- 2 Industrial grade switches which may be used for connecting the CCTV cameras outsidethe stations to the nearest station. We understand that the specification for same is similar to the 28 port switch. Please clarifyalso clarify whether 4 port or 8 port POE switch would be required?	Please follow Bid Conditions
1482	2			217	6.5.3.1.25 2) L3 Stackable Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2 10G SFP+ for Uplink, 4 combo 10GBase-T CX-4 ports, Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto 100 kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS. Provision for local/remote configuration backups.	We would request for following changes L3 Stackable or 1OG port other than uplink ports and Managed Switch 24 Ethernet 10/100/1000 RJ-45, 2x10G SFP+ for Uplink-,---4 ~~combo 10GBase-T CX-4 j30fts,(this is a not a industry standard , so request to delete 1OG BaseT) Redundancy at all levels including power supplies, software and hot- swappable Small Form Factor Pluggable (SFP) modules. One SFP port should be populated in switch to carry data upto 80 400 kms minimum. IPv6 compliant. Routing protocols such as OSPF, Border Gateway Protocol, Multicasting protocol, Flood control, 4K VLANS.~~ Provision for local/remote configuration backups.	Please Refer Addendum and Corrigendum-02B
1483	2			242	7.4.3 Particular Specifications Telecommunications Availability	Please clarify, for higher availability of DTS, do we need to consider DTS with following capabilities across all switches in network viz. core switches, distribution, access and industrial grade switches: 1) centralized SON management with device provisioning 2) zero touch recovery of the failed field units to minimize the MTTR and increase the service up time, 3) centralized OS management and rollout to minimize the down time. 4)periodic Auto back-up of all switches running configurations in order to ensure up to-date record of configuration changes 5) Auto-firmware upgrades of switches across the DTS switches	Please follow Bid Conditions
1484	2			243	7.4.4.3 The service life of the DTS equipment's except server/workstation shall not be less than 15 years. The service life of all types of cables shall not be less than 25 years. The service life of Server/Workstation shall not be less than 10 year	General Carrier Grade Data Transmission systems life is not beyond Seven years. So, kindly change long term support till 10 years, instead of 15 years. Similarly for Servers, it should be Seven Years	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1485	2			257	7.7.1.1 Particular Specifications - Telecommunications Core Switch Architecture 1) Core data switch (Redundant Switches installed at OCC/BCC) consisting of Primary Management module and Redundant Management module functioning in Active Passive mode.	The active-passive mode is legacy and not in use any more due to high convergence time. We recommend to consider active-active redundancy for high availability. Request you to change clause as 1) Core data switch (Redundant Switches installed at OCC/BCC) consisting of Primary Management module and Redundant Management module functioning in Active mode.	Please Refer Addendum and Corrigendum-02B
1486	2			257	7.7.1.1: Particular Specifications - Telecommunications Core Switch Architecture 5) The Core Data Switch shall have (ii) Number of Slots - Minimum of 6 slots	Considering the future expansion of 30% and upcoming corridors, we recommend to consider min chassis of 12 slots. With 30% expansion, only 3-4 slots will be available for usage, which are insufficient to cater the DTS requirements. Please change clause as (ii) Number of Slots - Minimum of 12 slots	Please follow Bid Conditions
1487	2				Station, Depot, OCC, BCC Coordinates, track layout and drawings	Please provide the drawings, lat/long coordinates and track layout wih respect to Stations, Depot, OCC, BCC in order to design the RF coverage for the entire network.	Please Refer Addendum and Corrigendum-02B
1488	2			193	**Section6B/Router Specifications / 15.11(5)**	Layer 3 device should support following SNMP traps or Syslog:- i. Interface UP & Down. ii. Optical power SFP threshold alarms. iii. ERPS Ring Protection feature to be supported iv. LLDP table changes. v. Power Supply (Primary and Secondary) down and Up alarms in case of redundant power supply. vi. Threshold traps like CPU, Chassis Temperature and Memory. vii. CFM and LFM alarms We recomend to **add Y.1731 for performance monitoring . Netconf and YANG data models for SDN ready network.**	Please follow Bid Conditions
1489	2			193	**Section6B/Router Specifications / 15.11(5)**	Layer 3 device should support following **SNMP traps or Syslog**:- **ERPS Ring Protection feature to be support has been asked.ERPS works on layer2 and for layer 3 50 msec convergence the TE-FRR,LDP FRR and Segment routing TI-LFA is recommended. Pls include these protocols.**	Please follow Bid Conditions
1490	2			193	**Section6B/Router Specifications / 15.11(7)**	RFP ask for support of MPLS and VLAN functionality.LTE is an IP traffic and there are three categories of traffic comes from eNodeB S1U,SIC and X2. All these requires segregation at Network layer and X2 requires faster convegence.All the leading telcos who have deployed LTE are running IP/MPLS network with key protocols to esnure bandwidth,QOS ,Segregation and Faster convergence.protocols requiured for Network supporting LTE are **LDP,BGP(V4,V6and VPNV4 or VPNV6),OSPF,ISIS,Traffic engineering,Fastreroute,LDP FRR(Remote and Local),Multicast VPN,BGP-LS,Segment Routing,TI-LFA,VRF,L2 VPN and VPLS.Also all the devicesused to build network should be minimum CE2.0 or higher certified(Certifiate is issued by Metro Ethernet Forum-an independent Agency)**	Please follow Bid Conditions
1491	2			Quality of Service for LTE	**New /Section6B/Router Specifications /15.11**	Below is the traffic type and QoS Requiremet for LTE traffic.This requires stringent QoS at the Routr/layer3 Switch. To support this the Router/Switch should support following queuing methodolouy : **Low Latency Queuingand Class based weighted Fair Queuing.The Router /Switch should also support 3 Level Hirarchichal QoS.**	Please follow Bid Conditions
1492	2			184	**Section6B/Cab LTE Modem/15.8.1(1)**	RFP asks for combined router/server.**we understand this means ithat the router should support hypervisor architecture to support Linux OS within and VM/Containe**rs.	Please follow Bid Conditions
1493	2			184	**Section6B/Cab LTE Modem 15.8.1(1)**	RFP as for router/server.Request to specify the **minimum interafces. Router should have minimum 2x10/100/1000 Gigabit Ethernet LAN ports and atleast 2 serial ports (RS232 / RS 485) for connecting Some SCADA system or any other application.**	Please follow Bid Conditions
1494	2			184	**New in Section6B/Cab LTE Modem/15.8.1**	Gateway should have **POE ports to power up devices like IP Video Camera, the switch ports should support functionalities like VLAN, Inter VLAN Routing**	Please follow Bid Conditions
1495	2			185	**Section6B/Cab LTE Modem 15.8.1(7)**	RFP requres support of advanced security features include VPN/DMVPN, VRFs and firewall. **We request to add the below features to enhance the security:** 1.The device should have built-in security features so that firewalling, intrusion prevention, point to point & point to multipoint automated IP tunnels (GRE, IPSEC) based upon traffic pattern to encrypt the data (using industry standard security protocols like DES, 3DES, AES encryption) between source & destination nodes can be provided to protect network from external threats, such as viruses/trojans. 2.Gateway should support following VPN Protocols & Features : L2tp, L2tpV3, Ipsec Vpn, should support the functionality of forming dynamic tunneless Vpn, should support IKEv2, should support ipv6 for IPsec & Ikev2, Should support 3Des, AES, MD5, SHA-1 algorithms, support GRE protocol, DMVPN 3.Router should be able to support atleast 10 IP sec tunnels for secure VPN connectivty.	Please follow Bid Conditions
1496	2			184	**New in Section6B/Cab LTE Modem/15.8.1**	Router should support Industry-standard 4G LTE diagnostics and monitoring tools for troublieshooting of field issues.	Please refer clause 15.7.7
1497	2			149	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.4 (1) The product shall be compliant to 3GPP Rel. 16, upgradable to further releases…..	Currently Rel16, FRMCS are still not finalised. Bidder requests to seek compliance to Release 15 instead of Release 16. This would be upgradable to Release 16 FRMCS standards. Any additional Hardware changes if required are to be purchased by NCRTC at later stage based on the prevailing situation.	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1498	2			154	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.6.4 The LTE system contractor shall demonstrate radio interoperability tests…. RAN Infrastructure equipment	The scope of Demonstrating interoperability is beyond the purview of this bidder today & should not be part of the current tender. The requirement shall be fulfilled by vendors/OEM's of the two corridors jointly for carrying out interoperability tests however it should be made only through the Employer/NCRTC as vendors/OEM's & Notified Body will not be able to influence another vendor/OEM. LTE is proven technology and There are several commercial network in operation where EPC and RAN supplied by different OEM's across the globe. Bidders be allowed to submit either the reference certificate of such network or customer visit, as confirmation on interoperability. There is also no certified NoBO/Lab/Insitute to carry out and or certifiy Interoperability of LTE for Railways. Hence this requirement to be removed or to be suitably amended.	Please follow Bid Conditions
1499	2			155	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.6.4 (3) EPC and RAN should support interoperability as per minimum 3GPP release 16 or latest	3GPP Rel16 specifications are still not finalized and in progress. Hence Bidder is not in a position to confirm at this stage; while current version may be upgradable. Request NCRTC to amend this clause to 3GPP release 15 or latest.	Please Refer Addendum and Corrigendum-02B
1500	2			151	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.5/19	Please clarify if Bidder can use same backbone for Signalling and LTE, using same network switches and optic fiber cables. If the above answer is yes separate fiber cables are not required for Signalling backbone & request you to then amend & update 5.42.3 fiber optic cables requirement also	Please follow Bid Conditions
1501	2			184	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.8.1 Cab LTE Modem	Cab LTE Modem require SIM card (Subscriber Identity Module) for communication. Bidder requests NCRTC to confirm the required quantity of SIM cards.	Please Refer Addendum and Corrigendum-02B
1502	2			179	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.7.10.2 Short Message Service	Since IMS (hence MGCF function) is not part of current scope, Bidder requests NCRTC to modify the SMS to Instant message	Please follow Bid Conditions
1503	2			175	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.7.10(1) The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Bidder requests to remove the requirements of 'concurrently' logging. It is possible to login through multiple devices. However, concurrent logging through multiple device could be a security hazard in this case. We recommend to logout from one device and login into other device.	Please follow Bid Conditions
1504	2			149	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.3 NMS: The LTE Network Management System shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, Provisioning system and MC-PX services.	Please share the details of the functions required in Provisioning system.	Please Refer Addendum and Corrigendum-02B
1505	2			NA	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15	There are no clear requirements on the security w.r.t Gn interfaces management (DNS) and firewall (FW). Bidder requests to provide more clarity	Please follow Bid Conditions
1506	2			149	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.4 (1) The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	3GPP Release 16 standards are being finalized. Curremtly, 3GPP Release 15 standards are available. Request NCRTC to modify the clause to Release 15 requirements. Bidder suggests to request for upgradability to Release 16 standards instead.	Please Refer Addendum and Corrigendum-02B
1507	2			149	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.4 (3) The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024, shall be considered and LTE is to be understood as the LTE for National Capital Region Transport corporation being defined in this document.	FRMCS standards are still under finalisation and the Bidder cannot assume the technology, functionalities which will become part of final standards. Request you to amend the clause stating that exclude any hardware requirements for enhancements (if needed) from the purview of this tender & this shall be purchased separately by NCRTC at a later date. All adaptations shall be discussed jointly & implemented with mutual agreements. Bidder also wishes to bring to NCRTC's kind attention the Railtel tender for MTRC regarding such requirements.	Please Refer Addendum and Corrigendum-02B
1508	2			NA	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ General Query	Bidder requests NCRTC to clarify if access and transport to the LTE sites on the viaduct & at other sites will be provided to Bidder's staff as well alongwith Employer staff / O&M agency ?	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1509	2			143	PS – Signaling – Employer's Requirements: Part 2 / Chapter 11 11.2.1.3 11.2.1.3 Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses. 11.8.1 , 11.8.4, 11.8.5 Supervision of Maintenance 11.8.1 The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer. 11.8.4 The Contractor shall provide supervisory maintenance staff who are experts in the first, Second and third line fault finding, maintenance and repair of the various systems supplied under the Contract covering at least the following: 11.8.5 The deployment of the experts may not be continuous, and they may be required to supervise the maintenance in short periods at the discretion of the Employer.	As per clause 11.8.1 , 11.8.4, 11.8.5 "Bidder assumes that the contractor needs to deploy supervisory staff on "as-needed" basis for short duration as per prior agreement with NCRTC. Please clarify the frequency of such deployments As per clause 11.2.1.3 shift wise staff is needed for supervision of maintenance. Please remove this contradiction.	Please follow Bid Conditions
1510	2			1.12.6.1.2	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/62 Staff of employer/O&M agency shall be deputed at suitable locations for first line of maintenance. Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses.	Pls clarify the scope distribution - is Contractor expected to perform only L2 Operations support during DLP or complete L1 & L2 operations from Field and OCC. Contractor's/OEM's resources required in shift are applicable in OCC or Field? - Pls clarify as it is mentioned that location shall be decided by NCRTC.	Please follow Bid Conditions
1511	2			152	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.1.3 3. Following RF Parameters shall be considered while designing the network – Cell edge throughput (a) (Downlink)– 4 Mbps minimum, (Uplink)– 2 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of all eNodeB sites functioning. (b) (Downlink)– 2 Mbps minimum, (Uplink)– 1 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of single eNodeB sites failure.	Network can be designed at one cell edge througput requirement as mentioned in (a) (a) (Downlink)– 4 Mbps minimum, (Uplink)– 2 Mbps minimum. Other throughput requirement as mentioned in (b) needs to be removed.	Please follow Bid Conditions
1512	2			179	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.8.1(2) (2) The entirety of all rail tracks, tunnels, dives and stations, above or below ground.	Need geographical boundries of these locations in KML/TAB format.	Please Refer Addendum and Corrigendum-02B
1513	2			180	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.8.3(2) The area of each Contractor defined sector shall not present any gaps which fall below the specified minimum SINR or RSRP.	Kindly share the minimum SINR and RSRP values.	Please Refer Addendum and Corrigendum-02B
1514	2				PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/General Query	Bidder requests to specify the Radio Capacity requirement at the stations. Kindly share the User Traffic Profile at stations.	Please follow Bid Conditions
1515	2				PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/General Query	Kindly clarify there are separate tunnels for UP and DOWN rails, or there one tunnel in which UP and Down rails are laid without any wall separation. Please share the Tunnels Layout, for underground coverage Also share all layout plans for Underground Metro stations e.g Anand Vihar : Concourse & Elevated plan not available Merrut Central & Begumpul: Elevation plan not available Bhaisaali: Platform plan not available	Please follow Bid Conditions
1516	2			160	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.2 The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	BIdder requests to clarify the below: 1.What type of redundancy should be considered for SMPS (AC to DC converter) to feed DC power to eNode B & Router: 1+1 or N+1 configuration 2. We understand that as uninterrupted AC power will be available for Radio equipemnt, we need to consider only SMPS (AC to DC converter) without battery back up.	Please follow Bid Conditions
1517	2			151	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.5 (5) The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously.	Bidder also assumes that service life is applicable only for core equipments not for Handheld devices & Batteries, Ruggedized Laptop, Tools & testers etc. Please confirm if our understanding is correct	Please Refer Addendum and Corrigendum-02B
1518	2			139	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/12.8.4.1 The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include supply and installation of all sub-systems of Train Control & Signalling including LTE system in minimum configuration (excluding MPD) used on entire D-G-M corridor (mainline and depot). The subsystems so provided shall be interconnected in a logical fashion and interface with Computer Based Training (CBT) platform.	Equipment to be supplied under this contract is "field / line" replacable and there is no need to have extra setup of minimum configuration in Lab/Training center. This will increase the BoQ without any tangible benefits to NCRTC. Please exclude this requirement and confirm	Please follow Bid Conditions
1519	2			164	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 7)Multiple Gx interfaces (for the same session)	Bidder requests to kindly provide more details on"multiple Gx cases for the same session" requirement. This case should be removed as it doesn't seems feasible.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1520	2			165	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 H)The PCRF shall support to manage mobile access congestion control.	This clause is more applicable for Large telecom networks. The requirement doesn't seems relevant for this project context. Request you to kindly remove this clause.	Please Refer Addendum and Corrigendum-02B
1521	2			165	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 L) The PCRF vendor shall state if overlapping IP addresses are supported, for example with VPN	Please specify use case of IP Overlapping. This clause should be removed from PCRF	Please follow Bid Conditions
1522	2			165	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ P)The PCRF shall provide a direct interface towards MME that will enable the launch of added value use cases.	There is no direct interface between MME and PCRF defined in 3GPP standards. This clasue should be removed	Please Refer Addendum and Corrigendum-02B
1523	2				PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/	Please specify requirement of Charging Gateway for P/S GW with Raw Cdrs Storage duration. We don't foresee the requirement of charge duration records in a captive network for railways. Please suggest.	Please follow Bid Conditions
1524	2				PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/	Please specify requirement of Mediation Server with Network elements for which Cdrs (charge duration records) to be stored and charge duration records Storage duration . We don't foresee the requirement of charge duration records in a captive network for railways. Please suggest.	Please follow Bid Conditions
1525	2			188	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 The FRMCS NMS (LTE-NMS) shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, HSS, Provisioning system and MC-PTT server. This shall be used for centralized operation and maintenance including FCAPS functions.	Bidder understands that the scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Kindly confirm if our understanding is correct. Please also clarify detail specification requirement of EMS under FRMCS.	Please follow Bid Conditions
1526	2			188	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 (1) Single LTE-NMS solution shall support all the offered nodes in this RFP as defined by ITU-T, 3GPP in Rel. 7 i.e. 3GPP and smoothly upgradable to FRMCS.	Bidder understands that the scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Kindly confirm if our understanding is correct. Please also clarify detail specification requirement of EMS under FRMCS.	Please follow Bid Conditions
1527	2			189	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 (9) LTE-NMS shall serve in multiple Supplier, multiple technology environment. Suitable up-gradation or additional elements required for existing elements shall be provided by the Supplier.	We understand scope of RFP is only restricted to EMS/NMS. Integration of Multiple supplier, multiple technology of current/existing equipment can be supported by umbrella OSS. In view of the same we request to remove this requirement.	Please follow Bid Conditions
1528	2			189	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 (15) LTE-NMS shall have data backup facility for 3 months data. In case of critical data, which is to be decided mutually, the storage time shall be 1 year.	LTE NMS has an online data backup capability for upto 14 days. However for longer duration proposed NMS shall be able to export the offline data to the external storage for 3 months. PLease confirm if this is accpetable.	Please follow Bid Conditions
1529	2			189	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 (17) LTE-NMS shall support VNF lifecycle management.	We understand VNF life cycle management is taken care by cloud VNFM and not under EMS scope. Please confirm is our understanding is correct.	Please follow Bid Conditions
1530	2			189	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 (18) LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	We understand LTE radio NMS configuration tool shall be based on GUI to support automation of high frequency task, bulk configuration, plan provisioning and Auto radio parameter upload/export. Please confirm is our understanding is correct.	Please follow Bid Conditions
1531	2				PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ Client terminal licenses to access the EMS	Kindly specify the number of client SW licenses required in EMS/NMS.	Please follow Bid Conditions
1532	2			190	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 Cab LTE Modem/ 1) Should support combined router/server	CAB LTE device is a router as functionalities like routing - OSPF, GRE, QoS, redundancy switchover, etc. are router features. Hence, we request you to amend the clause as follows: "Should be a fanless, passively cooled router"	Please Refer Addendum and Corrigendum-02B
1533	2			191	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 Cab LTE Modem/ 6) Shall support routing protocols include EIGRP, OSPF, GRE, mGRE	EIGRP is an OEM proprietory protocol. Also, CAB LTE is going to be part of LTE - IP/MPLS backbone. Hence, we request you to change the clause as follows: " Shall support routing protocols include IS-IS, OSPF, GRE/mGRE and IP-MPLS".	Please Refer Addendum and Corrigendum-02B
1534	2			191	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 Cab LTE Modem/ 7) Shall support advanced security features include VPN/DMVPN, VRFs and firewall	Routers should support advanced security using MPLS VPNs, advanced encryption and authentication algorithms and Access control lists (ACLs). Hence, we request you to change the clause as follows: "Shall support advanced security features include VPN/DMVPN, VRFs and firewall/encryption/authentication (AES/SHA)".	Please follow Bid Conditions
1535	2			198	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.11 Router Specifications/ 1) Layer-3 devices shall be router or layer-3 switch and constitute the backbone 10G/of links connected to NCRTC's LTE network	1 x 10G ports each would be required for connectivity with E-NodB, uplink and for connectivity with standby/redudant router. Hence, min 4 x 10G ports are required in the router to support the solution. Additionally, few 1G ports should be provisioned for other connectivity as well. Hence, we request to change the clause as follows: "Layer-3 devices shall be router or layer-3 switch and constitute the backbone with min 10x1G & 4x10G ports at line-rate throughput connected to NCRTC's LTE network"	Please follow Bid Conditions
1536	2			157	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.5.2 The EPC and RAN shall be a product of single OEM and both shall be interoperable with any two OEM's EPC and RAN, and Vice-Versa.	Bidder requests Employer to clarify & provide details and interface details of two OEMs which should have an interoperability. The interoperability will follow the applicable global standards & it will be a joint responsibility of such OEM's under the direction & instructions of the Employer under the respective contracts. Please clarify if this is correct.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1537	2			158	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.3 IoT: Remote monitoring of Railways asset to improve their availability	1. Kindly specify the number of IoT Subscriber Licenses to be considered. 2. Please let us know the IoT traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1538	2			160	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.4.1 The LTE system contractor shall demonstrate radio interoperability tests between their LTE equipment and the equipment of another LTE contractor. The LTE system contractor must submit certification for interoperability. This test certification must be issued by Accredited Test Houses of LTE/3GPP or a self-certification from Board Level member of the LTE OEM. The Inter-Operability Certificates have to be submitted for the EPC and RAN Infrastructure Equipment.	Please let us know the vendor details and interface details for which inter-operability certificates to be submitted.	Please follow Bid Conditions
1539	2			160	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.4.1 The LTE system contractor shall demonstrate radio interoperability tests between their LTE equipment and the equipment of another LTE contractor. The LTE system contractor must submit certification for interoperability. This test certification must be issued by Accredited Test Houses of LTE/3GPP or a self-certification from Board Level member of the LTE OEM. The Inter-Operability Certificates have to be submitted for the EPC and RAN Infrastructure Equipment.	Please let us know the preferred Accredited Test Houses for inter-operability testing between RAN and EPC Vendor.	Please follow Bid Conditions
1540	2			164	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.3.V If Virtualised EPC is used o VNF's in vEPC must be using N+1 resilience.	The VMs offered in EPC VNFs like MME, S/P-GW CP, S/P-GW UP would be in either 1+1 or N+1 resiliency. And these EPC VNFs will work in Geo-redundancy at OCC and BCC Location wherein The VNFs at OCC and BCC will work either in pool or in active-active redundancy. Please clarify if we still need to offer EPC VNFs in N+1 resilience i.e. another EPC VNFs deployment in addition to the ones deployed at OCC and BCC.	Please follow Bid Conditions
1541	2			164	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.5 The LTE system shall log all call activities, both incoming and outgoing calls, and all Status/Messages including Free Text Messages for audit trails indicating action, result, timing.	Please let us know that the Logging requirement is for Voice over data call.	Please follow Bid Conditions
1542	2			165	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.7 EPC Traffic Profile : Total number of Subscribers: 5000 per section	Please let us know how much sections we need to consider at EPC while dimensioning OR Please let us know the total no. of subscribers as per future plans for addition on new section on the same EPC	Please follow Bid Conditions
1543	2			167	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.10.K The system shall have support for handling UE's that are periodically unavailable in order to extend battery time and to keep track when UE is reachable.	This functionality is more useful in case of IoT Subscriber. Please let us know the IoT Subscriber count, IoT Traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1544	2			315	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/17 Shall provide wireless access to WLAN at stations for the AFC portable devices incl. HHT, media vending/ validation devices/ other Wi-Fi enabled equipment (in case applicable)	Do we need include ePDG or TWAG as a part of offer.	Please Refer Addendum and Corrigendum-02B
1545	2			185	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 3) Essential Services ETCS Data, MCPTT Voice and alarms and messages of other On-Board Units (e.g. TIMS, EVC, PA System etc) shall be primarily rerouted through the NCRTC LTE Network, whereas other services such as On-Board CCTV Transmission, IoT and On-Board Advertisement etc shall be routed through the MVNO Network in case of failure of primary network.	The list of onboard units other than that of Cab LTE Modem are not available. Request you to provide the list for understanding of the integration requirements. NCRTC to also clarify if the MVNO network is to be used as backup only for CCTV, IOT etc (Non vital data) in normal scenario. In degraded mode when front cab MVNO link is failed, the CCTV, IOT etc (Non vital data) will be routed through Rear Cab MVNO link NCRTC to also clarify if the NCRTC LTE private network is to be used only for ETCS & MCPTT (vital data) in normal scenario. In degraded mode when front cab NCRTC LTE link is failed, the ETCS & MCPP TT (vital data) will be routed through Rear Cab NCRTC LTE link. Please confirm all the above understanding is correct.	Please Refer Addendum and Corrigendum-02B
1546	2			185	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 3) Essential Services ETCS Data, MCPTT Voice and alarms and messages of other On-Board Units (e.g. TIMS, EVC, PA System etc) shall be primarily rerouted through the NCRTC LTE Network, whereas other services such as On-Board CCTV Transmission, IoT and On-Board Advertisement etc shall be routed through the MVNO Network in case of failure of primary network.	Please confirm if our understanding is correct as per below tables: If not could you clarify the rules to be applied to route the traffic in normal mode or in degraded situation ?	Please Refer Addendum and Corrigendum-02B
1547	2			185	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 (2) It should support Dual SIM with Active Standby. One SIM for NCRTC Captive LTE Network and the other SIM for MVNO Network. With Priority setting for NCRTC LTE Network.	Bidder requests to clarify Dual sim active standby: to be clarified if data has to be exchanged on both networks on same time. All service (ETCS and others) to be sent to NRCT LTE network and to MVNO LTE as backup during nominal operations. Please confirm or amend the clause suitably	Please Refer Addendum and Corrigendum-02B
1548	2			185	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.8.1 14) Permanent and switched band-pass filter options should be there to reduce the interference from LTE public bands. 15)The Modem shall be provided with enough filtering and suppression circuit to immune radio interference from the driving cab electronics	The CAB LTE modem has capabilities to filter the interference. The filteration and bandwidth requirements are not clear with this clause. Please provide more information on the filteration details	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1549	2			190	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.9 4) point v - FIPS 140-2 compliant HW cryptography	The HW "FIPS mode" doesn't make system more secure. It just blocks access to newer cryptography schemes that are not pre-validated. This is an addon feature but may create issues during IOT with the MVNO network. Request to remove the cryptography requirement.	Please Refer Addendum and Corrigendum-02B
1550	2			190	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.9 4) point x - Secure push service	Secure push services is part for MDM system. The RFP does not mentions any such system. Please provide the details of a device managment system.	Please Refer Addendum and Corrigendum-02B
1551	2			191	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.9 11) Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, NOM	The RFP does not mention the Mobile device management system requirement. Please provide more details for MDM.	Please Refer Addendum and Corrigendum-02B
1552	2			111	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/8.4.6 FAT shall demonstrate the correct operation of the Train Control and Signalling System, including LTE system, working together with all other systems with which it interfaces, as specified in the Specification. Interface protocol tests shall be completed prior to the commencement of the FAT for each interfacing system with the respective designated contractor. Any failed test shall be repeated after rectification. The Signalling contractor shall develop and agree with the designated contractor	We understand that in FAT, HW & Quality test of the offered Product has to be provided, as setups to demonstrate end-to-end funcitioning of the Product with other Network Elements is not available at Factory locations. Also all products are not manufactured at one location. We suggest that end-to-end Functional test to be part of Integrated Testing & Commisioning stage (step 7 section 8.2.1)	Please follow Bid Conditions
1553	2			157	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.5.10 LTE OEM shall have Radio Conformance and Configuration Validation lab in India. The lab should be equipped with 3GPP RF conformance testing and OEM specific network nodes / tools to carryout RAN configuration functional tests.	We understand the LTE OEM can tie-up with NABL accredated LAB for 3GPP RF conformance testing.	Please follow Bid Conditions
1554	2			158	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.3 IoT: Remote monitoring of Railways asset to improve their availability	We request if number of IoT connections can be specified for dimensioning requirements.	Please follow Bid Conditions
1555	2			175	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.4.1.4 The EUTRAN radio and baseband systems should support NB-IOT/ CAT-M1 without additional hardware and software.	To save on initial deployment cost, we suggest NB-IOT activation to be included depending on the requirement at sites identified by NCRTC.	Please follow Bid Conditions
1556	2			175	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.4.1.5 The contractor shall provide a solution where FDD and TDD is supported simultaneously on the same common baseband running a common software.	TDD is required only at higher capacity sites and thus when required TDD support will be provided with required HW & SW on the same baseband.	Please follow Bid Conditions
1557	2			178	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.4.5.4 Carrier Bandwidth: The system shall support 1.4, 3, 5, 10, 15 and 20MHz carrier bandwidth	1.4 MHz not supported by 3GPP in 700MHz Band 28 and should be removed.	Please Refer Addendum and Corrigendum-02B
1558	2			178	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.6.3 Radio Module should be IP65 compliant and must be conventional cooled. There should not be any moving part like Fan inside or outside the Remote Radio Module.	High capacity Radio module with FAN can replace requirement of more than one low capacity Radio modules and provide overall reduction in the total cost of ownership by reducing the requirement of cables per Radio module and weight. For example, 2x2 MIMO for a 3 sector site can be supported by one single 6 pipe (3x2) Radio Module, with only one Power cable and one data cable. In comparison if low capacity Radio modules are used then one Radio module is required per sector. Thus we request Radio Modules should comply to the requirments of IP65, KPI & Service SLA with or without FAN.	Please follow Bid Conditions
1559	2			154	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.6.1 Wayside eNodeB hardware shall be installed on antennae mounting arrangements, if required (poles to be designed, procured and installed by the contractor). Reinforced locations along the parapet, at fixed intervals, of the viaduct for the installation of the antennae mounting arrangements will be provided by NCRTC. The design of the antenna mounting arrangement shall meet all statutory requirements, civil constraints, wind speeds etc for that area. This design (height, weight, material etc) shall be approved by the employer, based on the RF planning simulation results and interfacing with the civil contractor.	Please clarify 1. How much space will be available at Reinforced locations along the parapet. 2. We understand that any civil work requirement to install pole for LTE Antennae mounting will be done by civil contractor. Is this understanding correct?	Please follow Bid Conditions
1560	2			170	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 15.7.4.2 (7) EUTRAN KPI 7 – The EUTRAN shall be designed, installed and commissioned to maintain an average uplink and downlink resource block utility rate of <70% for each radio sector, computed as a moving average over an hourly period in normal operation	The main factors influencing the cell radius are spectrum, bandwidth, resource block utility rate, and throughput. If we reduce the resource block utility rate from 100% to 70% in coverage planning, then the cell radius will shrink more than 30%, which means 30% more sites/enodeB's are required. So we suggest that in the radio coverage plan, the resource block utility rate should be 100%, and in the radio capacity plan, the resource block utility rate should be less than 70%. Please confirm.	Please follow Bid Conditions
1561	2			180	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 15.7.8.3 (6) The Coverage shall be in such a way that even with failure of one eNodeB (BBU and RRU), the Radio coverage for any Train and Handheld shall not be affected and the coverage to the SCR/OCC Fixed Radios shall not be affected. Hence there has to be overlapping coverage design for RRTS Corridor areas.	The extra 5MHz is recommended in the overlapping coverage design. Please confirm.	Please follow Bid Conditions
1562	2			163	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 15.7.1.3 H The EPC shall provide encryption for control Plane and User Plane LTE traffic. ETCS data and MCX services shall also be encrypted.	From a standards perspective, the encryption for control plane and user plane is not required in EPC, but should be provided in RAN backhaul network. Please confirm our understanding is correct & request to amend the clause suitably	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1563	2			160	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.10 General Requirements (MME): C. The system shall support Smart Paging to reduce Signalling Load in DGM Network.	Priority paging for VoLTE is supported.However, S-GW does not support application or device awareness level paging **Please Modify** the Clause as "The Gateway shall support Priority paging for VoLTE" which shall sffice NCRTC requirements	Please follow Bid Conditions
1564	2			164	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 General Requirements (PCRF): D. Support the connection to more than one PCEF at the same time, one acting as normal PCEF and the other acting as DPI box. PCRF shall be able to coordinate these two nodes implementing the policies needed.	**"Clause Deletion request"**- PCRF does not support DPI interworking. This clause can be deleted because DPI interworking in PCRF is not mandatory.	Please follow Bid Conditions
1565	2			164	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 General Requirements (PCRF): E. The PCRF system shall provide telecom grade characteristics and a high availability: 3. Data replication	**"Clause Deletion request"** - Delete this item because it is not mandatory.	Please follow Bid Conditions
1566	2			165	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 General Requirements (PCRF): H. The PCRF shall support to manage mobile access congestion control.	**"Clause Deletion request"** - PCRF does not support to manage mobile access congestion control. Delete this item because it is not mandatory.	Please Refer Addendum and Corrigendum-02B
1567	2			165	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.1.17 General Requirements (PCRF): R. The PCRF shall support some mechanism of flexibility to modify AVP's to support vendor specific Gx extensions.	**"Clause Deletion request" -** In order to modify some AVP, PCRF should modify the code. Delete this item because it is not mandatory.	Please follow Bid Conditions
1568	2			167	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.3.1 LTE Functionality (14) To avoid interference with any other separate LTE network running parallel to NCRTC RRTS	NCRTC to consider for In Band interference generated by Other LTE Operators operating on Same Band. Optimization efforts by OEMs shall not necessarily mitigate completer Interference. In that Case NCRTC needs to also discuss with other LTE Network Provider for optimization to maintain QoS of NCRTC NW in the overlapping route.	Please follow Bid Conditions
1569	2			169	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.4.1 EUTRAN General Requirement (6)The EUTRAN shall support and implement a priority, policing and QoS control function that supports a priority-based call pre-emption mechanism and hierarchy.	EPC does not support call pre-emption function. The call pre-emption function is supported by eNB based on ARP. **[Modification request]** "The EPC shall support and implement a priority, policing and QoS control function based on QCI."	Please follow Bid Conditions
1570	2			170	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.4.2 EUTRAN KPI's (7) EUTRAN KPI 7 – The EUTRAN shall be designed, installed and commissioned to maintain an average uplink and downlink resource block utility rate of <70% for each radio sector, computed as a moving average over an hourly period in normal operation	**"Clause Deletion request" -** Delete this item because Resource utilization ratio is not controllable by equipment. It depends on user behavior.	Please follow Bid Conditions
1571	2			175	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.10 LTE MCX Application (1) The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Concurrent log on to MCPTT UEs and CAB Client with the same functional ID can be supported. But the detail call scenario needs to be designed in order to assign incoming call to a specific UE. For example, assuming that same function ID 100 is assigned to CAB driver's UE and CAB client of Train ID 100.	Please follow Bid Conditions
1572	2			183	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.7.13 Network Management System (18) LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	The proposed solution provides TCA, Audible/Visible Alarm and Alarm healing, Rule based SW upgrades is possible. [Modification request]	Please follow Bid Conditions
1573	2			190	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.9 Ruggedized MCPTT Handheld Terminals (4) Security iv. Encrypted mass memory ›› Tampering detection ›› PGP encrypted email	**Deletion Request** - Its not mandatory Requirement	Please Refer Addendum and Corrigendum-02B
1574	2			190	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/15.9 Ruggedized MCPTT Handheld Terminals (4) Security v. FIPS 140-2 compliant HW cryptography	**Deletion Request** - Its not mandatory Requirement	Please Refer Addendum and Corrigendum-02B
1575	2			192	Part 2 Section 6B: PS-Signalling and Train control/section15.11 Router specifications "Layer-3 devices shall be router or layer-3 switch and constitute the backbone 10G/of links connected to NCRTC's LTE network"	Please clarify if NCRTC will provide LTE Backbone network, or LTE backbone network including 96 fiber OFC cable is in the scope of signalling contractor.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1576	2			91 of 420	Part 2 Section 6B: PS-Signalling and Train control/section 5.41.3 Display of CCTV images from Train to OCC / 5.41.3 "The data transmission from wayside to OCC may use same switching network. The network shall be configured such that Signalling traffic and Mx (Mission critical data) shall always have priority over CCTV traffic"	Please clarify if Bidder can use same backbone for Signalling and LTE, using same network switches and optic fiber cables. If the above answer is yes separate fiber cables are not required for Signalling backbone & request you to then amend & update 5.42.3 fiber optic cables requirement	Please follow Bid Conditions
1577	2			394 of 420	Part 2/Section 6B: PS-Signalling and Train control/Chapter 15/ Section 7.6 "The The train to wayside radio communication network architecture should use radio based communication system. Failure of single network element viz Radio access point, switch, media converter etc shall not cause any deterioration in ETCS working."	Bidder understanding is LTE shall be used for Train to wayside radio communication, but above clause mentions Access point, this terminology commonly used in WiFi Network, Please clarify if Train to wayside communication goes through LTE network or WiFi network The term WiFi Access point/access point also used in the sections 8.7.2.5, 5.9.1, 8.7.2.5, 12.8.4.2, 10. S&T, PSD Vs Rolling Stock(page 265 of 420)	Please refer Addendum & Corrigendum- 02B
1578	2			98	5.41.8. This radio system shall also share data pertaining to (a) control, (b) alarm, (c) events, (d) special messages/ advertisements (incl. video) to be displayed on Passenger Information System etc on the train	We understand the scope of Sig is to provide only the radio/network and all system/application related to Passenger Information System data management will be provided by rolling stock contractor . Please confirm.	Please follow Bid Conditions
1579	2			98	5.41.8. This radio system shall also share data pertaining to (a) control, (b) alarm, (c) events, (d) special messages/ advertisements (incl. video) to be displayed on Passenger Information System etc on the train	We understand the scope of Sig is to provide only the radio/network and all system/application related to Passenger Information System data management will be provided by rolling stock contractor . Please confirm.	Please follow Bid Conditions
1580	2			98	5.41.8. This radio system shall also share data pertaining to (a) control, (b) alarm, (c) events, (d) special messages/ advertisements (incl. video) to be displayed on Passenger Information System etc on the train	We understand the scope of Sig is to provide only the radio/network and all system/application related to Passenger Information System data management will be provided by rolling stock contractor . Please confirm.	Please follow Bid Conditions
1581	2			143	**15.6.1 Network Planning, Design and Setup** **(d) Link budget summary** Note: Allocated frequency spectrum is subject to change and the same will be confirmed during design stage	As per Tender, 700Mhz is Tentative Spectrum & may change afterwards The Change in a Spectrum shall lead to change in Price Offer. Radio Unit Price may vary with Change in Spectrum. How NCRTC shall accommodate this effect of Price changes (if any) due to Spectrum Change? (Price Bid is valid for 180 days Only)	Please follow Bid Conditions
1582	2			143	**15.6.1 Network Planning, Design and Setup** (f) Leaky feeder cable can also be used for LTE coverage in underground section.	1) Does NCRTC requries MIMO scenario inside Tunnel? 2) Can Yagi Solution providing MIMO scenario is allowed for underground section as an alternative to Leaky Feeder Solution? Please confirm. If Yes, NCRTC needs to do modifications in LTE BoQ accordingly for Yagi Solution	Please follow Bid Conditions
1583	2			154	**15.6.1 Network Planning, Design and Setup** **(n)** Radio planning shall involve the following tasks, but not limited to: • The nominal cell planning and coverage prediction for the track/route shall be submitted with Preliminary design and Contractor shall be responsible for signing off the proposed prediction map with NCRTC.	Please confirm if NCRTC shall provide the Digital Maps for intended route for RF Predictions? In case of Spectrum change other than 700M, OEM needs to perform again for RF Predictions activity with new Frequency & Planning of eNB sites. NCRTC to bare an Additional cost for RF Predictions & Planning in case of Spectrum Change decision after Bid submission	Please Refer Addendum and Corrigendum-02B
1584	2			157	**15.7.1.3 EPC General Requirements:** **A.** The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	Our EPC Core supports 3GPP Release 14. Further discusstion is needed for further releases and FRMCS	Please Refer Addendum and Corrigendum-02B
1585	2			157	**15.7.1.3 EPC General Requirements:** **H.** The EPC shall provide encryption for Control Plane and User Plane LTE traffic. ETCS data and MCX services shall also be encrypted.	In 3GPP, user plane encryption is optional and also it affects EPC performance dramatically that it isn't used in In LTE commercial network. **Kindly remove** User Plane encryption from the clause	Please follow Bid Conditions
1586	2			160	**15.7.1.10 General Requirements (MME):** **C.** The system shall support Smart Paging to reduce Signalling Load in DGM Network.	Priority paging for VoLTE is supported.However, S-GW does not support application or device awareness level paging **Please Modify** the Clause as "The Gateway shall support Priority paging for VoLTE" which shall sffice NCRTC requirements	Please follow Bid Conditions
1587	2			164	**15.7.1.17 General Requirements (PCRF):** **D.** Support the connection to more than one PCEF at the same time, one acting as normal PCEF and the other acting as DPI box. PCRF shall be able to coordinate these two nodes implementing the policies needed.	**"Clause Deletion request"**- PCRF does not support DPI interworking. This clause can be deleted because DPI interworking in PCRF is not mandatory.	Please follow Bid Conditions
1588	2			164	**15.7.1.17 General Requirements (PCRF):** **E.** The PCRF system shall provide telecom grade characteristics and a high availability: **3.** Data replication.	**"Clause Deletion request"** - Delete this item because data replication is not mandatory.	Please follow Bid Conditions
1589	2			165	**15.7.1.17 General Requirements (PCRF):** **H.** The PCRF shall support to manage mobile access congestion control.	**"Clause Deletion request"** - PCRF does not support to manage mobile access congestion control. Delete this item because it is not mandatory.	Please Refer Addendum and Corrigendum-02B
1590	2			165	**15.7.1.17 General Requirements (PCRF):** R. The PCRF shall support some mechanism of flexibility to modify AVP's to support vendor specific Gx extensions.	**"Clause Deletion request" -** In order to modify some AVP, PCRF should modify the code. Delete this item because it is not mandatory.	Please follow Bid Conditions
1591	2			167	**15.7.3.1 LTE Functionality** (14) To avoid interference with any other separate LTE network running parallel to NCRTC RRTS	NCRTC to consider for In Band interference generated by OtherLTE Operators operating on Same Band. Optimization efforts by OEMs shall not necessarily mitigate completer Interference. In that Case NCRTC needs to also discuss with other LTE Network Provider for optimization to maintain QoS of NCRTC NW in the overlapping route.	Please follow Bid Conditions
1592	2			169	**15.7.4.1 EUTRAN General Requirement** (6) The EUTRAN shall support and implement a priority, policing and QoS control function that supports a priority-based call pre-emption mechanism and hierarchy.	EPC does not support call pre-emption function. The call pre-emption function is supported by eNB based on ARP. [**Modification request]** "The EPC shall support and implement a priority, policing and QoS control function based on QCI."	Please follow Bid Conditions
1593	2			170	**15.7.4.2 EUTRAN KPI's** (7) EUTRAN KPI 7 – The EUTRAN shall be designed, installed and commissioned to maintain an average uplink and downlink resource block utility rate of <70% for each radio sector, computed as a moving average over an hourly period in normal operation	**"Clause Deletion request" -** Delete this item because Resource utilization ratio is not controllable by equipment. It depends on user behavior.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1594	2			175	**15.7.10 LTE MCX Application** (1) The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Concurrent log on to MCPTT UEs and CAB Client with the same functional ID can be supported. But the detail call scenario needs to be designed in order to assign incoming call to a specific UE. For example, assuming that same function ID 100 is assigned to CAB driver's UE and CAB client of Train ID 100.	Please follow Bid Conditions
1595	2			183	**15.7.13 Network Management System** (18) LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	The proposed solution provides TCA, Audible/Visible Alarm and Alarm healing, Rule based SW upgrades is possible. [Modification request]	Please follow Bid Conditions
1596	2			190	**15.9 Ruggedized MCPTT Handheld Terminals** **(4) Security** iv. Encrypted mass memory ›› Tampering detection ›› PGP encrypted email	**Deletion Request** - Its not mandatory Requirement	Please Refer Addendum and Corrigendum-02B
1597	2			190	**15.9 Ruggedized MCPTT Handheld Terminals** **(4) Security** v. FIPS 140-2 compliant HW cryptography	**Deletion Request** - Its not mandatory Requirement	Please Refer Addendum and Corrigendum-02B
1598	2			190	**15.9 Ruggedized MCPTT Handheld Terminals** **(5) Wireless Connectivity** i. 3GPP Release 16 and upgradable to FRMCS.	The proposed device supports 3GPP Release 13 based LTE-R. Can be deleted because it is not mandatory.	Please Refer Addendum and Corrigendum-02B
1599	2			13	New sub clause 5.40.3.4 - The test track shall provide the following facilities as a minimum: (4) Testing of the Bidirectional Train Wayside communication (LTE);	Please confirm that Contractor to provide only dedicated LTE RAN Equipment for the test track at the depot. We also request NCRTC to advise the area and design details of the depoUtest track to be covered using LTE.	Please follow Bid Conditions
1600	2			202	General Specification - CHAPTER19-DAMAGE AND INTERFERENCE	Clauses described in this Chapter pertains to various civil work related activities. As there is no civil work activities envisaged in this Project, this Chapter can be removed.	Please follow Bid Conditions
1601	2			22	3.7.4.2 The Contractor shall submit the Training and Transfer of Technology Plan by the date stated in the PS, or, if none is given, not less than six (6) months prior to the than six (6) months prior to the issue of the Taking Over Certificate for the Works and also to suit the staged commissioning of the relevant systems	1. For LTE, the Transfer of Technology plan is not applicable. Please confirm. 2. Also, in LTE PS no specific training needs are given. Please confirm the training requirements in terms of number of man- weeks and batches for the LTE training programmes.	Please refer Section 6B, Chapter 13, Clause 13.4
1602	2			4	7.3.1.3 "The identification label shall be permanently attached in such a way that it shall not become detached or illegible during the lifetime of the system from any cause including wear and tear, including wear and tear,environmental effects (such asrain, direct sunlight, etc.) or any other influence. Preference shall be given to embossed or engraved metallic labels mechanically fastened by riveting or similar means to the item to which they refer."	We understand that cables, connectors etc.are to be treated as consumables and hence excluded from this requirement of identification labelling.Please confirm.	Please follow Bid Conditions
1603	2			5	8.2.(1) "Each case, crate or package shall be waterproof, rot-proof and insect/rodent- proof, of robust construction and suitable for the intended purposes. The Contractor shall, in determining the package materials to be used, take cognizance of the climatic conditions likely to occur during the period of transport, shipment and storage."	We request NCRTC to consider packaging to be in line with the environmental factors as defined in ETSI standards EN 300 019-1-1, class 1.2 & EN 300 019-1-2, class 2.3 for **LTE** OEM. Please confirm.	Please follow Bid Conditions
1604	2			5	10.7.2 Transfer of Technology The Contractor shall, within 60 days of the Commencement Date of the Works, submit a Transfer of Technology Plan, with suitable Indian company or companies having proven track record and working in relative areas, for all imported systems/subsystems ensuring the provision of support for the period of minimum 15 years. The Contractor shall support his plan with Memoranda of Understanding (MOU) from the Indian company or companies.	We understand that this clause is not applicable for OEMs who have presence in India through their wholly owned Indian subsidiaries. Please confirm.	Please refer Section 6B, Chapter 13, Clause 13.4
1605	2			25	Chapter 4, Clause 4.3.9 Wayside LTE equipment failure, two or more adjacent RRU or BBU failure shall call for imposition of penalty on the LTE contractor.	Equipment failure can happen due to not only product malfunction, but also operational issues like power availability, poor maintenance, environmental factors, force majeure, etc. Contractor would not be penalized for faults due to operational issues including, and not limited to, those mentioned above. Please confirm.	Please follow Bid Conditions
1606	2			25	Chapter 4, Clause 4.4.2.3 The following MTTR shall be achieved: (1) 15 minutes for train-borne equipment; (2) 15 minutes for train detection equipment; (3) 30 minutes for other trackside equipment; and (4) 15 minutes for equipment located in equipment rooms or control rooms	Please note: For LTE - since first line maintenance will be done by Employer, the following SLAs are proposed upon escalation of fault to contractor. Severity Response time Remediation (workaround) Final Resolution P1 15 Minutes < 4 Hours P2 4 Hours < 3 days < 2 weeks P3 Next Bus Day < 8 weeks P4 Next Bus Day < 14 weeks Case Priorities When a case is created it is assigned one of the 4 following priorities: P1 : Production network down emergency, business operations are totally impacted. P2: Production network performance is degraded, business operations are impacted P3: Production network performance is degraded but most of the business operations remain functional P4: NCRTC needs configuration assistance. There is no impact on business operations. Request you to amend accordingly. Please confirm.	Please follow Bid Conditions
1607	2			110	8.2 Sequence of Tests (TYPE Test and FAT)	In order to avoid duplication of effort we recommend to conduct the acceptance testing onsite and accept OEM factory test report for TYPE test and FAT for LTE OEM. Please confirm.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1608	2			137	Chapter 11, Clause 11.8.4 Supervisory maintenance staff - 5 man-months for LTE	Please clarify the number of resources expected and if required for both EPC and **RAN.** Our understanding is 1 resource for Core and 1 resource for RAN is requested. Please confirm.	Please follow Bid Conditions
1609	2			140	12.8.4 Troubleshooting and Maintenance simulator. 12.8.4.1 The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include supply and installation of all sub- systems of Train Control & Signalling including LTE system in minimum configuration (excluding MPD) used on entire D-G-M corridor (mainline and depot). The subsystems so provided shall be interconnected in a logical fashion and interface with Computer Based Training (CBT) platform.	Please confirm that Contractor can re-use the LTE equipment deployed at the depots for the purposes of simulation.	Please follow Bid Conditions
1610	2			149	15.4 (3) The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024, shall be considered and LTE is to be understood as the LTE for National Capital Region Transport corporation being defined in this document.	Please confirm our understanding that the features that are evolving in FRMCS standard till Dec 2024, possible to be implemented with the offered HW and SW shall be implemented by the OEM.	Please follow Bid Conditions
1611	2			150	15.5, Radio Communications system	Please clarify who shall be responsible for provisioning the Earthing, Lightning arrestors and Surge protection devices at the **LTE** pole locations. We understand the sites will be provided to the LTE Specialist Subcontractor for LTE Poles in "Ready-for- Installation" condition with earthing, lightning arrestors and surge protection provisioning already available. Please confirm and update the same in Interface responsibility matrix in Section 6B	Please follow Bid Conditions
1612	2			151	15.5 [4] The structured solution for the **LTE** System shall be designed in order to reliably convey vital ERTMS/ETCS data and MCX services as well as dataflow of non-vital information along with the On-Board CCTV live streams and other services.	Please confirm if on-board CCTV transmission proposed over MCVideo or as an IP data connection from rolling stock to the wayside systems.	Please follow Bid Conditions
1613	2			151	Chapter 15, Radio Communications system 15.5 Scope The proposed solution shall comply with the following: (5) The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously. 15.14 RAMS Requirements Please refer to chapter 4 of this Tender.	The "Service Life" timelines for LTE Sub- systems are not clear. Clause 15 (5) requests 15 years while Clause 15.4 refers to period in Chapter 4. Also, the term "Service Life" in both these chapters is seemingly used interchangeably referring to "continuous operating life" as well as "availability". We request NCRTC to confirm that, like in other similar tenders, for **LTE** Sub-system: 1. The offered hardware lifecycle be 7 years; and 2. The offered software upgrade period be until end of the OLP period or 5 years from the date of supply, whichever is earlier (excluding any hardware implications); and 3. The availability period & long-term support period be 10 years, subject to currency of a valid contiguous AMC contract for the LTE equipment. The Contractor shall duly notify NCRTC in writing prior to deleting any component of the System from general availability and submit written assurances that it can provide functionally identical replacement units. The notification period for the deletion of the component and written assurances shall notbelessthanthelead- time for ordering or manufacturing the component plus six months. All the updated components shall be fully backward compatible with the originally installed component	Please Refer Addendum and Corrigendum-02B
1614	2			150	15.5 B68The proposed **LTE** system for the NCRTC RRTS Project consists of **LTE** System comprising of Passive Infra, Active Infra, EPC (Evolved Packet Core), MCX services (Hardware & Software), Cab Equipment, Handsets, Fixed Radios for stations/Depots/Sections, Dispatchers, NMS etc. and associated services	From the scope its understood that NCRTC **LTE** network will be completely captive and no integration to external world i.e. Internet world is required. Please confirm.	Please follow Bid Conditions
1615	2			150	15.5 (2) EPC (Evolved Packet Core) : Main Core with Hot standby (at Geo Redundant Location)	what is meant with "Main Core with Hot standby (at Geo Redundant Location)"? Is there more than one main core each with redundancy, or are you referring to a redundant core (one Core + one geo redundant) Please confirm	Please follow Bid Conditions
1616	2			151	Chapter 15, Radio Communications system, Scope 15.5 clause 5	"The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously". Our understanding is Contractor would consider software upgrade during these years and Employer would pay for Hardware upgrade if needed to have 15 years of service life, under a valid AMC contract.	Please Refer Addendum and Corrigendum-02B
1617	2			151	15.5 (8) **LTE** Backbone shall be over OFC, with OFC cable architecture set up as a loop along the Delhi Ghaziabad Meerut Corridor with OFC cables laid on both Up and Down Tracks.	what should the backbone be based on? SDH, **MPLS, MPLS-TP?**	Please follow Bid Conditions
1618	2			151	15.5(12) The Handheld, Fixed Radio and Train Radios (Voice + data, Cab **LTE** Modem & Data Only Radios etc.) shall have GCF Interoperability Certification.	GCF Interoperability is still not available. Therefore it is requested that this clause may be waived off. Interoperability testing with LTE OEM may be considered with submission of test reports.	Please Refer Addendum and Corrigendum-02B
1619	2			152	15.6 (2) Live surveillance camera feeds from trains.	what exactly does "live surveillance camera feeds from trains." mean? how many cameras per train are planned? Do all cameras have to broadcast live streams or only certain ones?	Please follow Bid Conditions
1620	2			153	15.6.1 U) MCX client should receive the GPS information from LTE Modem/LTE Modem should have the capability to send the GPS information to the MCX	MCX User devices shall be GPS enabled. Please clarify for any other requirement.	Please follow Bid Conditions
1621	2			154	15.6.4 (1) The **LTE** system contractor shall demonstrate radio interoperability tests between their **LTE** equipment and the equipment of another **LTE** contractor.	Please provide details on the interoperability test. Also provide details on the schedule and organizer of the same for the other **LTE** infrastructure provider? Where should the test take place ...?	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1622	2			156	15.6.5 The antennas are going to be mounted on poles on the viaduct and within the stations.	We understand that the foundation (base) preparation for any poles at viaduct and stations lies within the Civil Contractor/NCRTC's scope and is outside the S&T Contractor's scope. We also understand that at the stations, the Civil Contractor/NCRTC will be responsible for: 1. Foundation preparation at stations & tunnels for installation of Poles/Cabinets for eNodeB on an "as and when required" basis; **AND** 2. Foundation preparation at the elevated tracks for installation of Poles/Cabinets for eNodeB on an "as and when required" basis; **AND** 3. Restoration of the site to NCRTC's aesthetics & design requirements, wherever and whenever necessary.Please confirm and update the same in Interface responsibility matrix in section 6B	Please follow Bid Conditions
1623	2			156	15.6.5 (5)The contractor shall liaise with WPC/DOT/SACFA and other government agencies like Aviation authorities and other local authorities for obtaining approvals for any of the scope of works pertaining to LTE system implementations including licenses	Do you mean support (documents, test reports, ...) or coordination with the relevant authorities? we understand that the apply for the frequencies and licenses is the responsibility of the customer!	Please follow Bid Conditions
1624	2			158	15.6.1 Following points shall be followed to provide best coverage on the NCRTC's tracks, stations, depots, offices and other intended area mentioned in the document.	Please provide the area and design considerations to be taken into account for providing coverage in tracks, stations (elevated, at-grade & underground), depots, depot test track(s), offices, and other intended areas, in terms of both throughput and capacity. Also kindly provide demographic details of the sections	Please refer clause 15.7.8
1625	2			158	15.6.1 3(a) and (b) Following RF Parameters shall be considered while designing the network - Cell edge throughput (a) (Downlink)- 4 Mbps minimum, (Uplink)- 2 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of all eNodeB sites functioning. (b) (Downlink)- 2 Mbps minimum, (Uplink)- 1 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of single eNodeB sites failure.	We understand in para (a) and (b) that the downlink and uplink speed have been mentioned per UE instead of per cell edge. Seems to be typo error. Please confirm.	Please follow Bid Conditions
1626	2			160	15.6.2 (1) The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	The statements are contradicting each other in this para. To ensure reliable operation, additional DG set/ Alternate arrangement need to be catered by NCRTC (Not the contractor)	Please follow Bid Conditions
1627	2			156	15.6.5 The antennas are going to be mounted on poles on the viaduct and within the stations.	We understand that the foundation (base) preparation for any poles at viaduct and stations lies within the civil scope and the sites for LTE will be handed to the LTE subcontractor in Ready- For-Installation (RFI) condition, including Civil, OFC and Raw Power readiness. Please confirm.	Please Refer Addendum and Corrigendum-02B
1628	2			160	15.6.3 (2) Single CPRI cable failure or single power cable failure shall not create gaps in network coverage.	We understand that duplication of power cables would be possible only upto baseband. only upto baseband.	Please follow Bid Conditions
1629	2			157	Section 15.7.1.3 (V) If Virtualized EPC is used 1) VNF's in vEPC must be using N+1 resilience. 2) The virtualization infrastructure shall have high availability in all its components to avoid any single points of failure. Preferably HW should also have some redundancy features to avoid single point of failures that could cause high failure rates i.e. discs, PSU's, NICs but the SW needs to be built to handle HW failures. 3) Applications aiming at high availability need to have full control of status for each of its ongoing processes. Resilience and redundancy mechanisms are to be included in vEPC/VNF's	We understand that all Core solution components supplied at single site should have Port ,Link , Server ,Router redundancy to comply High Availability requirement at each of the Geo-Red Site so that there is no single point of failure and services continuity is available. Please confirm.	Please Refer Addendum and Corrigendum-02B
1630	2			157	15.7.1.3 "The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS"	FRMCS is based on 5G technology, an integration of ETCS L2 over 4G Rel 16 to FRMCS over 5G becomes costly, do you have an integration plan?	Please follow Bid Conditions
1631	2			162	15.7.1.13 Lawful interception and packet screening.	Please confirm our understanding that product only needs to support Lawful Interception and Packet Screening functionalities, however these are not required to be implemented.	Please follow Bid Conditions
1632	2			166	15.7.2 (i) All outdoor equipment shall have an IP rating of IP65.	Train Radio is installed within train and should not be considered as IP65. Please confirm.	Please follow Bid Conditions
1633	2			167	15.7.3.1 (1) Inter band Carrier Aggregation: The contractor shall support inter and intra band carrier aggregation. All combinations specified by 3GPP shall be supported.	Devices cannot support all combinations specified by 3GPP. Only band required as per the project is required to be supported. Please amend the clause accordingly.	Please follow Bid Conditions
1634	2			168	15.7.3.3 (2) "QoS: It shall have support for traffic separation and Quality of Service (QoS) on the IP and Ethernet layer for all RAN traffic in the eNodeB.	"QoS: It shall have support for traffic separation and Quality of Service (QoS) on the IP and Ethernet layer for all RAN traffic in the eNodeB. What is meant by "traffic separation" here?	Please follow Bid Conditions
1635	2			169	15.7.4.1 (11) The Contractor shall demonstrate that handover will be completed using the S1 interface where an X2 interface has failed between two EUTRAN locations and describe the time of completion of handover.	Does NCRTC intend to perform/ execute separate test to ensure the functionality. If yes will this have to be demonstrated during the project or through test report.	Please follow Bid Conditions
1636	2			172	15.7.4.4 (8) Operator defined QFI	"Operator defined QFI" what do you mean by QFI?	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1637	2			174	15.7.8.2 General Capacity Requirements (2) Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector.	With 5 MHz bandwidth in the band B28, the maximum number of simultaneous unicast calls is 50. Hence we propose this clause to be amended to: "Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 50 receiving MCX users evenly distributed within the sector."	Please follow Bid Conditions
1638	2			175	15.7.10 "The LTE MCPTT application shall alert the user of an incoming Private, Group or Broadcast Call irrespective of any other applications that may be running simultaneously on the UE."	Please confirm any applications other than MCX required on the UE	Please follow Bid Conditions
1639	2			175	15.7.10 The LTE System shall provide a MCX {Mission Critical Push to Talk (MCPTT) voice, real-time data and real- time CCTV streams} application that meets the requirements of standard ETSI TS 122 179, ETSI TS 122 280, ETSI TS 122 281 & ETSI TS 122 282 with the provisions and variations described in the following Sections.	Please confirm that CCTV data is transmitted as a separate data stream independent of MCX services.	Please follow Bid Conditions
1640	2			176	15.7.10 Group Calls: (3) "The LTE shall allow the inclusion into DGM corridor MCPTT Call Groups of additional Handheld Radios and Cab Radios at a later stage"	could you give a possible forecast value?	Please follow Bid Conditions
1641	2			177	15.7.10 Emergency and Priority: (2) Audio and visual indications shall be available to inform the user when the radio is out of the RF coverage range of the LTE system. The indication shall be generated automatically when a request for channel is not acknowledged or when the radio fails to receive control packet information. The audio and visual indication shall remain until the radio moves back into the coverage range.	Is the UE meant here or the dispatcher, Please confirm	Please follow Bid Conditions
1642	2			178	15.7.6 (4) Operating temp range: -10°to +65°Celsius.	Commercially available **LTE** equipment worldwide supports upto +55°C operating temperature, thus we request the clause be amended accordingly. Please confirm.	Please Refer Addendum and Corrigendum-02B
1643	2			178	15.7.10.1 (1) "A minimum of eleven priority levels shall be available for assignment to radio users of varying importance. Priority-setting shall be configurable from the network management system at central control"	we understand that there are different applications or use cases behind these 11 levels, could you list them to us?	Please follow Bid Conditions
1644	2			179	15.7.11 (2) The normative NCRTCs standard specification TS 22.289 which is proposed for 3GPP release 16 with all the NCRTCs specific features needs to comply with eventually and the contractor is expected to provide a roadmap for the same.	What does "eventually" mean here?	Please Refer Addendum and Corrigendum-02B
1645	2			180	15.7.12 (8) Dispatcher Interfaces: The system supports following interfaces c. SMPP to SMS-C: IP Interface for bulk SMS Messaging	The Dispatcher is used for internal captive communication within the organization. Thus we suggest that this requirement of interface to SMPP to SMS-C bulk SMS messaging service be dropped. Please confirm.	Please follow Bid Conditions
1646	2			159	15.7.1.7 Control Plane and User plane should be expandable independently i.e. distributed across different locations.	Please confirm our understanding that NCRTC requires to expand MME, HSS independently while media handling like SGW and W separately.	Please follow Bid Conditions
1647	2			185	15.8.1 Cab **LTE** Modem (13) Data radios should transfer packet switched data over **LTE** network, with systems suitable for easy installation with European Train Control System (ETCS) equipment.	We understand that the Bidder offered Cab **LTE** Modem shall be a single combined unit (unibody) capable of handling voice and data for all applications, thus this clause referring to a "data radio" is not applicable. As indicated already in this section, Cab LTE Modem will support the requested applications, including ETCS, over LTE. Please confirm and accordingly delete this requirement.	Please Refer Addendum and Corrigendum-02B
1648	2			185	15.8.1 (3) Essential Services ETCS Data, MCPTT Voice and alarms and messages of other On-Board Units (e.g. TIMS, EVC, PA System etc.) shall be primarily rerouted through the NCRTC **LTE** Network, whereas other services such as On-Board CCTV Transmission, loT and On-Board Advertisement etc. shall be routed through the MVNO Network in case of failure of primary network.	can you precisely list the non-essential services?	Please follow Bid Conditions
1649	2			185	15.8.1 (10) High mean time between failures for cab radios	High mean time between failures for cab radios. Can you please provide the failure figures.	Please follow Bid Conditions
1650	2			190	15.9 (4)Security i. Secure boot with HW- enabled integrity » Runtime integrity ii. Application permission firewall iii. Secure data storage for user credentials and encryption keys iv. Encrypted mass memory » Tampering detection» PGP encrypted email v. FIPS 140-2 compliant HW cryptography	These security clauses are OEM specific and must be made optional.	Please Refer Addendum and Corrigendum-02B
1651	2			190	15.9 (4) Log server	Please advise the use case for this feature. If not mandatory, we request that this requirement be dropped.	Please follow Bid Conditions
1652	2			190	15.9 (5) Wireless Connectivity i. 3GPP Release 16 and upgradeable to FRMCS.	We presume that 3GPP Rel. 16 compliance and upgradability to FRMCS is required for MCX Application and not wireless connectivity. Please confirm.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1653	2			190	15.9 (4) (ii) Application permission firewall	This feature is not required and not supported. Request to remove this clause.	Please follow Bid Conditions
1654	2			190	15.9 (4) (iv) Encrypted mass memory» Tampering detection » P encrypted email	Encryption is not required in Rail operations. None of the Rail or metros in India is using encryption. Moreover, software encryption is typically offered along with MCX applications. Hence request to remove this requirement from device.	Please Refer Addendum and Corrigendum-02B
1655	2			190	15.9 (4) (viii) Remote attestation	This feature is a limited feature available with few vendors .Hence request to remove.	Please follow Bid Conditions
1656	2			190	15.9 (5) (i) 3GPP Release 16 and upgradeable to FRMCS.	3GPP Rel 16 has recently been finalized. Typically products are available in 1-2 years from release finalization. Also, standards for FRMCS has still not been formulated. It is not possible to provide compliance to FRMCS which is still not finalized.	Please Refer Addendum and Corrigendum-02B
1657	2			191	15.9 (5) (ii) Dual SIM with Active Standby (One SIM for NCRTC Captive usage **LTE** Network and another SIM for MVNO Network)	This feature is a limited feature available with few vendors .Hence request to remove.	Please Refer Addendum and Corrigendum-02B
1658	2			191	15.9 (9)vi. The Handheld shall have a local port for the connection to a notebook computer for field programming and diagnostic.	The Handheld shall have a local port for the connection to a notebook computer for field programming and diagnostic. Which interface is required here?	Please follow Bid Conditions
1659	2			191	15.9 (12) Hand-portable Radio Accessories The Contractor shall provide the following Hand-portable radio accessories as a minimum a clip-on extension microphone with speaker or being able to wear the Hand portable on the chest, Carrying case with strap and shoulder strap, Earpiece & portable's clip.	are commercially available accessories that are available in the consumer market also allowed?	Please follow Bid Conditions
1660	2			191	15.9(11) Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, **NOM**	Equivalent certifications should be accepted.	Please Refer Addendum and Corrigendum-02B
1661	2			191	15.9 (11) (ii) Certifications - FCC, CE, PTCRB, GCF, NOM	We understand that NOM is a type approval certification for Mexico and is not applicable here. Hence request to remove the NOM from the clause.	Please Refer Addendum and Corrigendum-02B
1662	2			192	15.11 Router Specifications 2) The Layer 3 device/router shall be redundant with hot standby.	The redundant with hot standby is legacy and not in use any more due to high convergence time. We recommend to consider active-active redundancy for high availability.	Please follow Bid Conditions
1663	2			193	15.11 Router Specifications (7) Should support MPLS and VLAN functionality	SD-LAN is more prevalent these days due to its ease of management functionalities, so, we recommend to consider switch with IP Ethernet/MPLS/SD-LAN and VLAN functionality	Please follow Bid Conditions
1664	2			193	15.11 Router Specifications (6) Device should have IP SLA monitoring (or equivalent functionality) for Latency, Packet drop, Jitter etc. and should also support SNMP polling for IP SLA monitoring	IP SLA monitoring is OEM specific, Request to amend the clause to make vendor neutral	Please Refer Addendum and Corrigendum-02B
1665	2			193	15.12 Testing and commissioning	We request that for LTE sub-systems, after successful testing of end- to-end LTE connectivity for voice, data and ETCS application support, across a continuous stretch of 20 kms of route- kms in Stage 1, and cell edge capacity, as per terms of the contract, an Acceptance Certificate be issued for LTE that permits swift rollout of LTE sites across the remaining sites for the Project. This acceptance philosophy that enables early LTE rollout is being followed by Indian Railways in RailTel's MTRC tender. We request NCRTC to allow this acceptance philosophy for this tender. An earlier LTE site rollout would enable NCRTC to not only ensure complete project delivery within the stipulated timelines, but also fast-track the remaining project rollout should an earlier Revenue Operating Date be desired for any reason whatsoever. Kindly confirm.	Please follow Bid Conditions
1666	2				Chapter 15, Radio Communications system	The Contractor shall be permitted to install Cabinet enclosures/L TE RAN solution on the adjacent parapeVrailing/wall/tunnel if required. Please confirm.	Please follow Bid Conditions
1667	2				Chapter 15, Radio Communications system	We understand that the Power/Data/Fiber connection provided by the Contractor will be provided upto all the identified locations for poles for antenna mounting. Please confirm.	Please follow Bid Conditions
1668	2			Page 148	Additional Query	is a private LTE network required, where NCRTC is the mobile network provider or should it be based on the public network with the appropriate SLA?	Please follow Bid Conditions
1669	2			Page 148	Additional Query	In the case of a private Lte network, what does the operator concept look like?	Please follow Bid Conditions
1670	2			Page 148	Additional Query	According to 3GPP, Release 16 will not be finished until mid 2020. And then the manufacturers start to upgrade their HW and SW. Impact of these developments would affect the project timeline. Is it enough in the bid stage, if the contractor presents a road map at this stage.	Please Refer Addendum and Corrigendum-02B
1671	2			Page 151	Additional Query	please clarify, if tunnels planned on the track and how long will they be.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1672	2			Page 153	Additional Query	The assigned frequency range 700MHz, can change in the design phase, whether it becomes 700 or 900MHz, plays a big role in the bid phase (RF Planning, BoQ,...), can you give an exact input?	Please follow Bid Conditions
1673	2			Page 172	Additional Query	Are housing/shelter necessary? If so, concrete or steel bridle?	Please follow Bid Conditions
1674	2			Page 198	Additional Query	Is there a BOQfor all required LTE equipment	Please follow Bid Conditions
1675	2			15.4 (1)- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases…..	Section 6B_Particular Spec Signaling and Train Control Chapter 15	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please Refer Addendum and Corrigendum-02B
1676	2			15.4 (3)- The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024,…..	Section 6B_Particular Spec Signaling and Train Control Chapter 15	FRMCS is stil under finalisation and do not know which all technology, functionalities are part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B
1677	2			15.6.4- The LTE system contractor shall demonstrate radio interoperability tests between their LTE equipment and the equipment of another LTE contractor. The LTE system contractor must submit certification for interoperability. This test certification must be issued by Accredited Test Houses of LTE/3GPP or a self-certification from Board Level member of the LTE OEM. The Inter-Operability Certificates have to be submitted for the EPC and RAN Infrastructure Equipment.	Section 6B_Particular Spec Signaling and Train Control Chapter 15	Interoperabilty Demonstartion is not the viable way for IOT . LTE is proven technology and There are several commercial network in operation where EPC and RAN supplied by different OEM's across the globe. We suggest to submit either the reference certificate of such network or visit can be arranged to site of one of such network. Also, there is no certified NoBO/Lab/Insitute to carry out, certifiy Interoperability of LTE for Railways. Hence this requirement to be remeoved or to be suitably amended	Please follow Bid Conditions
1678	2			15.6.4 (3)- EPC and RAN should support interoperability as per minimum 3GPP release 16 or latest	Section 6B_Particular Spec Signaling and Train Control Chapter 15	Kindly ammend the 3GPP Release to 15 or latest.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1679	2			15.7.2- LTE Pole and Passive Infrastructure Specifications…. OHE Mast may be utilized for installation of wayside LTE Antenna if they meet the following criteria	Section 6B_Particular Spec Signaling and Train Control Chapter 15	Mast height, design may not be sufficcient to take load of multiple LTE antennas as per radio planning and coverage requirements. It is also strongly suggested not to use OHE mast for Radio antenna as it would be risky to maintain and prone to accident because of HT lines, HV inteferances etc. Hence will suggest, allow Poles at stations (possibly RTT) and separate feasible Pole designs for mid section.	Please Refer Addendum and Corrigendum-02B
1680	2			15.8.1- Cab LTE Modem require SIM card (Subscriber Identity Module) for communication	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please provide the quantity of the SIM cards.	Please Refer Addendum and Corrigendum-02B
1681	2			15.8 Cab LTE Modem- I. Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements.	Chapter 15 LTE PS Short Version ver 17.pdf	please share more clarity on range of the environmental conditions required to oprate	Please refer clause 6.7.4.1 (1)
1682	2			15.7.10.2- SMS requirement	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
1683	2			15.7.10.2- NCRTC must provide SMS	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
1684	2			15.7.10 (1)- The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please remove the requirements of 'concurrently' logging. It is possible to login through multiple devices. However, concurrent logging through multiple device may be security hazard in this case. Need to logout from one device and login into other device.	Please follow Bid Conditions
1685	2			15.6- IoT: Remote monitoring of Railways asset to improve their availability.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Kindly share detail on the assets being considered as part of this IOT along with any specific protocol requirements.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1686	2			15.3- NMS: The LTE Network Management System shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, Provisioning system and MC-PX services.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please share the details of the functions required in Provisioning system.	Please Refer Addendum and Corrigendum-02B
1687	2			NA- NA	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	There are no clear requirement on the security w.r.t Gn interfaces management (DNS) and firewall (FW). Please clarify the requirements.	Please follow Bid Conditions
1688	2			15.4 (1)- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	The offer design and solution would match the feature set of FRMCS as per RFP requirements however FRMCS is still under finalisation and as of now there is not much clarity which all technology, functionalities would be part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B
1689	2			11.3.1.5- The Contractor shall provide all tools, equipment, Configuration & Customization data, manuals and training necessary for the Employer to maintain all the software identified in the list as per Chapter-6 of this PS.	Section 6B	Please specify if NCRTC will provide requried NOC operations tools and Contractor/LTE OEM shall use customer tools for daily operations (L1 and L2)?	Please follow Bid Conditions
1690	2			11- NA	Section 6B	Can Contractor/LTE OEM assume NCRTC will be providing access and transport to the sites on the track whenever any corrective/preventive maintenance is required?	Please follow Bid Conditions
1691	2			11- NA	Section 6B	Will NCRTC be providing cranes to Contractor/LTE OEM to support maintenance on poles if required?	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1							
S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
1692	2			11.6- Maintenance Management System ETCS system is required to include local and remote maintenance and real time diagnostic capabilities to detect and react to various ETCS equipment failure types. The remote diagnostic capabilities shall be available at OCC, SCR, SMR and DCC to permit authorized personnel to interrogate the status of trainborne and trackside equipment, and provide active fault diagnosis and isolation. It shall be possible to remotely download	Section 6B	Kindly confirm who will provide this "Maintenance Management System" and what is expectation from Contractor/ LTE OEM operations team on same?	Please follow Bid Conditions
1693	2			11.8.1 , 11.8.4, 11.8.5- Supervision of Maintenance 11.8.1 The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer. 11.8.4 The Contractor shall provide supervisory maintenance staff who are experts in the first, Second and third line fault finding, maintenance and	Section 6B	Kindly confirm if mentioned 3 clauses can be understand as following: Contractor/LTE OEM need to provide supervisory staff for supervsion of "NCRTC provided maintenance personnel". This Contractor/LTE OEM provided supervisory staff may needed for short duration time as per prior agreement with NCRTC. If this understanding is fine, kindly help with requried period of requested supervisory staff.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1694	2			1.12.5.1.1 Supervision and planning The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Employer's Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer.	Section 6C	Contractor/LTE OEM assumes this scope is applicable post DLP of 3 years and tenure can go upto 6 months post expiry of DLP. Pls confirm.	Please follow Bid Conditions
1695	2			15.7.8.1(2)- (2) The entirety of all rail tracks, tunnels, dives and stations, above or below ground.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Need geographical boundries of these locations in KML/TAB format.	Please Refer Addendum and Corrigendum-02B
1696	2			15.7.8.2- General Capacity Requirements A. In normal operational conditions, the “General Coverage area” area shall simultaneously support the following requirements taking into consideration the limits imposed on each application specified. 1. 300 connected UEs per sector. 2.Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector. 3.Minimum four (4) active ETCS	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Kindly provide the details for RF planning as below: 1. user Traffic profile of MCPTT user is required 2. user traffic profile of ETCS user is required 3. User Traffic profile of CCTV Stream(Duration/data rates)	Please follow Bid Conditions
1697	2			15.7.8.3(2)- The area of each Contractor defined sector shall not present any gaps which fall below the specified minimum SINR or RSRP.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Kindly provide the minimum SINR and RSRP values .	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1698	2			15.6.2- The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Please clarify 1.What type of redundancy to be considered for SMPS (AC to DC converter) to feed DC power to eNode B & Router: 1+1 or N+1 configuration 2. We understand that as uninterrupted AC power will be available for Radio equipemnt, we need to consider only SMPS (AC to DC converter) without battery back up.	Please follow Bid Conditions
1699	2			12.8.4.1- The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include supply and installation of all sub-systems of Train Control & Signalling including LTE system in minimum configuration (excluding MPD) used on entire D-G-M corridor (mainline and depot). The subsystems so provided shall be interconnected in a logical fashion and interface with Computer Based Training (CBT) platform.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	We understand that min configuration of all subsystems of LTE-R network incl on board equipemnt to be set up at training center. Pl confirm	Please follow Bid Conditions
1700	2			15.7.1.17- Rating group modifications.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	PCRF sends PCC rules based on conditions to P-GW and P-GW can update RGs. This clause functionality is not applicable for PCRF	Please Refer Addendum and Corrigendum-02B
1701	2			15.7.1.17-7)Multiple Gx interfaces (for the same session)	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please provide more detail on" multiple Gx cases for the same session" requirement. This case should be removed as it doesn't seems feasible	Please Refer Addendum and Corrigendum-02B
1702	2			15.7.1.17- J) Support of content screening, white-lists and blacklists.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	This functionality is supported outside PCRF and this clause should be removed from PCRF	Please Refer Addendum and Corrigendum-02B
1703	2			15.7.1.17- H)The PCRF shall support to manage mobile access congestion control.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	This clause is more applicable from Large telecom networks. It doesn't seems relevant for this Tender. This clause can be removed	Please Refer Addendum and Corrigendum-02B
1704	2			15.7.1.17- L) The PCRF vendor shall state if overlapping IP addresses are supported, for example with VPN	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please specify use case of IP Overlapping. This clause should be removed from PCRF	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1705	2			- P)The PCRF shall provide a direct interface towards MME that will enable the launch of added value use cases.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	There is no direct interface between MME and PCRF defined in 3GPP standards. This clasue should be removed	Please Refer Addendum and Corrigendum-02B
1706	2			15.7.13- The FRMCS NMS (LTE-NMS) shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, HSS, Provisioning system and MC-PTT server. This shall be used for centralized operation and maintenance including FCAPS functions.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm.	Please follow Bid Conditions
1707	2			15.7.13 (1)- Single LTE-NMS solution shall support all the offered nodes in this RFP as defined by ITU-T, 3GPP in Rel. 7 i.e. 3GPP and smoothly upgradable to FRMCS.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm. Please also clarify detail specification requirement of EMS under FRMCS.	Please follow Bid Conditions
1708	2			15.7.13 (9)- LTE-NMS shall serve in multiple Supplier, multiple technology environment. Suitable up-gradation or additional elements required for existing elements shall be provided by the Supplier.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand scope of RFP is only restricted to EMS/NMS. Integration of Multiple supplier, multiple technology of current/existing equipment can be supported by umbrella OSS. In view of the same we request to remove this requirement. Pls confirm.	Please follow Bid Conditions
1709	2			15.7.13 (15)- LTE-NMS shall have data backup facility for 3 months data. In case of critical data, which is to be decided mutually, the storage time shall be 1 year.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	LTE NMS shall have online data backup capability for upto 14 days. however for longer duration proposed NMS shall be able to export the offline data to the external storage for 3 months provided by NCRTC. please confirm.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1710	2			15.7.13 (18)- LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand LTE radio NMS configuration tool shall be based on GUI to support automation of high frequency task, bulk configuration, plan provisioning and Auto radio parameter upload/export, pls confirm.	Please follow Bid Conditions
1711	2			- Client terminal licenses to access the EMS		How many client SW licenses required in EMS/NMS.	Please follow Bid Conditions
1712	2			15.8.1 Cab LTE Modem/ 1- Should support combined router/server	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	CAB LTE device is a router as functionalities like routing - OSPF, GRE, QoS, redundancy switchover, etc. are router features. Hence, we request you to change the clause as follows: "Should be a fanless, passively cooled router"	Please Refer Addendum and Corrigendum-02B
1713	2			15.8.1 Cab LTE Modem/ 6- Shall support routing protocols include EIGRP, OSPF, GRE, mGRE	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	EIGRP is a OEM proprietory protocol. Also, CAB LTE is going to be part of LTE - IP/MPLS backbone. Hence, we request you to change the clause as follows: " Shall support routing protocols include IS-IS, OSPF, GRE/mGRE and IP-MPLS".	Please Refer Addendum and Corrigendum-02B
1714	2			15.8.1 Cab LTE Modem/ 7- Shall support advanced security features include VPN/DMVPN, VRFs and firewall	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	Routers should support advanced security using MPLS VPNs, advanced encryption and authentication algorithms and Access control lists (ACLs). Hence, we request you to change the clause as follows: "Shall support advanced security features include VPN/DMVPN, VRFs and firewall/encryption/authentication (AES/SHA)".	Please follow Bid Conditions
1715	2			15.8.1 Cab LTE Modem/ 9- Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	CAB LTE routers are going to be installed inside CAB where temperature variations are going to be high. Also it needs to be robust and support continuous working in harsh temperature conditions incase of AC failure. Hence, we request you to change the clause as follows: "Systems should operate in a wide range of environmental conditions (temperature support min -30 to 65 degrees)"	Please refer clause 6.7.4.1 (1)

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1716	2			15.11 Router Specifications/ 1- Layer-3 devices shall be router or layer-3 switch and constitute the backbone 10G/of links connected to NCRTC's LTE network	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	1 x 10G ports each would be required for connectivity with E-NodB, uplink and for connectivity with standby/redudant router. Hence, min 4 x 10G ports are required in the router to support the solution. Additionally, few 1G ports should be provisioned for other connectivity as well. Hence, we request to change the clause as follows: " Layer-3 devices shall be router or layer-3 switch and constitute the backbone with min 10x1G & 4x10G ports at line-rate throughput connected to NCRTC's LTE network"	Please follow Bid Conditions
1717	2			15.6.3- IoT: Remote monitoring of Railways asset to improve their availability	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	1. How much IoT Subscriber License to be considered. 2. Please let us know the IoT traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1718	2			15.7.1.3.A- The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please Refer Addendum and Corrigendum-02B
1719	2			15.7.1.10.K- The system shall have support for handling UE's that are periodically unavailable in order to extend battery time and to keep track when UE is reachable.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	This functionality is more useful in case of IoT Subscriber. Please let us know the IoT Subscriber count, IoT Traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1720	2			15.9- 4) point v - FIPS 140-2 compliant HW cryptography	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	The HW "FIPS mode" doesn't make system more secure. It just blocks access to newer cryptography schemes that are not pre-validated. This is an addon feature but may create issues during IOT with the MVNO network. Request to remove the cryptography requirement.	Please Refer Addendum and Corrigendum-02B
1721	2			15.9- 4) point x - Secure push service	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Secure push services is part for MDM system. The RFP does not mentions any such system. Please provide the details of a device managment system.	Please Refer Addendum and Corrigendum-02B
1722	2			15.9- (5) Wireless Connectivity i. 3GPP Release 16 and upgradable to FRMCS.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	The FRMCS and 3GPP rel 16 are still awaited. The compliance to the standards is not clear yet and is difficult to comply. The clause should be normalized to the lower 3GPP Rel.	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1723	2			15.9- 11) Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, NOM	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	The RFP does not state requirement of Mobile device management system in RFP. Please provide more details for MDM.	Please Refer Addendum and Corrigendum-02B
1724	2			8.4.6- FAT shall demonstrate the correct operation of the Train Control and Signalling System, including LTE system, working together with all other systems with which it interfaces, as specified in the Specification. Interface protocol tests shall be completed prior to the commencement of the FAT for each interfacing system with the respective designated contractor. Any failed test shall be repeated after rectification. The Signalling contractor shall develop and agree with the designated contractor	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	We understand that in FAT, HW & Quality test of the offered Product has to be provided, as setups to demonstrate end-to-end funcitioning of the Product with other Network Elements are not available at Factory locations. Also all products are not manufactured at one location. We suggest that end-to-end Functional test to be part of Integrated Testing & Commisioning stage (step 7 section 8.2.1)	Please follow Bid Conditions
1725	2			15.5.10- LTE OEM shall have Radio Conformance and Configuration Validation lab in India. The lab should be equipped with 3GPP RF conformance testing and OEM specific network nodes / tools to carryout RAN configuration functional tests.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	We understand the Contractor/LTE OEM can tie-up with NABL accredated LAB for 3GPP RF conformance testing.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1726	2			15.7.4.1.4- The EUTRAN radio and baseband systems should support NB-IOT/ CAT-M1 without additional hardware and software.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	To save on initial deployment cost, we suggest NB-IOT activation to be included depending on the requirement at sites identified by NCRTC.	Please follow Bid Conditions
1727	2			15.7.4.1.5- The contractor shall provide a solution where FDD and TDD is supported simultaneously on the same common baseband running a common	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	TDD is required only at higher capacity sites and thus when required TDD support will be provided with required HW & SW on the same baseband.	Please follow Bid Conditions
1728	2			15.7.4.5.4- Carrier Bandwidth: The system shall support 1.4, 3, 5, 10, 15 and 20MHz carrier bandwidth	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	1.4 MHz not supported by 3GPP in 700MHz Band 28 and should be removed.	Please Refer Addendum and Corrigendum-02B
1729	2			15.7.6.3- Radio Module should be IP65 compliant and must be conventional cooled. There should not be any moving part like Fan inside or outside the Remote Radio Module.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	High capacity Radio module with FAN can replace requirment of more than one low capacity Radio modules and provide overall reduction in TCO by reducing the requirement of cables per Radio module and weight. For example, 2x2 MIMO for a 3 sector site can be supported by one single 6 pipe (3x2) Radio Module, with only one Power cable and one data cable. In comparison if low capacity Radio modules are used then one Radio module is required per sector. Thus we request Radio Modules should comply to the requirments of IP65, KPI & Service SLA with or without FAN.	Please follow Bid Conditions
1730	2			15.6.1- Wayside eNodeB hardware shall be installed on antennae mounting arrangements, if required (poles to be designed, procured and installed by the contractor). Reinforced locations along the parapet, at fixed intervals, of the viaduct for the installation of the antennae mounting arrangements will be provided by NCRTC. The design of the antenna mounting arrangement shall meet all statutory requirements, civil constraints, wind speeds etc for that area. This design (height, weight, material etc) shall	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Please clarify 1. how much space will be available at Reinforced locations along the parapet. 2. We understand that any civil work requirement to install pole for LTE Antennae mounting will be done by civil contractor.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1731	2			2.2.4 It is envisaged that there may be four stages of commissioning to revenue service as under….	Section 6B	As per project timelines from tender, understand that proposed OCC , Jangpura shall be ready only in Stage3. So, till then how the EPC, Core and its geo-redundancy, OCC being planned, managed for implementing Stage1 and 2? Do we expect to implement EPC as 1+1 at Duhai (BCC) first for stage1,2 and then deinstall and install one of EPC to OCC Jangpura during stage3? This will have additional cost/relocation during running network and Corresponding cost to be included within schedule Please clarify	Please follow Bid Conditions
1732	2			15.6.5 (5) The contractor shall liaise with WPC/DOT/SACFA and other government agencies like Aviation authorities and other local authorities for obtaining approvals for any of the scope of works pertaining to LTE system implementations including licenses	Section 6B_Particular Specification _Signalling and Train Control	Understand that operating Spectrum licenses and frequency for LTE shall be in the name of NCRTC and arranged by NCRTC. Also all fees for such licenses if any shall be paid by NCRTC. Please clarify.	Please follow Bid Conditions
1733	2			Multiple Radio networks, solutions as LTE, MVNO, Wifi/unlicensed band radio in tender requirement	Section 6B, 6C	Please clarify requirements on the tender mentioned multiple Radio network solutions options and its priority/plans like which applications on LTE, unlicensed radio/wifi, MVNO?? Whether few applications to be available on both solutions?	Please Refer Addendum and Corrigendum-02B
1734	2			15.8..1 - Cab LTE Modem (2) It should support Dual SIM with Active Standby. One SIM for NCRTC Captive LTE Network and the other SIM for MVNO Network. With Priority setting for NCRTC LTE Network. (3) Essential Services ETCS Data, MCPTT Voice and alarms and messages of other On-Board Units (e.g. TIMS, EVC, PA System etc) shall be primarily rerouted through the NCRTC LTE Network, whereas other services such as On-Board CCTV Transmission, IoT	Section 6B, 6C	whether both networks (as LTE, MVNO) usage are simultaneous and SIMS active together? Or is MVNO to be used/active only if LTE not operational?	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1735	2			15.9 (5) Ruggedised MCPTT hand held terminals - Wireless connecticity. Dual SIM with Active Standby (One SIM for NCRTC Captive usage LTE Network and another SIM for MVNO Network)	Section 6B_Particular Specification _Signalling and Train Control	whether both networks (as LTE, MVNO) usage are simultaneous and SIMS active together? Or is MVNO to be used/active only if LTE not operational?	Please Refer Addendum and Corrigendum-02B
1736	2			39	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.8** Cab LTE Modem- I. Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements.	please share more clarity on range of the environmental conditions required to oprate	Please refer clause 6.7.4.1 (1)
1737	2			111	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 8.4.6**- FAT shall demonstrate the correct operation of the Train Control and Signalling System, including LTE system, working together with all other systems with which it interfaces, as specified in the Specification. Interface protocol tests shall be completed prior to the commencement of the FAT for each interfacing system with the respective designated contractor. Any failed test shall be repeated after rectification. The Signalling contractor shall develop and agree with the designated contractor	We understand that in FAT, HW & Quality test of the offered Product has to be provided, as setups to demonstrate end-to-end funcitioning of the Product with other Network Elements are not available at Factory locations. Also all products are not manufactured at one location. We suggest that end-to-end Functional test to be part of Integrated Testing & Commisioning stage (step 7 section 8.2.1)	Please follow Bid Conditions
1738	2			135	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause** 11.2- Maintenance During Defect Liability Period (DLP)	Please confirm on the tenure of DLP.	Please follow Bid Conditions
1739	2			135	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 11.2.1.5**- Contractor shall ensure that competent team of engineers for each sub-system is available to assist/attend failures to meet maintainability requirements given in P.S. and G.S	Please confirm on the KPIs/SLAs for O&M	Please follow Bid Conditions
1740	2			137	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 11.3.1.5**- The Contractor shall provide all tools, equipment, Configuration & Customization data, manuals and training necessary for the Employer to maintain all the software identified in the list as per Chapter-6 of this PS.	Please specify if NCRTC will provide requried NOC operations tools and Contractor/LTE OEM shall use customer tools for daily operations (L1 and L2)?	Please follow Bid Conditions
1741	2				**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 12.8.4.1**- The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include su Control & Signalling including LTE system in minimu G-M corridor (mainline and depot). The subsystems s fashion and interface with Computer Based Training (	We understand that min configuration of all subsystems of LTE-R network incl on board equipemnt to be set up at training center. Pl confirm	Please follow Bid Conditions
1742	2				**Part-2: Section: 6B - Particluar Specifications - Si Communication System Clause 11.6**- Maintenance ETCS system is required to include local and remote diagnostic capabilities to detect and react to various diagnostic capabilities shall be available at OCC, SC interrogate the status of trainborne and trackside equi isolation. It shall be possible to remotely download th	Kindly confirm who will provide this "Maintenance Management System" and what is expectation from Contractor/ LTE OEM operations team on same?	Please follow Bid Conditions
1743	2			143	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 11.8.1 , 11.8.4, 11.8.5**- Supervision of Maintenance 11.8.1 The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer. 11.8.4 The Contractor shall provide supervisory maintenance staff who are experts in the first, Second and third line fault finding, maintenance and repair of the various systems supplied under the Contract covering at least the following: 11.8.5 The deployment of the experts may not be continuous, and they may be required to supervise the maintenance in short periods at the discretion of the Employer.	Kindly confirm if mentioned 3 clauses can be understand as following: Contractor/LTE OEM need to provide supervisory staff for supervsion of "NCRTC provided maintenance personnel". This Contractor/LTE OEM provided supervisory staff may needed for short duration time as per prior agreement with NCRTC. If this understanding is fine, kindly help with requried period of requested supervisory staff.	Please follow Bid Conditions
1744	2			149	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 13.4** Transfer of Technology 13.4.2 TOT shall be essential and shall include installation, and maintenance support.	The scope of TOT is installation and maintenance support only. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1745	2			149	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.3**- NMS: The LTE Network Management System shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, Provisioning system and MC-PX services.	Please share the details of the functions required in Provisioning system.	Please Refer Addendum and Corrigendum-02B
1746	2			149	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.4 (1)**- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	The offer design and solution would match the feature set of FRMCS as per RFP requirements however FRMCS is still under finalisation and as of now there is not much clarity which all technology, functionalities would be part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B
1747	2			149	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.4 (3)**- The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024,…..	FRMCS is stil under finalisation and do not know which all technology, functionalities are part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B
1748	2			151	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.5** The proposed solution shall comply with the following: The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously.	In the said clause the poles are not mentioned therefore it is assumed that service life of poles also been included a operating continuously	Please follow Bid Conditions
1749	2			152	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6**- IoT: Remote monitoring of Railways asset to improve their availability.	Kindly share detail on the assets being c with any specific protocol requirements.	Please follow Bid Conditions
1750	2			154	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.1**- Wayside eNodeB hardware shall be installed on antennae mounting arrangements, if required (poles to be designed, procured and installed by the contractor). Reinforced locations along the parapet, at fixed intervals, of the viaduct for the installation of the antennae mounting arrangements will be provided by NCRTC. The design of the antenna mounting arrangement shall meet all statutory requirements, civil constraints, wind speeds etc for that area. This design (height, weight, material etc) shall be approved by the employer, based on the RF planning simulation results and interfacing with the civil contractor.	Please clarify 1. how much space will be available at R parapet. 2. We understand that any civil work req Antennae mounting will be done by civil c	Please follow Bid Conditions
1751	2			154	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.4**- The LTE system contractor shall demonstrate radio interoperability tests between their LTE equipment and the equipment of another LTE contractor. The LTE system contractor must submit certification for interoperability. This test certification must be issued by Accredited Test Houses of LTE/3GPP or a self-certification from Board Level member of the LTE OEM. The Inter-Operability Certificates have to be submitted for the EPC and RAN Infrastructure Equipment.	Interoperabilty Demonstartion is not the viable way for IOT . LTE is proven technology and There are several commercial network in operation where EPC and RAN supplied by different OEM's across the globe. We suggest to submit either the reference certificate of such network or visit can be arranged to site of one of such network. Also, there is no certified NoBO/Lab/Insitute to carry out, certifiy Interoperability of LTE for Railways. Hence this requirement to be remeoved or to be suitably amended	Please follow Bid Conditions
1752	2			155	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.4 (1)** The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	Because the FRMCS is not frozen, so the cost of new release to support FRMCS is excluded in this tender, and should be discussed further. Please confirm.	Please Refer Addendum and Corrigendum-02B
1753	2			155	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.4 (3)**- EPC and RAN should support interoperability as per minimum 3GPP release 16 or latest	Kindly ammend the 3GPP Release to 15 or latest.	Please Refer Addendum and Corrigendum-02B
1754	2			157	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.5.10**- LTE OEM shall have Radio Conformance and Configuration Validation lab in India. The lab should be equipped with 3GPP RF conformance testing and OEM specific network nodes / tools to carryout RAN configuration functional tests.	We understand the Contractor/LTE OEM can tie-up with NABL accredated LAB for 3GPP RF conformance testing.	Please follow Bid Conditions
1755	2			158	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.1** (a) (Downlink)– 4 Mbps minimum, (Uplink)– 2 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of all eNodeB sites functioning.	What is the total bandwidth of networks? It is recommended that the bandwidth be set to 2 x 10 Mhz	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1756	2			158	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.3**- IoT: Remote monitoring of Railways asset to improve their availability	1. How much IoT Subscriber License to be considered. 2. Please let us know the IoT traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1757	2			160	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.2**- The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	Please clarify 1.What type of redundancy to be considered for SMPS (AC to DC converter) to feed DC power to eNode B & Router: 1+1 or N+1 configuration 2. We understand that as uninterrupted AC power will be available for Radio equipemnt, we need to consider only SMPS (AC to DC converter) without battery back up.	Please follow Bid Conditions
1758	2			160	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.3** (3) The (MCPTT Voice and S&TC Data) and On-Board CCTV Live stream from trains must be routed through separate Optical Fibre, through Backhaul.	Are the separate optical fibers from the base sta	Please follow Bid Conditions
1759	2			162	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.5** (4) LTE system architecture shall be supported by an RF study to ensure the capability of the system and its correct implementation.	What does RF study mean?	Please follow Bid Conditions
1760	2			163	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3 H** The EPC shall provide encryption for control Plane and User Plane LTE traffic. ETCS data and MCX services shall also be encrypted.	The encryption for control plane and user plane i shoub be provided in RAN backhual network. Pl	Please follow Bid Conditions
1761	2			163	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3 K**. The EPC and associated routing equipment (S-GW/P- GW) shall maintain a failover time of 300ms for each interconnection between the EPC and the NCRTC network.	The failover tim EPC nodes. Pl	Please follow Bid Conditions
1762	2			163	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3**.A- The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please follow Bid Conditions
1763	2			164	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3 R**. EPC shall support Equal Cost Multi Path, ECMP for first level load balancing.	The ECMP is function of router. The ECP should not supoort ECMP. Please confirm.	Please Refer Addendum and Corrigendum-02B
1764	2			164	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.17-** Rating group modifications.	PCRF sends PCC rules based on conditions to P-GW and P-GW can update RGs. This clause functionality is not applicable for PCRF	Please Refer Addendum and Corrigendum-02B
1765	2			164	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.17- 7)**Multiple Gx interfaces (for the same session)	Please provide more detail on" multiple Gx cases for the same session" requirement. This case should be removed as it doesn't seems feasible	Please Refer Addendum and Corrigendum-02B
1766	2			165	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.2**- LTE Pole and Passive Infrastructure Specifications…. OHE Mast may be utilized for installation of wayside LTE Antenna if they meet the following criteria	Mast height, design may not be sufficcient to take load of multiple LTE antennas as per radio planning and coverage requirements. It is also strongly suggested not to use OHE mast for Radio antenna as it would be risky to maintain and prone to accident because of HT lines, HV inteferances etc. Hence will suggest, allow Poles at stations (possibly RTT) and separate feasible Pole designs for mid section.	Please Refer Addendum and Corrigendum-02B
1767	2			165	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.17- J)** Support of content screening, white-lists and blacklists.	This functionality is supported outside PCRF and this clause should be removed from PCRF	Please Refer Addendum and Corrigendum-02B
1768	2			165	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.17- H)**The PCRF shall support to manage mobile access congestion control.	This clause is more applicable from Large telecom networks. It doesn't seems relevant for this Tender. This clause can be removed	Please Refer Addendum and Corrigendum-02B
1769	2			165	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.17- L)** The PCRF vendor shall state if overlapping IP addresses are supported, for example with VPN	Please specify use case of IP Overlapping. This clause should be removed from PCRF	Please follow Bid Conditions
1770	2			165	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause - 15.7.1.17 P)**The PCRF shall provide a direct interface towards MME that will enable the launch of added value use cases.	There is no direct interface between MME and PCRF defined in 3GPP standards. This clasue should be removed	Please Refer Addendum and Corrigendum-02B

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1771	2			167	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.10.K**- The system shall have support for handling UE's that are periodically unavailable in order to extend battery time and to keep track when UE is reachable.	This functionality is more useful in case of IoT Subscriber. Please let us know the IoT Subscriber count, IoT Traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1772	2			174	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.3.2 (2)** The private key of the nodes has to be stored in a secure part of the HW and not in the normal file system.	The security of private key of the nodes should be g bidder should explain the security mechanism, but th not required. Please confirm.	Please follow Bid Conditions
1773	2			175	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.1.4**- The EUTRAN radio and baseband systems should support NB-IOT/ CAT-M1 without additional hardware and software.	To save on initial deployment cost, we suggest NB-I included depending on the requirement at sites iden	Please follow Bid Conditions
1774	2			175	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.1.5**- The contractor shall provide a solution where FDD and TDD is supported simultaneously on the same common baseband running a common software.	TDD is required only at higher capacity sites and thu support will be provided with required HW & SW on	Please follow Bid Conditions
1775	2			175	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.10 (1)**- The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Please remove the requirements of 'concurrently' lo login through multiple devices. However, concurrent device may be sec and login into other	Please follow Bid Conditions
1776	2			176	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.2 (7)** EUTRAN KPI 7 – The EUTRAN shall be designed, installed and commissioned to maintain an average uplink and ownlink resource block utility rate of <70% for each radio sector, computed as a moving average over an hourly period in normal operation	In the radio coverage plan, the resource block utility rate is 100%, and in the radio capacity plan, the resource block utility rate should be less than 70%. Please confirm.	Please follow Bid Conditions
1777	2			177	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.3 (2)** The system shall support the following types of Intra-LTE Handover: 1. Intra MME and SGW. 2. Inter MM. 3. Inter MME and SG Inter SGW. 4. Over X2. 5. Over S1	What does Inter MM mean?	Please Refer Addendum and Corrigendum-02B
1778	2			178	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.5.4**- Carrier Bandwidth: The system shall support 1.4, 3, 5, 10, 15 and 20MHz carrier bandwidth	1.4 MHz not supported by 3GPP in 700MHz Band 28 and should be removed.	Please Refer Addendum and Corrigendum-02B
1779	2			178	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.6.3**- Radio Module should be IP65 compliant and must be conventional cooled. There should not be any moving part like Fan inside or outside the Remote Radio Module.	High capacity Radio module with FAN can replace requirment of more than one low capacity Radio modules and provide overall reduction in TCO by reducing the requirement of cables per Radio module and weight. For example, 2x2 MIMO for a 3 sector site can be supported by one single 6 pipe (3x2) Radio Module, with only one Power cable and one data cable. In comparison if low capacity Radio modules are used then one Radio module is required per sector. Thus we request Radio Modules should comply to the requirments of IP65, KPI & Service SLA with or without FAN.	Please follow Bid Conditions
1780	2			179	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.10.2**- SMS requirement	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
1781	2			179	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.10.2**- NCRTC must provide SMS	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
1782	2			179	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause15.7.8.1(2)- (2)** The entirety of all rail tracks, tunnels, dives and stations, above or below ground.	Need geographical boundries of these locations in KML/TAB format.	Please Refer Addendum and Corrigendum-02B
1783	2			180	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.8.3 (6)** The Coverage shall be in such a way that even with failure of one eNodeB (BBU and RRU), the Radio coverage for any Train and Handheld shall not be affected and the coverage to the SCR/OCC Fixed Radios shall not be affected. Hence there has to be overlapping coverage design for RRTS Corridor areas.	The extra 5MHz is recommended in the overlapping coverage design. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1784	2			180	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.8.2**- General Capacity Requirements A. In normal operational conditions, the “General Coverage area” area shall simultaneously support the following requirements taking into consideration the limits imposed on each application specified. 1. 300 connected UEs per sector. 2.Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector. 3.Minimum four (4) active ETCS sessions/instance per 1 km of track length, per track. 4.Minimum One (1) active on- board CCTV stream per Train, which shall be modelled as being along the rail and at the cell edge.	Kindly provide the details for RF planning as below: 1. user Traffic profile of MCPTT user is required 2. user traffic profile of ETCS user is required 3. User Traffic profile of CCTV Stream(Duration/data rat	Please follow Bid Conditions
1785	2			180	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause15.7.8.3(2)**- The area of each Contractor defined sector shall not present any gaps which fall below the specified minimum SINR or RSRP.	Kindly provide the minimum SINR and RSRP values .	Please Refer Addendum and Corrigendum-02B
1786	2			184	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.8.1**- Cab LTE Modem require SIM card (Subscriber Identity Module) for communication	Please provide the qua	Please Refer Addendum and Corrigendum-02B
1787	2			188	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.13**- The FRMCS NMS (LTE-NMS) shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, HSS, Provisioning system and MC-PTT server. This shall be used for centralized operation and maintenance including FCAPS functions.	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm.	Please follow Bid Conditions
1788	2			188	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause15.7.13 (1)**- Single LTE-NMS solution shall support all the offered nodes in this RFP as defined by ITU-T, 3GPP in Rel. 7 i.e. 3GPP and smoothly upgradable to FRMCS.	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm. Please also clarify detail specification requirement of EMS under FRMCS.	Please follow Bid Conditions
1789	2			189	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause15.7.13 (9)**- LTE-NMS shall serve in multiple Supplier, multiple technology environment. Suitable up-gradation or additional elements required for existing elements shall be provided by the Supplier.	We understand scope of RFP is only restricted to EMS/NMS. Integration of Multiple supplier, multiple technology of current/existing equipment can be supported by umbrella OSS. In view of the same we request to remove this requirement. Pls confirm.	Please follow Bid Conditions
1790	2			189	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.13 (15)**- LTE-NMS shall have data backup facility for 3 months data. In case of critical data, which is to be decided mutually, the storage time shall be 1 year.	LTE NMS shall have online data backup capability for upto 14 days. however for longer duration proposed NMS shall be able to export the offline data to the external storage for 3 months provided by NCRTC. please confirm.	Please follow Bid Conditions
1791	2			189	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.13 (18)**- LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	We understand LTE radio NMS configuration tool shall be based on GUI to support automation of high frequency task, bulk configuration, plan provisioning and Auto radio parameter upload/export, pls confirm.	Please follow Bid Conditions
1792	2			190	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.8.1** Cab LTE Modem/ 1- Should support combined router/server	CAB LTE device is a router as functionalities like routing - OSPF, GRE, QoS, redundancy switchover, etc. are router features. Hence, we request you to change the clause as follows: "Should be a fanless, passively cooled router"	Please Refer Addendum and Corrigendum-02B
1793	2			190	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.9- 4)** point v - FIPS 140-2 compliant HW cryptography	The HW “FIPS mode” doesn’t make system more secure. It just blocks access to newer cryptography schemes that are not pre-validated. This is an addon feature but may create issues during IOT with the MVNO network. Request to remove the cryptography requirement.	Please Refer Addendum and Corrigendum-02B
1794	2			190	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.9- 4)** point x - Secure push service	Secure push services is part for MDM system. The RFP does not mentions any such system. Please provide the details of a device managment system.	Please Refer Addendum and Corrigendum-02B
1795	2			190	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.9- (5)** Wireless Connectivity i. 3GPP Release 16 and upgradable to FRMCS.	The FRMCS and 3GPP rel 16 are still awaited. The complian standards is not clear yet and is difficult to comply. The claus normalized to the lower 3GPP Rel.	Please Refer Addendum and Corrigendum-02B
1796	2			191	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.8.1** Cab LTE Modem/ 6- Shall support routing protocols include EIGRP, OSPF, GRE, mGRE	EIGRP is a OEM proprietory protocol. Also, CAB LTE is goin LTE - IP/MPLS backbone. Hence, we request you to change follows: " Shall support routing protocols include IS-IS, OSPF, GRE/m MPLS".	Please Refer Addendum and Corrigendum-02B
1797	2			191	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.8.1** Cab LTE Modem/ 7- Shall support advanced security features include VPN/DMVPN, VRFs and firewall	Routers should support advanced security using MPLS VPNs encryption and authentication algorithms and Access control lists (ACLs). H request you to change the clause as follows: "Shall support advanced sec firewall/encryption/authentica	Please follow Bid Conditions

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1798	2			191	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.8.1** Cab LTE Modem/ 9- Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements	CAB LTE routers are going to be installed inside CAB where temperature variations are going to be high. Also it needs to be robust and support continuous working in harsh temperature conditions incase of AC failure. Hence, we request you to change the clause as follows: "Systems should operate in a wide range of environmental conditions (temperature support min -30 to 65 degrees)"	Please refer clause 6.7.4.1 (1)
1799	2			191	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.9- 11)** Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, NOM	The RFP does not state requirement of Mobile device management system in RFP. Please provide more details for MDM.	Please Refer Addendum and Corrigendum-02B
1800	2			198	**Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.11** Router Specifications/ 1- Layer-3 devices shall be router or layer-3 switch and constitute the backbone 10G/of links connected to NCRTC's LTE network	1 x 10G ports each would be required for connectivity with E-NodB, uplink and for connectivity with standby/redudant router. Hence, min 4 x 10G ports are required in the router to support the solution. Additionally, few 1G ports should be provisioned for other connectivity as well. Hence, we request to change the clause as follows: " Layer-3 devices shall be router or layer-3 switch and constitute the backbone with min 10x1G & 4x10G ports at line-rate throughput connected to NCRTC's LTE network"	Please follow Bid Conditions
1801	2			NA	NA- NA	There are no clear requirement on the security w.r.t Gn interfaces management (DNS) and firewall (FW). Please clarify the requirements.	Please follow Bid Conditions
1802	2			NA	11- NA	Can Contractor/LTE OEM assume NCRTC will be providing access and transport to the sites on the track whenever any corrective/preventive maintenance is required?	Please follow Bid Conditions
1803	2			NA	11- NA	Will NCRTC be providing cranes to Contractor/LTE OEM to support maintenance on poles if required?	Please follow Bid Conditions
1804	2			NA	Client terminal licenses to access the EMS	How many client SW licenses required in EMS/NMS.	Please follow Bid Conditions
1805	2			15.4 (1)- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases…..	Section 6B_Particular Spec Signaling and Train Control Chapter 15	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please Refer Addendum and Corrigendum-02B
1806	2			15.4 (3)- The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024,…..	Section 6B_Particular Spec Signaling and Train Control Chapter 15	FRMCS is stil under finalisation and do not know which all technology, functionalities are part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1807	2			15.6.4- The LTE system contractor shall demonstrate radio interoperability tests between their LTE equipment and the equipment of another LTE contractor. The LTE system contractor must submit certification for interoperability. This test certification must be issued by Accredited Test Houses of LTE/3GPP or a self-certification from Board Level member of the LTE OEM. The Inter-Operability Certificates have to be submitted for the EPC and RAN Infrastructure	Section 6B_Particular Spec Signaling and Train Control Chapter 15	Interoperabilty Demonstartion is not the viable way for IOT . LTE is proven technology and There are several commercial network in operation where EPC and RAN supplied by different OEM's across the globe. We suggest to submit either the reference certificate of such network or visit can be arranged to site of one of such network. Also, there is no certified NoBO/Lab/Insitute to carry out, certifiy Interoperability of LTE for Railways. Hence this requirement to be remeoved or to be suitably amended	Please follow Bid Conditions
1808	2			15.6.4 (3)- EPC and RAN should support interoperability as per minimum 3GPP release 16 or latest	Section 6B_Particular Spec Signaling and Train Control Chapter 15	Kindly ammend the 3GPP Release to 15 or latest.	Please Refer Addendum and Corrigendum-02B
1809	2			15.7.2- LTE Pole and Passive Infrastructure Specifications…. OHE Mast may be utilized for installation of wayside LTE Antenna if they meet the following criteria	Section 6B_Particular Spec Signaling and Train Control Chapter 15	Mast height, design may not be sufficcient to take load of multiple LTE antennas as per radio planning and coverage requirements. It is also strongly suggested not to use OHE mast for Radio antenna as it would be risky to maintain and prone to accident because of HT lines, HV inteferances etc. Hence will suggest, allow Poles at stations (possibly RTT) and separate feasible Pole designs for mid section.	Please Refer Addendum and Corrigendum-02B
1810	2			15.8.1- Cab LTE Modem require SIM card (Subscriber Identity Module) for communication	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please provide the quantity of the SIM cards.	Please Refer Addendum and Corrigendum-02B
1811	2			15.8 Cab LTE Modem- I. Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements.	Chapter 15 LTE PS Short Version ver 17.pdf	please share more clarity on range of the environmental conditions required to oprate	Please refer clause 6.7.4.1 (1)

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1812	2			15.7.10.2- SMS requirement	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
1813	2			15.7.10.2- NCRTC must provide SMS	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
1814	2			15.7.10 (1)- The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please remove the requirements of 'concurrently' logging. It is possible to login through multiple devices. However, concurrent logging through multiple device may be security hazard in this case. Need to logout from one device and login into other device.	Please follow Bid Conditions
1815	2			15.6- IoT: Remote monitoring of Railways asset to improve their availability.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Kindly share detail on the assets being considered as part of this IOT along with any specific protocol requirements.	Please follow Bid Conditions
1816	2			15.3- NMS: The LTE Network Management System shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, Provisioning system and MC-PX services.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please share the details of the functions required in Provisioning system.	Please Refer Addendum and Corrigendum-02B
1817	2			NA- NA	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	There are no clear requirement on the security w.r.t Gn interfaces management (DNS) and firewall (FW). Please clarify the requirements.	Please follow Bid Conditions
1818	2			15.4 (1)- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	The offer design and solution would match the feature set of FRMCS as per RFP requirements however FRMCS is still under finalisation and as of now there is not much clarity which all technology, functionalities would be part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1							
S.No.	**Part**	**Section**	**Clause No.**	**Relevant Page No. of bid document**	**Complete Description of Clause**	**Queries by the Bidder**	**Replies by NCRTC**
1819	2			11.3.1.5- The Contractor shall provide all tools, equipment, Configuration & Customization data, manuals and training necessary for the Employer to maintain all the software identified in the list as per Chapter-6 of this PS.	Section 6B	Please specify if NCRTC will provide requried NOC operations tools and Contractor/LTE OEM shall use customer tools for daily operations (L1 and L2)?	Please follow Bid Conditions
1820	2			11- NA	Section 6B	Can Contractor/LTE OEM assume NCRTC will be providing access and transport to the sites on the track whenever any corrective/preventive maintenance is required?	Please follow Bid Conditions
1821	2			11- NA	Section 6B	Will NCRTC be providing cranes to Contractor/LTE OEM to support maintenance on poles if required?	Please follow Bid Conditions
1822	2			11.6- Maintenance Management System ETCS system is required to include local and remote maintenance and real time diagnostic capabilities to detect and react to various ETCS equipment failure types. The remote diagnostic capabilities shall be available at OCC, SCR, SMR and DCC to permit authorized personnel to interrogate the status of trainborne and trackside equipment, and provide active fault diagnosis and isolation. It shall be possible to	Section 6B	Kindly confirm who will provide this "Maintenance Management System" and what is expectation from Contractor/ LTE OEM operations team on same?	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1823	2			11.8.1 , 11.8.4, 11.8.5- Supervision of Maintenance 11.8.1 The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer. 11.8.4 The Contractor shall provide supervisory maintenance staff who are experts in the first, Second and third line fault finding, maintenance and repair of the various systems supplied under the	Section 6B	Kindly confirm if mentioned 3 clauses can be understand as following: Contractor/LTE OEM need to provide supervisory staff for supervsion of "NCRTC provided maintenance personnel". This Contractor/LTE OEM provided supervisory staff may needed for short duration time as per prior agreement with NCRTC. If this understanding is fine, kindly help with requried period of requested supervisory staff.	Please follow Bid Conditions
1824	2			15.7.8.1(2)- (2) The entirety of all rail tracks, tunnels, dives and stations, above or below ground.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Need geographical boundries of these locations in KML/TAB format.	Please Refer Addendum and Corrigendum-02B
1825	2			15.7.8.2- General Capacity Requirements A. In normal operational conditions, the “General Coverage area” area shall simultaneously support the following requirements taking into consideration the limits imposed on each application specified. 1. 300 connected UEs per sector. 2.Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Kindly provide the details for RF planning as below: 1. user Traffic profile of MCPTT user is required 2. user traffic profile of ETCS user is required 3. User Traffic profile of CCTV Stream(Duration/data rates)	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1826	2			15.7.8.3(2)- The area of each Contractor defined sector shall not present any gaps which fall below the specified minimum SINR or RSRP.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Kindly provide the minimum SINR and RSRP values .	Please Refer Addendum and Corrigendum-02B
1827	2			15.6.2- The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Please clarify 1.What type of redundancy to be considered for SMPS (AC to DC converter) to feed DC power to eNode B & Router: 1+1 or N+1 configuration 2. We understand that as uninterrupted AC power will be available for Radio equipemnt, we need to consider only SMPS (AC to DC converter) without battery back up.	Please follow Bid Conditions
1828	2			12.8.4.1- The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include supply and installation of all sub-systems of Train Control & Signalling including LTE system in minimum configuration (excluding MPD) used on entire D-G-M corridor (mainline and depot). The subsystems so provided shall be interconnected in a logical fashion and interface with Computer Based Training (CBT) platform.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	We understand that min configuration of all subsystems of LTE-R network incl on board equipemnt to be set up at training center. Pl confirm	Please follow Bid Conditions
1829	2			15.7.1.17- Rating group modifications.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	PCRF sends PCC rules based on conditions to P-GW and P-GW can update RGs. This clause functionality is not applicable for PCRF	Please Refer Addendum and Corrigendum-02B
1830	2			15.7.1.17-7)Multiple Gx interfaces (for the same session)	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please provide more detail on" multiple Gx cases for the same session" requirement. This case should be removed as it doesn't seems feasible	Please Refer Addendum and Corrigendum-02B
1831	2			15.7.1.17- J) Support of content screening, white-lists and blacklists.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	This functionality is supported outside PCRF and this clause should be removed from PCRF	Please Refer Addendum and Corrigendum-02B
1832	2			15.7.1.17- H)The PCRF shall support to manage mobile access congestion control.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	This clause is more applicable from Large telecom networks. It doesn't seems relevant for this Tender. This clause can be removed	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1833	2			15.7.1.17- L) The PCRF vendor shall state if overlapping IP addresses are supported, for example with VPN	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	Please specify use case of IP Overlapping. This clause should be removed from PCRF	Please follow Bid Conditions
1834	2			- P)The PCRF shall provide a direct interface towards MME that will enable the launch of added value use cases.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	There is no direct interface between MME and PCRF defined in 3GPP standards. This clasue should be removed	Please Refer Addendum and Corrigendum-02B
1835	2			15.7.13- The FRMCS NMS (LTE-NMS) shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, HSS, Provisioning system and MC-PTT server. This shall be used for centralized operation and maintenance including FCAPS functions.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm.	Please follow Bid Conditions
1836	2			15.7.13 (1)- Single LTE-NMS solution shall support all the offered nodes in this RFP as defined by ITU-T, 3GPP in Rel. 7 i.e. 3GPP and smoothly upgradable to FRMCS.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm. Please also clarify detail specification requirement of EMS under FRMCS.	Please follow Bid Conditions
1837	2			15.7.13 (9)- LTE-NMS shall serve in multiple Supplier, multiple technology environment. Suitable up-gradation or additional elements required for existing elements shall be provided by the Supplier.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand scope of RFP is only restricted to EMS/NMS. Integration of Multiple supplier, multiple technology of current/existing equipment can be supported by umbrella OSS. In view of the same we request to remove this requirement. Pls confirm.	Please follow Bid Conditions
1838	2			15.7.13 (15)- LTE-NMS shall have data backup facility for 3 months data. In case of critical data, which is to be decided mutually, the storage time shall be 1 year.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	LTE NMS shall have online data backup capability for upto 14 days. however for longer duration proposed NMS shall be able to export the offline data to the external storage for 3 months provided by NCRTC. please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1839	2			15.7.13 (18)- LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC	We understand LTE radio NMS configuration tool shall be based on GUI to support automation of high frequency task, bulk configuration, plan provisioning and Auto radio parameter upload/export, pls confirm.	Please follow Bid Conditions
1840	2			- Client terminal licenses to access the EMS		How many client SW licenses required in EMS/NMS.	Please follow Bid Conditions
1841	2			15.8.1 Cab LTE Modem/ 1- Should support combined router/server	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	CAB LTE device is a router as functionalities like routing - OSPF, GRE, QoS, redundancy switchover, etc. are router features. Hence, we request you to change the clause as follows: "Should be a fanless, passively cooled router"	Please Refer Addendum and Corrigendum-02B
1842	2			15.8.1 Cab LTE Modem/ 6- Shall support routing protocols include EIGRP, OSPF, GRE, mGRE	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	EIGRP is a OEM proprietory protocol. Also, CAB LTE is going to be part of LTE - IP/MPLS backbone. Hence, we request you to change the clause as follows: " Shall support routing protocols include IS-IS, OSPF, GRE/mGRE and IP-MPLS".	Please Refer Addendum and Corrigendum-02B
1843	2			15.8.1 Cab LTE Modem/ 7- Shall support advanced security features include VPN/DMVPN, VRFs and firewall	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	Routers should support advanced security using MPLS VPNs, advanced encryption and authentication algorithms and Access control lists (ACLs). Hence, we request you to change the clause as follows: "Shall support advanced security features include VPN/DMVPN, VRFs and firewall/encryption/authentication (AES/SHA)".	Please follow Bid Conditions
1844	2			15.8.1 Cab LTE Modem/ 9- Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	CAB LTE routers are going to be installed inside CAB where temperature variations are going to be high. Also it needs to be robust and support continuous working in harsh temperature conditions incase of AC failure. Hence, we request you to change the clause as follows: "Systems should operate in a wide range of environmental conditions (temperature support min -30 to 65 degrees)"	Please refer clause 6.7.4.1 (1)

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1845	2			15.11 Router Specifications/ 1- Layer-3 devices shall be router or layer-3 switch and constitute the backbone 10G/of links connected to NCRTC's LTE network	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control	1 x 10G ports each would be required for connectivity with E-NodB, uplink and for connectivity with standby/redudant router. Hence, min 4 x 10G ports are required in the router to support the solution. Additionally, few 1G ports should be provisioned for other connectivity as well. Hence, we request to change the clause as follows: " Layer-3 devices shall be router or layer-3 switch and constitute the backbone with min 10x1G & 4x10G ports at line-rate throughput connected to NCRTC's LTE network"	Please follow Bid Conditions
1846	2			15.6.3- IoT: Remote monitoring of Railways asset to improve their availability	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	1. How much IoT Subscriber License to be considered. 2. Please let us know the IoT traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1847	2			15.7.1.3.A- The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please Refer Addendum and Corrigendum-02B
1848	2			15.7.1.10.K- The system shall have support for handling UE's that are periodically unavailable in order to extend battery time and to keep track when UE is reachable.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf	This functionality is more useful in case of IoT Subscriber. Please let us know the IoT Subscriber count, IoT Traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1849	2			15.9- 4) point v - FIPS 140-2 compliant HW cryptography	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	The HW "FIPS mode" doesn't make system more secure. It just blocks access to newer cryptography schemes that are not pre-validated. This is an addon feature but may create issues during IOT with the MVNO network. Request to remove the cryptography requirement.	Please Refer Addendum and Corrigendum-02B
1850	2			15.9- 4) point x - Secure push service	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Secure push services is part for MDM system. The RFP does not mentions any such system. Please provide the details of a device managment system.	Please Refer Addendum and Corrigendum-02B
1851	2			15.9- (5) Wireless Connectivity i. 3GPP Release 16 and upgradable to FRMCS.	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	The FRMCS and 3GPP rel 16 are still awaited. The compliance to the standards is not clear yet and is difficult to comply. The clause should be normalized to the lower 3GPP Rel.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1852	2			15.9- 11) Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, NOM	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	The RFP does not state requirement of Mobile device management system in RFP. Please provide more details for MDM.	Please Refer Addendum and Corrigendum-02B
1853	2			8.4.6- FAT shall demonstrate the correct operation of the Train Control and Signalling System, including LTE system, working together with all other systems with which it interfaces, as specified in the Specification. Interface protocol tests shall be completed prior to the commencement of the FAT for each interfacing system with the respective designated contractor. Any failed test shall be repeated after rectification. The Signalling contractor shall develop and agree with the designated	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	We understand that in FAT, HW & Quality test of the offered Product has to be provided, as setups to demonstrate end-to-end funcitioning of the Product with other Network Elements are not available at Factory locations. Also all products are not manufactured at one location. We suggest that end-to-end Functional test to be part of Integrated Testing & Commisioning stage (step 7 section 8.2.1)	Please follow Bid Conditions
1854	2			15.5.10- LTE OEM shall have Radio Conformance and Configuration Validation lab in India. The lab should be equipped with 3GPP RF conformance testing and OEM specific network nodes / tools to carryout RAN configuration functional tests.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	We understand the Contractor/LTE OEM can tie-up with NABL accredated LAB for 3GPP RF conformance testing.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1855	2			15.7.4.1.4- The EUTRAN radio and baseband systems should support NB-IOT/ CAT-M1 without additional hardware and software.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	To save on initial deployment cost, we suggest NB-IOT activation to be included depending on the requirement at sites identified by NCRTC.	Please follow Bid Conditions
1856	2			15.7.4.1.5- The contractor shall provide a solution where FDD and TDD is supported simultaneously on the same common baseband running a common	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	TDD is required only at higher capacity sites and thus when required TDD support will be provided with required HW & SW on the same baseband.	Please follow Bid Conditions
1857	2			15.7.4.5.4- Carrier Bandwidth: The system shall support 1.4, 3, 5, 10, 15 and 20MHz carrier bandwidth	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	1.4 MHz not supported by 3GPP in 700MHz Band 28 and should be removed.	Please Refer Addendum and Corrigendum-02B
1858	2			15.7.6.3- Radio Module should be IP65 compliant and must be conventional cooled. There should not be any moving part like Fan inside or outside the Remote Radio Module.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	High capacity Radio module with FAN can replace requirment of more than one low capacity Radio modules and provide overall reduction in TCO by reducing the requirement of cables per Radio module and weight. For example, 2x2 MIMO for a 3 sector site can be supported by one single 6 pipe (3x2) Radio Module, with only one Power cable and one data cable. In comparison if low capacity Radio modules are used then one Radio module is required per sector. Thus we request Radio Modules should comply to the requirments of IP65, KPI & Service SLA with or without FAN.	Please follow Bid Conditions
1859	2			15.6.1- Wayside eNodeB hardware shall be installed on antennae mounting arrangements, if required (poles to be designed, procured and installed by the contractor). Reinforced locations along the parapet, at fixed intervals, of the viaduct for the installation of the antennae mounting arrangements will be provided by NCRTC. The design of the antenna mounting arrangement shall meet all statutory requirements, civil constraints, wind speeds etc for that area. This design (height, weight, material etc) shall	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811	Please clarify 1. how much space will be available at Reinforced locations along the parapet. 2. We understand that any civil work requirement to install pole for LTE Antennae mounting will be done by civil contractor.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1860	2			**15.6.1 Network Planning, Design and Setup** **(d) Link budget summary** Note: Allocated frequency spectrum is subject to change and the same will be confirmed during design stage	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	As per Tender, 700Mhz is Tentative Spectrum & may change afterwards The Change in a Spectrum shall lead to change in Price Offer. Radio Unit Price may vary with Change in Spectrum. How NCRTC shall accommodate this effect of Price changes (if any) due to Spectrum Change? (Price Bid is valid for 180 days Only)	Please follow Bid Conditions
1861	2			**15.6.1 Network Planning, Design and Setup** (f) Leaky feeder cable can also be used for LTE coverage in underground section.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	1) Does NCRTC requries MIMO scenario inside Tunnel? 2) Can Yagi Solution providing MIMO scenario is allowed for underground section as an alternative to Leaky Feeder Solution? Please confirm. If Yes, NCRTC needs to do modifications in LTE BoQ accordingly for Yagi Solution	Please follow Bid Conditions
1862	2			**15.6.1 Network Planning, Design and Setup** **(n)** Radio planning shall involve the following tasks, but not limited to: • The nominal cell planning and coverage prediction for the track/route shall be submitted with Preliminary design and Contractor shall be responsible for signing off the proposed prediction map with NCRTC.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	Please confirm if NCRTC shall provide the Digital Maps for intended route for RF Predictions? In case of Spectrum change other than 700M, OEM needs to perform again for RF Predictions activity with new Frequency & Planning of eNB sites. NCRTC to bare an Additional cost for RF Predictions & Planning in case of Spectrum Change decision after Bid submission	Please follow Bid Conditions
1863	2			**15.7.1.3 EPC General Requirements:** **A.** The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	Our EPC Core supports 3GPP Release 14. Further discusstion is needed for further releases and FRMCS	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1864	2			**15.7.1.3 EPC General Requirements:** **H.** The EPC shall provide encryption for Control Plane and User Plane LTE traffic. ETCS data and MCX services shall also be encrypted.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	In 3GPP, user plane encryption is optional and also it affects EPC performance dramatically that it isn't used in In LTE commercial network. **Kindly remove** User Plane encryption from the clause	Please follow Bid Conditions
1865	2			**15.7.1.10 General Requirements (MME):** **C.** The system shall support Smart Paging to reduce Signalling Load in DGM Network.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	Priority paging for VoLTE is supported.However, S-GW does not support application or device awareness level paging **Please Modify** the Clause as "The Gateway shall support Priority paging for VoLTE" which shall sffice NCRTC requirements	Please follow Bid Conditions
1866	2			**15.7.1.17 General Requirements (PCRF):** **D.** Support the connection to more than one PCEF at the same time, one acting as normal PCEF and the other acting as DPI box. PCRF shall be able to coordinate these two nodes implementing the policies needed.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**"Clause Deletion request"**- PCRF does not support DPI interworking. This clause can be deleted because DPI interworking in PCRF is not mandatory.	Please follow Bid Conditions
1867	2			**15.7.1.17 General Requirements (PCRF):** **E.** The PCRF system shall provide telecom grade characteristics and a high availability: **3.** Data replication.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**"Clause Deletion request"** - Delete this item because data replication is not mandatory.	Please follow Bid Conditions
1868	2			**15.7.1.17 General Requirements (PCRF):** **H.** The PCRF shall support to manage mobile access congestion control.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**"Clause Deletion request"** - PCRF does not support to manage mobile access congestion control. Delete this item because it is not mandatory.	Please Refer Addendum and Corrigendum-02B
1869	2			**15.7.1.17 General Requirements (PCRF):** R. The PCRF shall support some mechanism of flexibility to modify AVP's to support vendor specific Gx extensions.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**"Clause Deletion request" -** In order to modify some AVP, PCRF should modify the code. Delete this item because it is not mandatory.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1870	2			**15.7.3.1 LTE Functionality** (14) To avoid interference with any other separate LTE network running parallel to NCRTC RRTS	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	NCRTC to consider for In Band interference generated by OtherLTE Operators operating on Same Band. Optimization efforts by OEMs shall not necessarily mitigate completer Interference. In that Case NCRTC needs to also discuss with other LTE Network Provider for optimization to maintain QoS of NCRTC NW in the overlapping route.	Please follow Bid Conditions
1871	2			**15.7.4.1 EUTRAN General Requirement** (6) The EUTRAN shall support and implement a priority, policing and QoS control function that supports a priority-based call pre-emption mechanism and hierarchy.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	EPC does not support call pre-emption function. The call pre-emption function is supported by eNB based on ARP. [**Modification request]** "The EPC shall support and implement a priority, policing and QoS control function based on QCI."	Please follow Bid Conditions
1872	2			**15.7.4.2 EUTRAN KPI's** (7) EUTRAN KPI 7 – The EUTRAN shall be designed, installed and commissioned to maintain an average uplink and downlink resource block utility rate of <70% for each radio sector, computed as a moving average over an hourly period in normal operation	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**"Clause Deletion request" -** Delete this item because Resource utilization ratio is not controllable by equipment. It depends on user behavior.	Please follow Bid Conditions
1873	2			**15.7.10 LTE MCX Application** (1) The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	Concurrent log on to MCPTT UEs and CAB Client with the same functional ID can be supported. But the detail call scenario needs to be designed in order to assign incoming call to a specific UE. For example, assuming that same function ID 100 is assigned to CAB driver's UE and CAB client of Train ID 100.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1874	2			**15.7.13 Network Management System** (18) LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	The proposed solution provides TCA, Audible/Visible Alarm and Alarm healing, Rule based SW upgrades is possible. [Modification request]	Please follow Bid Conditions
1875	2			**15.9 Ruggedized MCPTT Handheld Terminals (4) Security** iv. Encrypted mass memory ›› Tampering detection ›› PGP encrypted email	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**Deletion Request** - Its not mandatory Requirement	Please Refer Addendum and Corrigendum-02B
1876	2			**15.9 Ruggedized MCPTT Handheld Terminals (4) Security** v. FIPS 140-2 compliant HW cryptography	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	**Deletion Request** - Its not mandatory Requirement	Please Refer Addendum and Corrigendum-02B
1877	2			**15.9 Ruggedized MCPTT Handheld Terminals (5) Wireless Connectivity** i. 3GPP Release 16 and upgradable to FRMCS.	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control	The proposed device supports 3GPP Release 13 based LTE-R. Can be deleted because it is not mandatory.	Please Refer Addendum and Corrigendum-02B
1878	2			Page 153 of 420	Section 6B PS S&TC 15.6.1 3 (d) Link budget summary Frequency (MHz) 700 (Tentative)	700 MHz frequency is mapped to multiple 3GPP LTE frequency bands (B12, B13, B14, B17, B28, B29). Please conifrm specific 3GPP LTE frequency band that NCRTC is planning to use for LTE. Is the Ftequecny has been already alotted Kindly confirm.	Please follow Bid Conditions
1879	2			Page 149 of 420	Section 6B PS S&TC 15.4 (4) In case of meeting requirements of location-based services and functional aliasing temporary solution using dispatcher etc. are permitted, only if 3GPP Rel 16 specifications do not describe the Location based services and functional aliasing.	Since the 3GPP standard 16 is also not yet released, Should the dispatcher solution as location-based services and functional aliasing should be quoted as optional.	Please Refer Addendum and Corrigendum-02B
1880	2			Page 149 of 420	Section 6B PS S&TC 15.4 (2) & (3) (2) Any exclusions/deviation from the final FRMCS specification shall be jointly agreed upon between the Employer and Contractor. Employer's decision shall be final. (3) The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024, shall be considered	Since the FRMCs standard are yet to be formalised, please confirm the upgradation shall be available limited to software and any new functionalities which have hardware dependencies should not mandatory.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1881	2			Page 155 of 420	Section 6B PS S&TC 15.6.5 Radio Communication System architecture (2) EPC is the core of the system and will be located at OCC. EPC shall have backup system and will be located and BCC.	Please conform this redundant EPC (at OCC & BCC) as scope under DGM corridor will be common for all the other upcoming corridors in future and thier connectivity (BN Network) to this EPC will be under scope of respective corridors.	Please follow Bid Conditions
1882	2			Page 155 of 420	Section 6B PS S&TC 15.6.5 Radio Communication System architecture (3) The antennas are going to be mounted on poles on the viaduct and within the stations.	Since the enode B placement will be based on RF study for meeting the seemless coverage, It should not be be restricted for mounting limited to station areas.Kindly confirm	Please follow Bid Conditions
1883	2			Page 158 of 420	Section 6B PS S&TC **15.7.1.4 Audio recording** A. The LTE system shall interface to the Centralized Voice Recording System (CVRS) to provide the access of all radio voice communication for recording.	Recommended to change this requirememnt specific to LTE system (Voice) being vital part of communication. The CVRS under Telecom will cater for the other voice recording i.e PAS,Telephone & free space recording.	Please follow Bid Conditions
1884	2			Page 158 of 420	Section 6B PS S&TC 15.7.2 LTE Pole and Passive Infrastructure Specifications G. The optimum pole height (not more than 7 m), location, configuration, earthing, safety measures and orientation of eNodeB shall be engineered by the contractor.	Pole height limitation of 7 m is not suiatble as it will be based on RF study and may require more pole height.	Please follow Bid Conditions
1885	2			Page 158 of 420	Section 6B PS S&TC 15.7.2 2 LTE Pole and Passive Infrastructure Specifications M. For Underground section, i.e. tunnel and UG stations etc as per coverage requirement mentioned in this PS, if leaky coaxial cable solution is opted for the coverage requirement, the LCX cable must be laid using suitable Clamps made up of Stainless steel/Plastic of suitable grade.	Kindly conifrm the underground section is Bi- tunnel or monotunel.	Please follow Bid Conditions
1886	2			Page no. 192 of 420	**Section6B/Router Specifications / 15.11(2)**	RFP requires The Layer 3 device/router shall be redundant with hot standby. We understand that router reuires redundant controller and redundant data palne to ensure single control card failure donot impact the performance	Please follow Bid Conditions
1887	2			Page no. 184 of 420	**Section6B/Cab LTE Modem/15.8.1(1)**	RFP asks for combined router/server.we understand this means ithat the router should support hypervisor architecture to support Linux OS within and VM/Containers.	Please Refer Addendum and Corrigendum-02B
1888	2			Section 6B/15.6.5 The antennas are going to be mounted on poles on the viaduct and within the stations.	Section 6B_Particular Specifications_Signaling	We understand that the foundation (base) preparation for any poles at viaduct and stations lies within the civil scope and the sites for LTE will be handed to the LTE subcontractor in Ready-For-Installation (RFI) condition, including Civil, OFC and Raw Power readiness. Please confirm.	Please Refer Addendum and Corrigendum-02B
1889	2			3.7.4.2 The Contractor shall submit the Training and Transfer of Technology Plan by the date stated in the PS, or, if none is given, not less than six (6) months prior to the issue of the Taking Over Certificate for the Works and also to suit the staged commissioning of the relevant systems	Section 6A_General Specifications	1. For LTE, the Transfer of Technology plan is not applicable. Please confirm. 2. Also, in LTE PS no specific training needs are given. Please confirm the training requirements in terms of number of man-weeks and batches for the LTE training programme.	Please refer Section 6B, Chapter 13, Clause 13.4

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1890	2			Section 6A_General Specifications for S&T: Clause 8.2.1 (1) "Each case, crate or package shall be waterproof, rot-proof and insect/rodent-proof, of robust construction and suitable for the intended purposes. The Contractor shall, in determining the package materials to be used, take cognisance of the climatic conditions likely to occur during the period of transport, shipment and storage."	Section 6A_General Specifications	We request NCRTC to consider packaging to be in line with the environmental factors as defined in ETSI standards EN 300 019-1-1, class 1.2 & EN 300 019-1-2, class 2.3 for LTE OEM. Please confirm.	Please follow Bid Conditions
1891	2			15.4 (3) The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024, shall be considered and LTE is to be understood as the LTE for National Capital Region Transport corporation being defined in this document.	Section 6B_Particular Specifications_Signaling	Please confirm our understanding that the features that are evolving in FRMCS standard till Dec 2024, possible to be implemented with the offered HW and SW shall be implemented by the OEM.	Please Refer Addendum and Corrigendum-02B
1892	2			15.7.1.7 Control Plane and User plane should be expandable independently i.e. distributed across different locations.	Section 6B_Particular Specifications_Signaling	Please confirm our understanding that NCRTC requires to expand MME, HSS independently while media handling like SGW and PGW separately.	Please follow Bid Conditions
1893	2			15.7.1.13 Lawful interception and packet screening.	Section 6B_Particular Specifications_Signaling	Please confirm our understanding that product only needs to support Lawful Interception and Packet Screening functionalities, however these are not required to be implemented.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1894	2			15.5 The proposed LTE system for the NCRTC RRTS Project consists of LTE System comprising of Passive Infra, Active Infra, EPC (Evolved Packet Core), MCX services (Hardware & Software), Cab Equipment, Handsets, Fixed Radios for stations/Depots/Sections, Dispatchers, NMS etc. and associated services	Section 6B_Particular Specifications_Signaling	From the scope its understood that NCRTC LTE network will be completely captive and no integration to external world i.e. Internet world is required. Please confirm.	Please follow Bid Conditions
1895	2			15.6.1 Following points shall be followed to provide best coverage on the NCRTC's tracks, stations, depots, offices and other intended area mentioned in the document.	Section 6B_Particular Specifications_Signaling	Please provide the area and design considerations to be taken into account for providing coverage in tracks, stations (elevated, at-grade & underground), depots, depot test track(s), offices, and other intended areas, in terms of both throughput and capacity.	Please refer clause 15.7.8
1896	2			15.6.1 3(a) and (b) Following RF Parameters shall be considered while designing the network – Cell edge throughput (a) (Downlink)– 4 Mbps minimum, (Uplink)– 2 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of all eNodeB sites functioning. (b) (Downlink)– 2 Mbps minimum, (Uplink)– 1 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of single eNodeB sites failure.	Section 6B_Particular Specifications_Signaling	We understand in para (a) and (b) that the downlink and uplink speed have been mentioned per UE instead of per cell edge. Seems to be typo error. Please confirm.	Please follow Bid Conditions
1897	2			15.6.2 (1) The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	Section 6B_Particular Specifications_Signaling	The statements are contradicting each other in this para. Please clarify if any additional DG set need to be catered for meeting the requirement.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1898	2			15.6.3 (2) Single CPRI cable failure or single power cable failure shall not create gaps in network coverage.	Section 6B_Particular Specifications_Signaling	We understand that duplication of power cables would be possible only upto baseband. Please confirm.	Please follow Bid Conditions
1899	2			Apart from the submission of Contractor's and Sub-Contractor's Warranty, a Contractor's Designer warranty shall also be required to be submitted in Standard Contract as stated in Contract Forms, and should be made available at the time of signing of the contract.	Part B Specific Provisions Para 4.1	We understand that this clause is not applicable for LTE. Please confirm. If not, then kindly further elaborate on the "Contractor's Designer warranty".	Please follow Bid Conditions
1900	2			15.7.6 (4) Operating temp range: -10°to +65°Celsius.	Section 6B_Particular Specifications_Signaling	Commercially available LTE equipment worldwide supports upto +55°C operating temperature, thus we request the clause be amended accordingly. Please confirm.	Please Refer Addendum and Corrigendum-02B
1901	2			8.2 Sequence of Tests (TYPE Test and FAT)	Section 6B_Particular Specifications_Signaling	In order to avoid duplication of effort we recommend to conduct the acceptance testing onsite and accpet OEM factory test report for TYPE test and FAT for LTE OEM. Please confirm.	Please follow Bid Conditions
1902	2			Chapter 15, Radio Communications system, Scope 15.5 clause 5	Section 6B PS Signalling and Train control	"The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously". Our understanding is Contractor would consider software upgrade during these years and Employer would pay for Hardware upgrade if needed to have 15 years of service life, under a valid AMC contract.	Please Refer Addendum and Corrigendum-02B
1903	2			Chapter 4, Clause 4.3.6 Complete RBC or EPC failure, during DLP period shall call for imposition of penalty on the Signalling Contractor.	Section 6B PS Signalling and Train control	Our understanding here is EPC failure refers to complete EPC failure. Please confirm.	Please follow Bid Conditions
1904	2			Chapter 4, Clause 4.3.8 Onboard equipment (ETCS and LTE) failure (service affecting failure), during DLP period for more than one axle counter section shall call for imposition of penalty on the Signalling Contractor.	Section 6B PS Signalling and Train control	Equipment failure can happen due to not only product malfunction, but also operational issues like power availability, poor maintenance, environmental factors, force majeure, etc. Contractor would not be penalized for faults due to operational issues including, and not limited to, those mentioned above. Please confirm.	Please follow Bid Conditions
1905	2			Chapter 4, Clause 4.3.9 Wayside LTE equipment failure, two or more adjacent RRU or BBU failure shall call for imposition of penalty on the LTE contractor.	Section 6B PS Signalling and Train control	Equipment failure can happen due to not only product malfunction, but also operational issues like power availability, poor maintenance, environmental factors, force majeure, etc. Contractor would not be penalized for faults due to operational issues including, and not limited to, those mentioned above. Please confirm.	Please follow Bid Conditions
1906	2			15.11 (8) iii DoS Attack Prevention	Section 6B PS Signalling and Train control	We request to amend this clause as DoS Attack Prevention/ IP Access control list.Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1907	2			Chapter 4, Clause 4.4.2.3 The following MTTR shall be achieved: (1) 15 minutes for train-borne equipment; (2) 15 minutes for train detection equipment; (3) 30 minutes for other trackside equipment; and (4) 15 minutes for equipment located in equipment rooms or control rooms	Section 6B PS Signalling and Train control	Please note: For LTE - since first line maintenance will be done by Employer, the following SLAs are proposed upon escalation of fault to contractor. Severity Response time Remediation (workaround) Final Resolution P1 15 Minutes < 4 Hours P2 4 Hours < 3 days < 2 weeks P3 Next Bus Day < 8 weeks P4 Next Bus Day < 14 weeks Case Priorities When a case is created it is assigned one of the 4 following priorities: P1 : Production network down emergency, business operations are totally impacted. P2: Production network performance is degraded, business operations are impacted P3: Production network performance is degraded but most of the business operations remain functional P4: REL needs configuration assistance. There is no impact on business operations. Request you to amend accordingly. Please confirm.	Please follow Bid Conditions
1908	2			Chapter 4, Clause 4.4.2.4 The MTTR time measurement shall include on site diagnostics and rectification of the failure (including software re-boot) up to the point that the System is restored to full functionality. In the event that the failure cannot be rectified, this time measurement shall include the time necessary to removethe failed piece of equipment from the System and replace it with a functioning one.	Section 6B PS Signalling and Train control	Please confirm that Employer would provide remote connectivity to Contractor to enable provision of best-in-class maintenance service. Remote access is critical in handling emergency cases.	Please follow Bid Conditions
1909	2			Chapter 11, Clause 11.8.4 Supervisory maintenance staff - 5 man-months for LTE	Section 6B PS Signalling and Train control	Please clarify the number of resources expected and if required for both EPC and RAN. Our understanding is 1 resource for Core and 1 resource for RAN is requested. Please confirm.	Please follow Bid Conditions
1910	2			15.11 (4) Layer 3 device should comply to following Temperature performance parameters: i. Operating Temperature - min 0 to 65 °C ii. Storage Temperature - min 0 to 70 °C	Section 6B PS Signalling and Train control	Commercially available equipment worldwide supports upto +55°C operating temperature, thus we request the clause be amended accordingly. Please confirm.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1911	2			15.7.8.2 General Capacity Requirements (2) Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector.	Section 6B: PS-Signalling and Train control	With 5 MHz bandwidth in B28, the maximum number of simultaneous unicast calls is 50. Hence we propose this clause to be amended to: "Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 50 receiving MCX users evenly distributed within the sector."	Please follow Bid Conditions
1912	2			15.8.1 Cab LTE Modem (13) Data radios should transfer packet switched data over LTE network, with systems suitable for easy installation with European Train Control System (ETCS) equipment.	Section 6B: PS-Signalling and Train control	We understand that the Bidder offered Cab LTE Modem shall be a single combined unit (unibody) capable of handling voice and data for all applications, thus this clause referring to a "data radio" is not applicable. As indicated already in this section, Cab LTE Modem will support the requested applications, including ETCS, over LTE. Please confirm and accordingly delete this requirement.	Please Refer Addendum and Corrigendum-02B
1913	2			Section 15.7.1.3 (V) If Virtualized EPC is used 1) VNF's in vEPC must be using N+1 resilience. 2) The virtualization infrastructure shall have high availability in all its components to avoid any single points of failure. Preferably HW should also have some redundancy features to avoid single point of failures that could cause high failure rates i.e. discs, PSU's, NICs but the SW needs to be built to handle HW failures. 3) Applications aiming at high availability need to have full control of status for each of its ongoing processes. Resilience	Section 6B: PS-Signalling and Train control	We understand that all Core solution components supplied at single site should have Port ,Link , Server ,Router redundancy to comply High Availability requirement at each of the Geo-Red Site so that there is no single point of failure and services continuity is available. Please confirm.	Please follow Bid Conditions
1914	2			Section 6B/15.6.5 The antennas are going to be mounted on poles on the viaduct and within the stations.	Section 6B_Particular Specifications_Signaling	We understand that the foundation (base) preparation for any poles at viaduct and stations lies within the civil scope and the sites for LTE will be handed to the LTE subcontractor in Ready-For-Installation (RFI) condition, including Civil, OFC and Raw Power readiness. Please confirm.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1915	2			3.7.4.2 The Contractor shall submit the Training and Transfer of Technology Plan by the date stated in the PS, or, if none is given, not less than six (6) months prior to the issue of the Taking Over Certificate for the Works and also to suit the staged commissioning of the relevant systems	Section 6A_General Specifications	1. For LTE, the Transfer of Technology plan is not applicable. Please confirm. 2. Also, in LTE PS no specific training needs are given. Please confirm the training requirements in terms of number of man-weeks and batches for the LTE training programme.	Please refer Section 6B, Chapter 13, Clause 13.4
1916	2			15.4 (3) The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024, shall be considered and LTE is to be understood as the LTE for National Capital Region Transport corporation being defined in this document.	Section 6B_Particular Specifications_Signaling	Please confirm our understanding that the features that are evolving in FRMCS standard till Dec 2024, possible to be implemented with the offered HW and SW shall be implemented by the OEM.	Please Refer Addendum and Corrigendum-02B
1917	2			15.7.1.7 Control Plane and User plane should be expandable independently i.e. distributed across different locations.	Section 6B_Particular Specifications_Signaling	Please confirm our understanding that NCRTC requires to expand MME, HSS independently while media handling like SGW and PGW separately.	Please follow Bid Conditions
1918	2			15.7.1.13 Lawful interception and packet screening.	Section 6B_Particular Specifications_Signaling	Please confirm our understanding that product only needs to support Lawful Interception and Packet Screening functionalities, however these are not required to be implemented.	Please follow Bid Conditions
1919	2			15.5 The proposed LTE system for the NCRTC RRTS Project consists of LTE System comprising of Passive Infra, Active Infra, EPC (Evolved Packet Core), MCX services (Hardware & Software), Cab Equipment, Handsets, Fixed Radios for stations/Depots/Sections, Dispatchers, NMS etc. and associated services	Section 6B_Particular Specifications_Signaling	From the scope its understood that NCRTC LTE network will be completely captive and no integration to external world i.e. Internet world is required. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1920	2			15.6.1 Following points shall be followed to provide best coverage on the NCRTC's tracks, stations, depots, offices and other intended area mentioned in the document.	Section 6B_Particular Specifications_Signaling	Please provide the area and design considerations to be taken into account for providing coverage in tracks, stations (elevated, at-grade & underground), depots, depot test track(s), offices, and other intended areas, in terms of both throughput and capacity.	Please refer clause 15.7.8
1921	2			15.6.1 3(a) and (b) Following RF Parameters shall be considered while designing the network – Cell edge throughput (a) (Downlink)– 4 Mbps minimum, (Uplink)– 2 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of all eNodeB sites functioning. (b) (Downlink)– 2 Mbps minimum, (Uplink)– 1 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of single eNodeB sites failure.	Section 6B_Particular Specifications_Signaling	We understand in para (a) and (b) that the downlink and uplink speed have been mentioned per UE instead of per cell edge. Seems to be typo error. Please confirm.	Please follow Bid Conditions
1922	2			15.6.2 (1) The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	Section 6B_Particular Specifications_Signaling	The statements are contradicting each other in this para. Please clarify if any additional DG set need to be catered for meeting the requirement.	Please follow Bid Conditions
1923	2			15.6.3 (2) Single CPRI cable failure or single power cable failure shall not create gaps in network coverage.	Section 6B_Particular Specifications_Signaling	We understand that duplication of power cables would be possible only upto baseband. Please confirm.	Please follow Bid Conditions
1924	2			Apart from the submission of Contractor's and Sub-Contractor's Warranty, a Contractor's Designer warranty shall also be required to be submitted in Standard Contract as stated in Contract Forms, and should be made available at the time of signing of the contract.	Part B Specific Provisions Para 4.1	We understand that this clause is not applicable for LTE. Please confirm. If not, then kindly further elaborate on the "Contractor's Designer warranty".	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1925	2			15.7.6 (4) Operating temp range: -10°to +65°Celsius.	Section 6B_Particular Specifications_Signaling	Commercially available LTE equipment worldwide supports upto +55°C operating temperature, thus we request the clause be amended accordingly. Please confirm.	Please Refer Addendum and Corrigendum-02B
1926	2			8.2 Sequence of Tests (TYPE Test and FAT)	Section 6B_Particular Specifications_Signaling	In order to avoid duplication of effort we recommend to conduct the acceptance testing onsite and accept OEM factory test report for TYPE test and FAT for LTE OEM. Please confirm.	Please follow Bid Conditions
1927	2			10.7.2 Transfer of Technology - The Contractor shall, within 60 days of the Commencement Date of the Works, submit a Transfer of Technology Plan, with suitable Indian company or companies having proven track record and working in relative areas, for all imported systems/subsystems ensuring the provision of support for the period of minimum 15 years. The Contractor shall support his plan with Memoranda of Understanding (MOU) from the Indian company or companies.	Part IIA, Section 6A - GS	We understand that this clause is not applicable for OEMs who have presence in India through their wholly owned Indian subsidiaries. Please confirm.	Please refer Section 6B, Chapter 13, Clause 13.4
1928	2			Chapter 15, Radio Communications system, Scope 15.5 clause 5	Section 6B PS Signalling and Train control	"The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously". Our understanding is Contractor would consider software upgrade during these years and Employer would pay for Hardware upgrade if needed to have 15 years of service life, under a valid AMC contract.	Please Refer Addendum and Corrigendum-02B
1929	2			Chapter 4, Clause 4.3.6 Complete RBC or EPC failure, during DLP period shall call for imposition of penalty on the Signalling Contractor.	Section 6B PS Signalling and Train control	Our understanding here is EPC failure refers to complete EPC failure. Please confirm.	Please follow Bid Conditions
1930	2			Chapter 4, Clause 4.3.8 Onboard equipment (ETCS and LTE) failure (service affecting failure), during DLP period for more than one axle counter section shall call for imposition of penalty on the Signalling Contractor.	Section 6B PS Signalling and Train control	Equipment failure can happen due to not only product malfunction, but also operational issues like power availability, poor maintenance, environmental factors, force majeure, etc. Contractor would not be penalized for faults due to operational issues including, and not limited to, those mentioned above. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1931	2			Chapter 4, Clause 4.3.9 Wayside LTE equipment failure, two or more adjacent RRU or BBU failure shall call for imposition of penalty on the LTE contractor.	Section 6B PS Signalling and Train control	Equipment failure can happen due to not only product malfunction, but also operational issues like power availability, poor maintenance, environmental factors, force majeure, etc. Contractor would not be penalized for faults due to operational issues including, and not limited to, those mentioned above. Please confirm.	Please follow Bid Conditions
1932	2			15.11 (8) iii DoS Attack Prevention	Section 6B PS Signalling and Train control	We request to amend this clause as DoS Attack Prevention/ IP Access control list.Please confirm.	Please follow Bid Conditions
1933	2			Chapter 4, Clause 4.4.2.3 The following MTTR shall be achieved: (1) 15 minutes for train-borne equipment; (2) 15 minutes for train detection equipment; (3) 30 minutes for other trackside equipment; and (4) 15 minutes for equipment located in equipment rooms or control rooms	Section 6B PS Signalling and Train control	Please note: For LTE - since first line maintenance will be done by Employer, the following SLAs are proposed upon escalation of fault to contractor. Severity Response time Remediation (workaround) Final Resolution P1 15 Minutes < 4 Hours P2 4 Hours < 3 days < 2 weeks P3 Next Bus Day < 8 weeks P4 Next Bus Day < 14 weeks Case Priorities When a case is created it is assigned one of the 4 following priorities: P1 : Production network down emergency, business operations are totally impacted. P2: Production network performance is degraded, business operations are impacted P3: Production network performance is degraded but most of the business operations remain functional P4: REL needs configuration assistance. There is no impact on business operations. Request you to amend accordingly. Please confirm.	Please follow Bid Conditions
1934	2			Chapter 4, Clause 4.4.2.4 The MTTR time measurement shall include on site diagnostics and rectification of the failure (including software re-boot) up to the point that the System is restored to full functionality. In the event that the failure cannot be rectified, this time measurement shall include the time necessary to removethe failed piece of equipment from the System and replace it with a functioning one.	Section 6B PS Signalling and Train control	Please confirm that Employer would provide remote connectivity to Contractor to enable provision of best-in-class maintenance service. Remote access is critical in handling emergency cases.	Please follow Bid Conditions
1935	2			Chapter 11, Clause 11.8.4 Supervisory maintenance staff - 5 man-months for LTE	Section 6B PS Signalling and Train control	Please clarify the number of resources expected and if required for both EPC and RAN. Our understanding is 1 resource for Core and 1 resource for RAN is requested. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1936	2			15.11 (4) Layer 3 device should comply to following Temperature performance parameters: i. Operating Temperature - min 0 to 65 °C ii. Storage Temperature - min 0 to 70 °C	Section 6B PS Signalling and Train control	Commercially available equipment worldwide supports upto +55°C operating temperature, thus we request the clause be amended accordingly. Please confirm.	Please Refer Addendum and Corrigendum-02B
1937	2			15.7.8.2 General Capacity Requirements (2) Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector.	Section 6B: PS-Signalling and Train control	With 5 MHz bandwidth in B28, the maximum number of simultaneous unicast calls is 50. Hence we propose this clause to be amended to: "Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 50 receiving MCX users evenly distributed within the sector."	Please follow Bid Conditions
1938	2			15.8.1 Cab LTE Modem (13) Data radios should transfer packet switched data over LTE network, with systems suitable for easy installation with European Train Control System (ETCS) equipment.	Section 6B: PS-Signalling and Train control	We understand that the Bidder offered Cab LTE Modem shall be a single combined unit (unibody) capable of handling voice and data for all applications, thus this clause referring to a "data radio" is not applicable. As indicated already in this section, Cab LTE Modem will support the requested applications, including ETCS, over LTE. Please confirm and accordingly delete this requirement.	Please Refer Addendum and Corrigendum-02B
1939	2			Section 15.7.1.3 (V) If Virtualized EPC is used 1) VNF's in vEPC must be using N+1 resilience. 2) The virtualization infrastructure shall have high availability in all its components to avoid any single points of failure. Preferably HW should also have some redundancy features to avoid single point of failures that could cause high failure rates i.e. discs, PSU's, NICs but the SW needs to be built to handle HW failures. 3) Applications aiming at high availability need to have full control of status for each of its ongoing processes. Resilience	Section 6B: PS-Signalling and Train control	We understand that all Core solution components supplied at single site should have Port ,Link , Server ,Router redundancy to comply High Availability requirement at each of the Geo-Red Site so that there is no single point of failure and services continuity is available. Please confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1940	2			-	Generic	As the LTE equipment is active/radiating equipment, we understand that Bidder must be a holder of a valid Dealer Possession Licence (DPL) and NCRTC shall support Bidder with any necessary supporting documentation. Please confirm.	Please follow Bid Conditions
1941	2			Chapter 15, Radio Communications system	Section 6B: PS-Signalling and Train control	The Contractor shall be permitted to install Cabinet enclosures/LTE RAN solution on the adjacent parapet/railing/wall/tunnel if required. Please confirm.	Please follow Bid Conditions
1942	2			Chapter 15, Radio Communications system	Section 6B: PS-Signalling and Train control	We understand that the Power/Data/Fiber connection provided by the Contractor will be provided upto all the identified locations for poles for antenna mounting. Please confirm.	Please follow Bid Conditions
1943	2			Chapter 15, Radio Communications system 15.5 Scope The proposed solution shall comply with the following: (5) The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously. 15.14 RAMS Requirements Please refer to chapter 4 of this Tender.	Section 6B: PS-Signalling and Train control	The "Service Life" timelines for LTE Sub-systems are not clear. Clause 15 (5) requests 15 years while Clause 15.4 refers to period in Chapter 4. Also, the term "Service Life" in both these chapters is seemingly used interchangeably referring to "continuous operating life" as well as "availability". We request NCRTC to confirm that, like in other similar tenders, for LTE Sub-system: 1. The offered hardware lifecycle be 7 years; and 2. The offered software upgrade period be until end of the DLP period or 5 years from the date of supply, whichever is earlier (excluding any hardware implications); and 3. The availablity period & long-term support period be 10 years, subject to currency of a valid contiguous AMC contract for the LTE equipment. The Contractor shall duly notify NCRTC in writing prior to deleting any component of the System from general availability and submit written assurances that it can provide functionally identical replacement units. The notification period for the deletion of the component and written assurances shall not be less than the lead-time for ordering or manufacturing the component plus six months. All the updated components shall be fully backward compatible with the originally installed component.	Please Refer Addendum and Corrigendum-02B
1944	2			15.5, Radio Communications system	Section 6B: PS-Signalling and Train control	Please clarify who shall be responsible for provisioning the Earthing, Lightning arrestors and Surge protection devices at the LTE pole locations. We understand the sites will be provided to the LTE Specialist Subcontractor for LTE Poles in "Ready-for-Installation" condition with earthing, lightning arrestors and surge protection provisioning already available. Please confirm.	Please follow Bid Conditions
1945	2			15.6.5 The antennas are going to be mounted on poles on the viaduct and within the stations.	Section 6B: PS-Signalling and Train control	We understand that the foundation (base) preparation for any poles at viaduct and stations lies within the Civil Contractor/NCRTC's scope and is outside the S&T Contractor's scope. We also understand that at the stations, the Civil Contractor/NCRTC will be responsible for: 1. Foundation preparation at stations & tunnels for installation of Poles/Cabinets for eNodeB on an "as and when required" basis; AND 2. Foundation preparation at the elevated tracks for installation of Poles/Cabinets for eNodeB on an "as and when required" basis; AND 3. Restoration of the site to NCRTC's aesthetics & design requirements, wherever and whenever necessary. Please confirm.	Please Refer Addendum and Corrigendum-02B
1946	2			15.12 Testing and commissioning	Section 6B: PS-Signalling and Train control	We request that for LTE sub-systems, after successful testing of end-to-end LTE connectivity for voice, data and ETCS application support, across a continuous stretch of 20 kms of route-kms in Stage 1, and cell edge capacity, as per terms of the contract, an Acceptance Certificate be issued for LTE that permits swift rollout of LTE sites across the remaining sites for the Project. This acceptance philosophy that enables early LTE rollout is being followed by Indian Railways in RailTel's MTRC tender. We request NCRTC to allow this acceptance philosophy for this tender. An earlier LTE site rollout would enable NCRTC to not only ensure complete project delivery within the stipulated timelines, but also fast-track the remaining project rollout should an earlier Revenue Operating Date be desired for any reason whatsoever. Kindly confirm.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1947	2			S.No. 33 - New sub clause 5.40.3.4 - The test track shall provide the following facilities as a minimum: (4) Testing of the Bidirectional Train Wayside communication (LTE);	Addendum and Corrigendum 01	Please confirm that Contractor to provide only dedicated LTE RAN Equipment for the test track at the depot. We also request NCRTC to advise the area and design details of the depot/test track to be covered using LTE.	Please follow Bid Conditions
1948	2			12.8.4 Troubleshooting and Maintenance simulator. 12.8.4.1 The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include supply and installation of all sub-systems of Train Control & Signalling including LTE system in minimum configuration (excluding MPD) used on entire D-G-M corridor (mainline and depot). The subsystems so provided shall be interconnected in a logical fashion and interface with Computer Based Training (CBT) platform.	Section 6B: PS-Signalling and Train control	Please confirm that Contractor can re-use the LTE equipment deployed at the depots for the purposes of simulation.	Please follow Bid Conditions
1949	2			15.5 [4] The structured solution for the LTE System shall be designed in order to reliably convey vital ERTMS/ETCS data and MCX services as well as dataflow of non-vital information along with the On-Board CCTV live streams and other services.	Section 6B: PS-Signalling and Train control	Please confirm if on-board CCTV transmission proposed over MCVideo or as an IP data connection from rolling stock to the wayside systems.	Please follow Bid Conditions
1950	2			15.5 (12) The Handheld, Fixed Radio and Train Radios (Voice + data, Cab LTE Modem & Data Only Radios etc) shall have GCF Interoperability Certification.	Section 6B: PS-Signalling and Train control	GCF Interoperability is still not available. Therefore it is requested that this clause may be waived off. Interoperability testing with LTE OEM may be considered with submission of test reports.	Please Refer Addendum and Corrigendum-02B

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1951	2			15.6.1 (j) MCX client should receive the GPS information from LTE Modem/LTE Modem should have the capability to send the GPS information to the MCX client.	Section 6B: PS-Signalling and Train control	MCX User devices shall be GPS enabled. Please clarify for any other requirement.	Please follow Bid Conditions
1952	2			15.7.2 (i) All outdoor equipment shall have an IP rating of IP65.	Section 6B: PS-Signalling and Train control	Train Radio is installed within train and should not be considered as IP65. Please confirm.	Please follow Bid Conditions
1953	2			15.7.10 The LTE System shall provide a MCX {Mission Critical Push to Talk (MCPTT) voice, real-time data and real-time CCTV streams} application that meets the requirements of standard ETSI TS 122 179, ETSI TS 122 280, ETSI TS 122 281 & ETSI TS 122 282 with the provisions and variations described in the following Sections.	Section 6B: PS-Signalling and Train control	Please confirm that CCTV data is transmitted as a separate data stream independent of MCX services.	Please follow Bid Conditions
1954	2			15.7.12 (8) Dispatcher Interfaces: The system supports following interfaces c. SMPP to SMS-C: IP Interface for bulk SMS Messaging	Section 6B: PS-Signalling and Train control	The Dispatcher is used for internal captive communication within the organization. Thus we suggest that this requirement of interface to SMPP to SMS-C bulk SMS messaging service be dropped. Please confirm.	Please follow Bid Conditions
1955	2			15.9 (4) Security i. Secure boot with HW-enabled integrity ›› Runtime integrity ii. Application permission firewall iii. Secure data storage for user credentials and encryption keys iv. Encrypted mass memory ›› Tampering detection ›› PGP encrypted email v. FIPS 140-2 compliant HW cryptography	Section 6B: PS-Signalling and Train control	These security clauses are OEM specific and must be made optional.	Please Refer Addendum and Corrigendum-02B
1956	2			15.9 (4) Log server	Section 6B: PS-Signalling and Train control	Please advise the use case for this feature. If not mandatory, we request that this requirement be dropped.	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1957	2			15.9 (5) Wireless Connectivity i. 3GPP Release 16 and upgradable to FRMCS.	Section 6B: PS-Signalling and Train control	We presume that 3GPP Rel. 16 compliance and upgradability to FRMCS is required for MCX Application and not wireless connnectivity. Please confirm.	Please Refer Addendum and Corrigendum-02B
1958	2			15.9 (11) Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, NOM	Section 6B: PS-Signalling and Train control	Equivalent certifications should be accepted.	Please Refer Addendum and Corrigendum-02B
1959	2			15.7.3.1 (1) Inter band Carrier Aggregation: The contractor shall support inter and intra band carrier aggregation. All combinations specified by 3GPP shall be supported.	Section 6B: PS-Signalling and Train control	Devices cannot support all combinations specified by 3GPP. Only band required as per the project is required to be supported. Please amend the clause accordingly.	Please follow Bid Conditions
1960	2			15.9 (4) (ii) Application permission firewall	Section 6B: PS-Signalling and Train control	This feature is not required and not supported. Request to remove this clause.	Please follow Bid Conditions
1961	2			15.9 (4) (iv) Encrypted mass memory ›› Tampering detection ›› PGP encrypted email	Section 6B: PS-Signalling and Train control	Encryption is not required in Rail operations. None of the Rail or metros in India is using encryption. Moreover, software encryption is typically offered along with MCX applications. Hence request to remove this requirement from device.	Please Refer Addendum and Corrigendum-02B
1962	2			15.9 (4) (viii) Remote attestation	Section 6B: PS-Signalling and Train control	This feature is not available with most vendors. Hence request to remove.	Please follow Bid Conditions
1963	2			15.9 (5) (i) 3GPP Release 16 and upgradable to FRMCS.	Section 6B: PS-Signalling and Train control	3GPP Rel 16 has recently been finalised. Typically products are available in 1-2 years from release finalisation. Also, standards for FRMCS has still not been formulated. It is not possible to provide compliance to FRMCS which is still not finalised.	Please Refer Addendum and Corrigendum-02B
1964	2			15.9 (5) (ii) Dual SIM with Active Standby (One SIM for NCRTC Captive usage LTE Network and another SIM for MVNO Network)	Section 6B: PS-Signalling and Train control	This feature is not available with most vendors. Hence request to remove.	Please Refer Addendum and Corrigendum-02B
1965	2			15.9 (11) (ii) Certifications - FCC, CE, PTCRB, GCF, NOM	Section 6B: PS-Signalling and Train control	We understand that NOM is a type approval certifiation for Mexico and is not applicable here. Hence request to remove the NOM from the clause.	Please Refer Addendum and Corrigendum-02B
1966	2			152	15.6	Shall LTE also be used for the ATO track-to-train communication (the ATO over ETCS standard demands GSM-R GPRS and ATO is not mentioned in this chapter)?	Please follow Bid Conditions
1967	2			39	Chapter 15 LTE PS Short Version ver 17.pdf15.8 Cab LTE Modem- I. Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements.	please share more clarity on range of the environmental conditions required to oprate	Please refer clause 6.7.4.1 (1)

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1968	2			44	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-5 Functional Requirements Clause 5.3.12 Power Supply : UPS Equipment There will be common UPS for Signalling & Train control, Telecommunication and Automatic Fare Collection Systems. The UPS supply will be made available to signalling contractor at a shared location in the UPS room; and further distribution, protection arrangements, DC supply etc. shall be the responsibility of signalling contractor.	It is assumed that power requirement of telecom equipment will be taken care in the mentioned UPS avalability. Requirements will be finalise after finalisation of Detail design of telecom sub-systems.	Please follow Bid Conditions
1969	2			61	Section 6C1.12.5.1.1 Supervision and planning The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Employer's Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer.	Contractor/LTE OEM assumes this scope is applicable post DLP of 3 years and tenure can go upto 6 months post expiry of DLP. Pls confirm.	Please follow Bid Conditions
1970	2			62	Section 6C 1.12.5.3.2 Supervisory Staff - The total of 30 man-months SOM shall be provided by contractor. Distribution of man-months for each telecom sub-system shall be done as per employer's discretion.	Pls clarify if this scope is also applicable post the DLP.	Please follow Bid Conditions
1971	2			62	Section 6C1.12.6.1.2- Support during DLP Staff of employer/O&M agency shall be deputed at suitable locations for first line of maintenance. Contractor shall depute its team of sufficient strength and competent engineers in each shift to support employers' team in first line of maintenance. Location of contractor's staff shall be decided by Employer. It may change as the opening of section progresses.	Pls clarify the scope distribution - is Contratcor/LTE OEM expected to perform only L2 Operations support during DLP or complete L1 & L2 operations from Field and NOC (FCAPS)? LTE OEM's resources required in shift are applicable in NOC or Field? - Pls clarify as it is mentioned location shall be decided by NCRTC.	Please follow Bid Conditions
1972	2			63	Section 6C1.12.6.1.9 The Contractor shall provide comprehensive DLP support for items supplied by him and provide call-out services to the Employer as required restoring the System to normal operation in case of faults and defects are found.	Does NCRTC mean NOC activities e.g. Alarm surveillance & L1 fault management is to be performed by Contratcor/LTE OEM? Since it is mentioned that normal day to day maintenance shall be done by NCRTC, will NCRTC share the SOW to be performed by them and the manpower that will be performing those tasks so that contractor/LTE OEM's solution doesn't duplicate responsibilities?	Please follow Bid Conditions
1973	2			64	Section 6C1.12.6.5 Support and Call-out Services 1.12.6.5.1 The support and call-out services shall be available 24 hours per day and 7 days per week. 1.12.6.5.3 The Contractor shall provide a list of maintenance staff together with the contact mobile telephone numbers who can be contacted for support and call-out services. List of all the Contractor's staff responsible for attending the failure during DLP shall be displayed at all the stations with their address and contact numbers.	"support and call-out services" is only applicable for DLP period or shall be extended after expiry of DLP? If yes, Kindly specify the support period after DLP.	Please follow Bid Conditions
1974	2			111	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control8.4.6- FAT shall demonstrate the correct operation of the Train Control and Signalling System, including LTE system, working together with all other systems with which it interfaces, as specified in the Specification. Interface protocol tests shall be completed prior to the commencement of the FAT for each interfacing system with the respective designated contractor. Any failed test shall be repeated after rectification. The Signalling contractor shall develop and agree with the designated contractor	We understand that in FAT, HW & Quality test of the offered Product has to be provided, as setups to demonstrate end-to-end funcitioning of the Product with other Network Elements are not available at Factory locations. Also all products are not manufactured at one location. We suggest that end-to-end Functional test to be part of Integrated Testing & Commisioning stage (step 7 section 8.2.1)	Please follow Bid Conditions
1975	2			135	Section 6B11.2- Maintenance During Defect Liability Period (DLP)	Please confirm on the tenure of DLP.	Please follow Bid Conditions
1976	2			135	Section 6B11.2.1.5- Contractor shall ensure that competent team of engineers for each sub-system is available to assist/attend failures to meet maintainability requirements given in P.S. and G.S	Please confirm on the KPIs/SLAs for O&M	Please follow Bid Conditions
1977	2			137	Section 6B11.3.1.5- The Contractor shall provide all tools, equipment, Configuration & Customization data, manuals and training necessary for the Employer to maintain all the software identified in the list as per Chapter-6 of this PS.	Please specify if NCRTC will provide requried NOC operations tools and Contractor/LTE OEM shall use customer tools for daily operations (L1 and L2)?	Please follow Bid Conditions
1978	2			139	Section 6B_Particular Specification _Signalling and Train Control 14042020 181112.8.4.1- The contractor shall set up Troubleshooting and Maintenance simulator. The simulator shall include supply and installation of all sub-systems of Train Control & Signalling including LTE system in minimum configuration (excluding MPD) used on entire D-G-M corridor (mainline and depot). The subsystems so provided shall be interconnected in a logical fashion and interface with Computer Based Training (CBT) platform.	We understand that min configuration of all subsystems of LTE-R network incl on board equipemnt to be set up at training center. Pl confirm	Please follow Bid Conditions
1979	2			141	Section 6B11.6- Maintenance Management System ETCS system is required to include local and remote maintenance and real time diagnostic capabilities to detect and react to various ETCS equipment failure types. The remote diagnostic capabilities shall be available at OCC, SCR, SMR and DCC to permit authorized personnel to interrogate the status of trainborne and trackside equipment, and provide active fault diagnosis and isolation. It shall be possible to remotely download the maintenance and diagnostic-related data	Kindly confirm who will provide this "Maintenance Management System" and what is expectation from Contractor/ LTE OEM operations team on same?	Please follow Bid Conditions

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S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1980	2			143	Section 6B 11.8.1 , 11.8.4, 11.8.5- Supervision of Maintenance 11.8.1 The Contractor shall be responsible for the supervision of maintenance of the equipment supplied under the Contract after the Taking Over of the Works or Part of the Works. The maintenance personnel shall be provided by the Employer. 11.8.4 The Contractor shall provide supervisory maintenance staff who are experts in the first, Second and third line fault finding, maintenance and repair of the various systems supplied under the Contract covering at least the following: 11.8.5 The deployment of the experts may not be continuous, and they may be required to supervise the maintenance in short periods at the discretion of the Employer.	Kindly confirm if mentioned 3 clauses can be understand as following: Contractor/LTE OEM need to provide supervisory staff for supervsion of "NCRTC provided maintenance personnel". This Contractor/LTE OEM provided supervisory staff may needed for short duration time as per prior agreement with NCRTC. If this understanding is fine, kindly help with requried period of requested supervisory staff.	Please follow Bid Conditions
1981	2			149	Section 6B_Particular Spec Signaling and Train Control Chapter 1515.4 (1)- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases…..	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please Refer Addendum and Corrigendum-02B
1982	2			149	Section 6B_Particular Spec Signaling and Train Control Chapter 1515.4 (3)- The contractor's commercial quote should be inclusive of the up gradations required to meet the emerging standards till FRMCS. For the purposes of this tender the FRMCS specification, up to 31st Dec 2024,…..	FRMCS is stil under finalisation and do not know which all technology, functionalities are part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B
1983	2			149	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.3-NMS: The LTE Network Management System shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, Provisioning system and MC-PX services.	Please share the details of the functions required in Provisioning system.	Please Refer Addendum and Corrigendum-02B
1984	2			149	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.4 (1)- The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	The offer design and solution would match the feature set of FRMCS as per RFP requirements however FRMCS is still under finalisation and as of now there is not much clarity which all technology, functionalities would be part of final standards. Request you to append the clause clearly stating that any hardware requirements for enhancements is not a mandatory part of the tender, shall be purchased separately by NCRTC and any adaptaion shall be with mutual agreements.	Please Refer Addendum and Corrigendum-02B
1985	2			149	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 13.413.4.2 TOT shall be essential and shall include installation, and maintenance support.	The scope of TOT is installation and maintenance support only. Please confirm.	Please follow Bid Conditions
1986	2			151	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.5The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously.	In the said clause the poles are not mentioned therefore it is assumed that service life of poles also been included as per 15 years of servide life operating continuously	Please Refer Addendum and Corrigendum-02B
1987	2			152	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.6-IoT: Remote monitoring of Railways asset to improve their availability.	Kindly share detail on the assets being considered as part of this IOT along with any specific protocol requirements.	Please follow Bid Conditions
1988	2			154	Section 6B_Particular Spec Signaling and Train Control Chapter 1515.6.4- The LTE system contractor shall demonstrate radio interoperability tests between their LTE equipment and the equipment of another LTE contractor. The LTE system contractor must submit certification for interoperability. This test certification must be issued by Accredited Test Houses of LTE/3GPP or a self-certification from Board Level member of the LTE OEM. The Inter-Operability Certificates have to be submitted for the EPC and RAN Infrastructure Equipment.	Interoperabilty Demonstartion is not the viable way for IOT . LTE is proven technology and There are several commercial network in operation where EPC and RAN supplied by different OEM's across the globe. We suggest to submit either the reference certificate of such network or visit can be arranged to site of one of such network. Also, there is no certified NoBO/Lab/Insitute to carry out, certifiy Interoperability of LTE for Railways. Hence this requirement to be remeoved or to be suitably amended	Please follow Bid Conditions
1989	2			154	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.6.1-Wayside eNodeB hardware shall be installed on antennae mounting arrangements, if required (poles to be designed, procured and installed by the contractor). Reinforced locations along the parapet, at fixed intervals, of the viaduct for the installation of the antennae mounting arrangements will be provided by NCRTC. The design of the antenna mounting arrangement shall meet all statutory requirements, civil constraints, wind speeds etc for that area. This design (height, weight, material etc) shall be approved by the employer, based on the RF planning simulation results and interfacing with the civil contractor.	Please clarify 1. how much space will be available at Reinforced locations along the parapet. 2. We understand that any civil work requirement to install pole for LTE Antennae mounting will be done by civil contractor.	Please follow Bid Conditions
1990	2			155	Section 6B_Particular Spec Signaling and Train Control Chapter 1515.6.4 (3)- EPC and RAN should support interoperability as per minimum 3GPP release 16 or latest	Kindly ammend the 3GPP Release to 15 or latest.	Please Refer Addendum and Corrigendum-02B
1991	2			155	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.4 (1)The product shall be compliant to 3GPP Rel. 16, upgradable to further releases supporting Railway/Public safety features and ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS.	Because the FRMCS is not frozen, so the cost of new release to support FRMCS is excluded in this tender, and should be discussed further. Please confirm.	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
1992	2			157	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control15.5.10- LTE OEM shall have Radio Conformance and Configuration Validation lab in India. The lab should be equipped with 3GPP RF conformance testing and OEM specific network nodes / tools to carryout RAN configuration functional tests.	We understand the Contractor/LTE OEM can tie-up with NABL accredated LAB for 3GPP RF conformance testing.	Please follow Bid Conditions
1993	2			158	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.6.3- IoT: Remote monitoring of Railways asset to improve their availability	1. How much IoT Subscriber License to be considered. 2. Please let us know the IoT traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
1994	2			158	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.1(a) (Downlink)– 4 Mbps minimum, (Uplink)– 2 Mbps minimum (Assuming 5Mhz Spectrum is provided) per UE, with network loading of 50% in case of all eNodeB sites functioning.	What is the total bandwidth of networks? It is recommended that the bandwidth be set to 2 x 10 Mhz	Please follow Bid Conditions
1995	2			160	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.6.2- The power supply for wayside equipment's shall be drawn from station UPS. But it should be ensured that radio coverage shall not be affected by failure of power supply at one station.	Please clarify 1.What type of redundancy to be considered for SMPS (AC to DC converter) to feed DC power to eNode B & Router: 1+1 or N+1 configuration 2. We understand that as uninterrupted AC power will be available for Radio equipemnt, we need to consider only SMPS (AC to DC converter) without battery back up.	Please follow Bid Conditions
1996	2			160	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.3(3) The (MCPTT Voice and S&TC Data) and On-Board CCTV Live stream from trains must be routed through separate Optical Fibre, through Backhaul	Are the separate optical fibers from the base station?	Please follow Bid Conditions
1997	2			162	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.6.5(4) LTE system architecture shall be supported by an RF study to ensure the capability of the system and its correct implementation.	What does RF study mean?	Please follow Bid Conditions
1998	2			163	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.3.A- The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 16 & later standards, ultimately compliant to the emerging Future Rail Mobile Communication Standard (FRMCS) being developed by UIC. Broadly the solution provided should match with the feature set of FRMCS	FRMCS standards are still in draft stage. We suggest to modify the clause as " The product shall be compliant to 3GPP Rel.15 and upgradable to further release incorporating current RFP requirements.	Please Refer Addendum and Corrigendum-02B
1999	2			163	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3 HThe EPC shall provide encryption for control Plane and User Plane LTE traffic. ETCS data and MCX services shall also be encrypted.	The encryption for control plane and user plane is not required in EPC, but shoub be provided in RAN backhual network. Please confirm.	Please follow Bid Conditions
2000	2			163	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3 KThe EPC and associated routing equipment (S-GW/P-GW) shall maintain a failover time of 300ms for each interconnection between the EPC and the NCRTC network.	The failover time should be 1s within single EPC node, and 60s between 2 EPC nodes. Please confirm.	Please follow Bid Conditions
2001	2			164	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.17- Rating group modifications.	PCRF sends PCC rules based on conditions to P-GW and P-GW can update RGs. This clause functionality is not applicable for PCRF	Please Refer Addendum and Corrigendum-02B
2002	2			164	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.17- 7)Multiple Gx interfaces (for the same session)	Please provide more detail on" multiple Gx cases for the same session" requirement. This case should be removed as it doesn't seems feasible	Please Refer Addendum and Corrigendum-02B
2003	2			164	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.1.3 REPC shall support Equal Cost Multi Path, ECMP for first level load balancing.	The ECMP is function of router. The ECP should not supoort ECMP. Please confirm.	Please Refer Addendum and Corrigendum-02B
2004	2			165	Section 6B_Particular Spec Signaling and Train Control Chapter 1515.7.2- LTE Pole and Passive Infrastructure Specifications…. OHE Mast may be utilized for installation of wayside LTE Antenna if they meet the following criteria	Mast height, design may not be sufficcient to take load of multiple LTE antennas as per radio planning and coverage requirements. It is also strongly suggested not to use OHE mast for Radio antenna as it would be risky to maintain and prone to accident because of HT lines, HV inteferances etc. Hence will suggest, allow Poles at stations (possibly RTT) and separate feasible Pole designs for mid section.	Please Refer Addendum and Corrigendum-02B
2005	2			165	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.17- J) Support of content screening, white-lists and blacklists.	This functionality is supported outside PCRF and this clause should be removed from PCRF	Please Refer Addendum and Corrigendum-02B
2006	2			165	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.17- H)The PCRF shall support to manage mobile access congestion control.	This clause is more applicable from Large telecom networks. It doesn't seems relevant for this Tender. This clause can be removed	Please Refer Addendum and Corrigendum-02B
2007	2			165	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.17- L) The PCRF vendor shall state if overlapping IP addresses are supported, for example with VPN	Please specify use case of IP Overlapping. This clause should be removed from PCRF	Please follow Bid Conditions
2008	2			165	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf-P)The PCRF shall provide a direct interface towards MME that will enable the launch of added value use cases.	There is no direct interface between MME and PCRF defined in 3GPP standards. This clasue should be removed	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
2009	2			167	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.1.10.K- The system shall have support for handling UE's that are periodically unavailable in order to extend battery time and to keep track when UE is reachable.	This functionality is more useful in case of IoT Subscriber. Please let us know the IoT Subscriber count, IoT Traffic Profile and IoT Use case to be considered	Please follow Bid Conditions
2010	2			174	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.3.2 (2)The private key of the nodes has to be stored in a secure part of the HW and not in the normal file system.	The security of private key of the nodes should be guaranteed, and the bidder should explain the security mechanism, but the key stored in HW is not required. Please confirm.	Please follow Bid Conditions
2011	2			175	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.10 (1)- The LTE MCPTT application shall support an MCPTT User to concurrently log on to multiple communications, MCPTT UEs and Computer Assisted Dispatch (dispatcher Terminal) terminals as per ETSI TS 122 179 Sections 5.11 and 6.11.	Please remove the requirements of 'concurrently' logging. It is possible to login through multiple devices. However, concurrent logging through multiple device may be security hazard in this case. Need to logout from one device and login into other device.	Please follow Bid Conditions
2012	2			175	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control15.7.4.1.4- The EUTRAN radio and baseband systems should support NB-IOT/ CAT-M1 without additional hardware and software.	To save on initial deployment cost, we suggest NB-IOT activation to be included depending on the requirement at sites identified by NCRTC.	Please follow Bid Conditions
2013	2			175	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control15.7.4.1.5- The contractor shall provide a solution where FDD and TDD is supported simultaneously on the same common baseband running a common software.	TDD is required only at higher capacity sites and thus when required TDD support will be provided with required HW & SW on the same baseband.	Please follow Bid Conditions
2014	2			176	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.2 (7)EUTRAN KPI 7 – The EUTRAN shall be designed, installed and commissioned to maintain an average uplink and ownlink resource block utility rate of <70% for each radio sector, computed as a moving average over an hourly period in normal operation	In the radio coverage plan, the resource block utility rate is 100%, and in the radio capacity plan, the resource block utility rate should be less than 70%. Please confirm.	Please follow Bid Conditions
2015	2			177	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.4.3 (2)The system shall support the following types of Intra-LTE Handover: 1. Intra MME and SGW. 2. Inter MM. 3. Inter MME and SG Inter SGW. 4. Over X2. 5. Over S1	What does Inter MM mean?	Please Refer Addendum and Corrigendum-02B
2016	2			178	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control15.7.4.5.4- Carrier Bandwidth: The system shall support 1.4, 3, 5, 10, 15 and 20MHz carrier bandwidth	1.4 MHz not supported by 3GPP in 700MHz Band 28 and should be removed.	Please Refer Addendum and Corrigendum-02B
2017	2			178	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control15.7.6.3- Radio Module should be IP65 compliant and must be conventional cooled. There should not be any moving part like Fan inside or outside the Remote Radio Module.	High capacity Radio module with FAN can replace requirment of more than one low capacity Radio modules and provide overall reduction in TCO by reducing the requirement of cables per Radio module and weight. For example, 2x2 MIMO for a 3 sector site can be supported by one single 6 pipe (3x2) Radio Module, with only one Power cable and one data cable. In comparison if low capacity Radio modules are used then one Radio module is required per sector. Thus we request Radio Modules should comply to the requirments of IP65, KPI & Service SLA with or without FAN.	Please follow Bid Conditions
2018	2			179	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.7.10.2- SMS requirement	Since IMS (hence MGCF function) is not part of current scope, we suggest to modify the SMS to Instant message .	Please follow Bid Conditions
2019	2			179	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.7.8.1(2)- (2) The entirety of all rail tracks, tunnels, dives and stations, above or below ground.	Need geographical boundries of these locations in KML/TAB format.	Please Refer Addendum and Corrigendum-02B
2020	2			180	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.7.8.2- General Capacity Requirements A. In normal operational conditions, the "General Coverage area" area shall simultaneously support the following requirements taking into consideration the limits imposed on each application specified. 1. 300 connected UEs per sector. 2.Fifteen (15) actively transmitting MCPTT users per sector (group calls or private calls), all modelled at the cell edge and 300 receiving MCX users evenly distributed within the sector. 3.Minimum four (4) active ETCS sessions/instance per 1 km of track length, per track. 4.Minimum One (1) active on-board CCTV stream per Train, which shall be modelled as being along the rail and at the cell edge.	Kindly provide the details for RF planning as below: 1. user Traffic profile of MCPTT user is required 2. user traffic profile of ETCS user is required 3. User Traffic profile of CCTV Stream(Duration/data rates)	Please follow Bid Conditions
2021	2			180	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.7.8.3(2)- The area of each Contractor defined sector shall not present any gaps which fall below the specified minimum SINR or RSRP.	Kindly provide the minimum SINR and RSRP values .	Please Refer Addendum and Corrigendum-02B

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
2022	2			180	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.8.3 (6) The Coverage shall be in such a way that even with failure of one eNodeB (BBU and RRU), the Radio coverage for any Train and Handheld shall not be affected and the coverage to the SCR/OCC Fixed Radios shall not be affected. Hence there has to be overlapping coverage design for RRTS Corridor areas.	The extra 5MHz is recommended in the overlapping coverage design. Please confirm.	Please follow Bid Conditions
2023	2			180	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System Clause 15.7.8.3 (6)The Coverage shall be in such a way that even with failure of one eNodeB (BBU and RRU), the Radio coverage for any Train and Handheld shall not be affected and the coverage to the SCR/OCC Fixed Radios shall not be affected. Hence there has to be overlapping coverage design for RRTS Corridor areas.	The extra 5MHz is recommended in the overlapping coverage design. Please confirm.	Please follow Bid Conditions
2024	2			184	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdf15.8.1- Cab LTE Modem require SIM card (Subscriber Identity Module) for communication	Please provide the quantity of the SIM cards.	Please Refer Addendum and Corrigendum-02B
2025	2			184	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System/Cab LTE Modem/15.8.1(1)	RFP asks for combined router/server.**we understand this means ithat the router should support hypervisor architecture to support Linux OS within and VM/Containers**.	Please Refer Addendum and Corrigendum-02B
2026	2			184	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System/Cab LTE Modem 15.8.1(1)	RFP as for router/server.Request to specify the **minimum interafces. Router should have minimum 2x10/100/1000 Gigabit Ethernet LAN ports and atleast 2 serial ports (RS232 / RS 485) for connecting Some SCADA system or any other application.**	Please follow Bid Conditions
2027	2			184	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System **New in Section6B/Cab LTE Modem/15.8.1**	Gateway should have **POE ports to power up devices like IP Video Camera, the switch ports should support functionalities like VLAN, Inter VLAN Routing**	Please follow Bid Conditions
2028	2			184	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System **New in Section6B/Cab LTE Modem/15.8.1**	Router should support Industry-standard 4G LTE diagnostics and monitoring tools for troublieshooting of field issues.	Please follow Bid Conditions
2029	2			185	Section: 6B - Particluar Specifications - Signalling and Train Control: Chapter-15 Radio Communication System/Cab LTE Modem 15.8.1(7)	RFP requres support of advanced security features include VPN/DMVPN, VRFs and firewall. **We request to add the below features to enhance the security:** 1.The device should have built-in security features so that firewalling, intrusion prevention, point to point & point to multipoint automated IP tunnels (GRE, IPSEC) based upon traffic pattern to encrypt the data (using industry standard security protocols like DES, 3DES, AES encryption) between source & destination nodes can be provided to protect network from external threats, such as viruses/trojans. 2.Gateway should support following VPN Protocols & Features : L2tp, L2tpV3, Ipsec Vpn, should support the functionality of forming dynamic tunneless Vpn, should support IKEv2, should support ipv6 for IPsec & Ikev2, Should support 3Des, AES, MD5, SHA-1 algorithms, support GRE protocol, DMVPN 3.Router should be able to support atleast 10 IP sec tunnels for secure VPN connectivty.	Please follow Bid Conditions
2030	2			188	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC15.7.13- The FRMCS NMS (LTE-NMS) shall comprise of a common centralized management system for supplied nodes such as eNodeB, EPC, HSS, Provisioning system and MC-PTT server. This shall be used for centralized operation and maintenance including FCAPS functions.	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm.	Please follow Bid Conditions
2031	2			188	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC15.7.13 (1)- Single LTE-NMS solution shall support all the offered nodes in this RFP as defined by ITU-T, 3GPP in Rel. 7 i.e. 3GPP and smoothly upgradable to FRMCS.	We understand scope of RFP is only restricted to EMS/NMS. Umbrella management system/OSS are not scope in the current RFP. In view of the same proposed EMS shall managed only EnodeB, EPC & HSS. Pls confirm. Please also clarify detail specification requirement of EMS under FRMCS.	Please follow Bid Conditions
2032	2			189	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC15.7.13 (9)- LTE-NMS shall serve in multiple Supplier, multiple technology environment. Suitable up-gradation or additional elements required for existing elements shall be provided by the Supplier.	We understand scope of RFP is only restricted to EMS/NMS. Integration of Multiple supplier, multiple technology of current/existing equipment can be supported by umbrella OSS. In view of the same we request to remove this requirement. Pls confirm.	Please follow Bid Conditions
2033	2			189	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC15.7.13 (15)- LTE-NMS shall have data backup facility for 3 months data. In case of critical data, which is to be decided mutually, the storage time shall be 1 year.	LTE NMS shall have online data backup capability for upto 14 days. however for longer duration proposed NMS shall be able to export the offline data to the external storage for 3 months provided by NCRTC. please confirm.	Please follow Bid Conditions
2034	2			189	Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling &Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC15.7.13 (18)- LTE NMS system shall be based on the principles of zero touch and automation allowing for Consistent configuration of HW and SW across network, automation of high frequency tasks, Automated analysis of the network situation, Automated recommendation and decisions and execution of requested changes including upgrades.	We understand LTE radio NMS configuration tool shall be based on GUI to support automation of high frequency task, bulk configuration, plan provisioning and Auto radio parameter upload/export, pls confirm.	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
2035	2			190	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control15.8.1 Cab LTE Modem/ 1- Should support combined router/server	CAB LTE device is a router as functionalities like routing - OSPF, GRE, QoS, redundancy switchover, etc. are router features. Hence, we request you to change the clause as follows: "Should be a fanless, passively cooled router"	Please Refer Addendum and Corrigendum-02B
2036	2			190	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.9- 4) point v - FIPS 140-2 compliant HW cryptography	The HW "FIPS mode" doesn't make system more secure. It just blocks access to newer cryptography schemes that are not pre-validated. This is an addon feature but may create issues during IOT with the MVNO network. Request to remove the cryptography requirement.	Please Refer Addendum and Corrigendum-02B
2037	2			190	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.9- 4) point x - Secure push service	Secure push services is part for MDM system. The RFP does not mentions any such system. Please provide the details of a device managment system.	Please Refer Addendum and Corrigendum-02B
2038	2			190	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.9- (5) Wireless Connectivity i. 3GPP Release 16 and upgradable to FRMCS.	The FRMCS and 3GPP rel 16 are still awaited. The compliance to the standards is not clear yet and is difficult to comply. The clause should be normalized to the lower 3GPP Rel.	Please Refer Addendum and Corrigendum-02B
2039	2			191	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control15.8.1 Cab LTE Modem/ 6- Shall support routing protocols include EIGRP, OSPF, GRE, mGRE	EIGRP is a OEM proprietory protocol. Also, CAB LTE is going to be part of LTE - IP/MPLS backbone. Hence, we request you to change the clause as follows: " Shall support routing protocols include IS-IS, OSPF, GRE/mGRE and IP-MPLS".	Please Refer Addendum and Corrigendum-02B
2040	2			191	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control15.8.1 Cab LTE Modem/ 7- Shall support advanced security features include VPN/DMVPN, VRFs and firewall	Routers should support advanced security using MPLS VPNs, advanced encryption and authentication algorithms and Access control lists (ACLs). Hence, we request you to change the clause as follows: "Shall support advanced security features include VPN/DMVPN, VRFs and firewall/encryption/authentication (AES/SHA)".	Please follow Bid Conditions
2041	2			191	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control15.8.1 Cab LTE Modem/ 9- Systems should operate in a wide range of environmental conditions and may be customized to suit specific NCRTC requirements	CAB LTE routers are going to be installed inside CAB where temperature variations are going to be high. Also it needs to be robust and support continuous working in harsh temperature conditions incase of AC failure. Hence, we request you to change the clause as follows: "Systems should operate in a wide range of environmental conditions (temperature support min -30 to 65 degrees)"	Please refer clause 6.7.4.1 (1)
2042	2			191	Section 6B_Particular Specification _Signalling and Train Control 14042020 181115.9- 11) Certifications i. RESTRICTED level certification for data storage, processing and transmission together with the Mobile Device Management System. ii. FCC, CE, PTCRB, GCF, NOM	The RFP does not state requirement of Mobile device management system in RFP. Please provide more details for MDM.	Please Refer Addendum and Corrigendum-02B
2043	2			192	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train controlRouter Specifications / 15.11(1)	RFP requires a Layer-3 devices shall be router or layer-3 switch to constitute the backbone 10G/of links connected to NCRTC's LTE network. For connecting it in a ring it will require at least Two port. For eNodeB connectivity it will require some Gigabit ports so we recommend to add minimum interface requirement as **4x10G and 8x1G spread across slots.We also recommend to mention minimum swithcing capacity as 128 Gbps considering current and future requirements**	Please follow Bid Conditions
2044	2			192	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control/Router Specifications / 15.11(2)	RFP requires **The Layer 3 device/router shall be redundant with hot standby**. We understand that **router reuires redundant controller and redundant data palne to ensure single control card failure donot impact the performance**	Please follow Bid Conditions
2045	2			193	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control/Router Specifications / 15.11(5)	Layer 3 device should support following SNMP traps or Syslog:- i. Interface UP & Down. ii. Optical power SFP threshold alarms. iii. ERPS Ring Protection feature to be supported iv. LLDP table changes. v. Power Supply (Primary and Secondary) down and Up alarms in case of redundant power supply. vi. Threshold traps like CPU, Chassis Temperature and Memory. vii. CFM and LFM alarms We recomend to **add Y.1731 for performance monitoring . Netconf and YANG data models for SDN ready network.**	Please follow Bid Conditions
2046	2			193	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control/Router Specifications / 15.11(5)	Layer 3 device should support following **SNMP traps or Syslog**:- **ERPS Ring Protection feature to be support has been asked.ERPS works on layer2 and for layer 3 50 msec convergence the TE-FRR,LDP FRR and Segment routing TI-LFA is recommended. Pls include these protocols.**	Please follow Bid Conditions
2047	2			193	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control/Router Specifications / 15.11(7)	RFP ask for support of MPLS and VLAN functionality.LTE is an IP traffic and there are three categories of traffic comes from eNodeB S1U,SIC and X2. All these requires segregation at Network layer and X2 requires faster convegence.All the leading telcos who have deployed LTE are running IP/MPLS network with key protocols to esnure bandwidth,QOS ,Segregation and Faster convergence.protocols requiured for Network supporting LTE are **LDP,BGP(V4,V6and VPNV4 or VPNV6),OSPF,ISIS,Traffic engineering,Fastreroute,LDP FRR(Remote and Local),Multicast VPN,BGP-LS,Segment Routing,TI-LFA,VRF,L2 VPN and VPLS.Also all the devicesused to build network should be minimum CE2.0 or higher certified(Certifiate is issued by Metro Ethernet Forum-an independent Agency)**	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
2048	2			198	Employer's Requirement: Part 2 Section 6B: PS-Signalling and Train control15.11 Router Specifications/ 1- Layer-3 devices shall be router or layer-3 switch and constitute the backbone 10G/of links connected to NCRTC's LTE network	1 x 10G ports each would be required for connectivity with E-NodB, uplink and for connectivity with standby/redudant router. Hence, min 4 x 10G ports are required in the router to support the solution. Additionally, few 1G ports should be provisioned for other connectivity as well. Hence, we request to change the clause as follows: " Layer-3 devices shall be router or layer-3 switch and constitute the backbone with min 10x1G & 4x10G ports at line-rate throughput connected to NCRTC's LTE network"	Please follow Bid Conditions
2049	2			NA	Section 6B_Particular Specification _Signalling and Train Control 14042020 1811.pdfNA-NA	There are no clear requirement on the security w.r.t Gn interfaces management (DNS) and firewall (FW). Please clarify the requirements.	Please follow Bid Conditions
2050	2			NA	Section 6B11- NA	Can Contractor/LTE OEM assume NCRTC will be providing access and transport to the sites on the track whenever any corrective/preventive maintenance is required?	Please follow Bid Conditions
2051	2			NA	Section 6B11- NA	Will NCRTC be providing cranes to Contractor/LTE OEM to support maintenance on poles if required?	Please follow Bid Conditions
2052	2				- Client terminal licenses to access the EMS	How many client SW licenses required in EMS/NMS.	Please follow Bid Conditions
2053	2			408 & 251	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control: Appendix R 1.1 The Delhi-Ghaziabad-Meerut corridor consists of 25 stations, 2 depots and one stabling yard for a total length of approx. 82 km (Refer track plan). The following table shows for each station the progressive, the type of service and the type of station (elevated or underground). and Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-7: Data transmission System (DTS) Clause 7.6.2.1 The figure below shows a typical outline schematic of the sites and route on the Delhi- Ghaziabad-Meerut RRTS alignment which shall be served by the IP (GE) based system in the DTS network. Delhi-Meerut Track Plan Drawing no. NCRTC/CO/DES/DM00/TRK/TRP/01	In Appendix R section 1.1 of PS signalling it is showing that total 25 stations with Jaganpura station as first station and Modipuram and Modipuram depot station In clause 7.6.2.1 fig - RRTS Sites and Typical Design with 10 GE fiber network, the stations starts from Sarai Kalekhan, also Modipuram, Modipuram Depot station and Modipuram Depot has been shown. And in Delhi-Meerut Track Plan Drawing no. NCRTC/CO/DES/DM00/TRK/TRP/01, it has been shown 24 stations (including Duhai Depot Station and Modipuram Depot Station) Kindly clarify which statement is correct	Please Refer Addendum and Corrigendum-02B
2054	2			Quality of Service for LTE	Part-2: Section: 6B - Particluar Specifications - Signalling and Train Control/New /Router Specifications /15.11	Below is the traffic type and QoS Requiremet for LTE traffic.This requires stringent QoS at the Routr/layer3 Switch. To support this the Router/Switch should support following queuing methodolouy : **Low Latency Queuingand Class based weighted Fair Queuing.The Router /Switch should also support 3 Level Hirarchichal QoS.**	Please follow Bid Conditions
2055	2			149 OF 420	Section 6B/15.3 Definitions (NMS)	Our understanding of the clause is we need to provide Single centralized NMS at one location for eUTRAN, EPC core (at main and Geo-Redundant sites), please confirm?	Please follow Bid Conditions
2056	2			149 OF 420	Section 6B/15.4 Standards (3)	Companies who are providing ETCS Level 2 on GSM-R to current customers shall be in the best position to provide FRMCS compliance on ETCS Level 2 as all their customers need to migrate to FRMCS. Therefore Telecom experience of ETCS Level 2 should be a mandatory qualification criteria for Telecom OEM.	Please follow Bid Conditions
2057	2			150 OF 420	Section 6B/15.5(2) Scope	Maximum distance of such structures from the middle of the railway line should be mentioned for coverage purposes.	Please follow Bid Conditions
2058	2			151 OF 420	Section 6B/15.5(2) Scope(The Proposed Solution shall comply with the following)(1)	we assume EPC and PC are same.	Please follow Bid Conditions
2059	2					We understand EPC solution by Telecom OEM should be interoperable with minimum 2 other Telecom OEM's RAN in India or Globally without any additional hardware and software shall suffice the requirement.	Please follow Bid Conditions
2060	2			151 OF 420	Section 6B/15.5(2) Scope(The Proposed Solution shall comply with the following)(2)	The EPC and RAN shall be a product of single OEM and EPC shall be interoperable with any two OEM's RAN, .	Please follow Bid Conditions
2061	2			151 OF 420	Section 6B/15.5(10) Scope	There is no mandatory requirement of manufacturing of telecommunication equipment locally. Those OEM's, which have manufacturing facility outside India will generally, not have testing Lab in India. So validation can be performed in Labs outside India, Please confirm?	Please follow Bid Conditions
2062	2			151 OF 420	Section 6B/15.5(2) Scope(The Proposed Solution shall comply with the following)(12)	we recommend to remove this clause as none of the third party vendor specialising in the railway environment have gcf certification for various radios	Please Refer Addendum and Corrigendum-02B
2063	2			165 OF 420	Section 6B/15.7.2(LTE Pole & Passive Infrastructure Specification)	Only outdoor type eNodeBs are to be proposed, Please confirm.	Please follow Bid Conditions
2064	2			179 OF 420	Section 6B/15.7.10.2(Short Message Service)	This functionality is to be met with Mission Critical Data over LTE as per ETSI TS 122 282 in MCX. Please confirm?	Please follow Bid Conditions
2065	2			192	Section6B/Router Specifications / 15.11(1)	RFP requires a Layer-3 devices shall be router or layer-3 switch to constitute the backbone 10G/of links connected to NCRTC's LTE network. For connecting it in a ring it will require at least Two port. For eNodeB connectivity it will require some Gigabit ports so we recommend to add minimum interface requirement as 4x10G and 8x1G spread across slots.We also recommend to mention minimum swithcing capacity as 128 Gbps considering current and future requirements	Please follow Bid Conditions
2066	2			192	Section6B/Router Specifications / 15.11(2)	RFP requires The Layer 3 device/router shall be redundant with hot standby. We understand that router reuires redundant controller and redundant data palne to ensure single control card failure donot impact the performance	Please follow Bid Conditions

Package 24: Replies to Pre Bid Queries-1

S.No.	Part	Section	Clause No.	Relevant Page No. of bid document	Complete Description of Clause	Queries by the Bidder	Replies by NCRTC
2067	2			193	Section6B/Router Specifications / 15.11(5)	Layer 3 device should support following SNMP traps or Syslog:- i. Interface UP & Down. ii. Optical power SFP threshold alarms. iii. ERPS Ring Protection feature to be supported iv. LLDP table changes. v. Power Supply (Primary and Secondary) down and Up alarms in case of redundant power supply. vi. Threshold traps like CPU, Chassis Temperature and Memory. vii. CFM and LFM alarms We recomend to add Y.1731 for performance monitoring . Netconf and YANG data models for SDN ready network.	Please follow Bid Conditions
2068	2			193	Section6B/Router Specifications / 15.11(5)	Layer 3 device should support following SNMP traps or Syslog:- ERPS Ring Protection feature to be support has been asked.ERPS works on layer2 and for layer 3 50 msec convergence the TE-FRR,LDP FRR and Segment routing TI-LFA is recommended. Pls include these protocols.	Please follow Bid Conditions
2069	2			193	Section6B/Router Specifications / 15.11(7)	RFP ask for support of MPLS and VLAN functionality.LTE is an IP traffic and there are three categories of traffic comes from eNodeB S1U,SIC and X2. All these requires segregation at Network layer and X2 requires faster convegence.All the leading telcos who have deployed LTE are running IP/MPLS network with key protocols to esnure bandwidth,QOS ,Segregation and Faster convergence.protocols requiured for Network supporting LTE are LDP,BGP(V4,V6and VPNV4 or VPNV6),OSPF,ISIS,Traffic engineering,Fastreroute,LDP FRR(Remote and Local),Multicast VPN,BGP-LS,Segment Routing,TI-LFA,VRF,L2 VPN and VPLS.Also all the devicesused to build network should be minimum CE2.0 or higher certified(Certifiate is issued by Metro Ethernet Forum-an independent Agency)	Please follow Bid Conditions
2070	2			Quality of Service for LTE	New /Section6B/Router Specifications /15.11	Below is the traffic type and QoS Requiremet for LTE traffic.This requires stringent QoS at the Routr/layer3 Switch. To support this the Router/Switch should support following queuing methodolouy : Low Latency Queuingand Class based weighted Fair Queuing.The Router /Switch should also support 3 Level Hirarchichal QoS.	Please follow Bid Conditions
2071	2			184	Section6B/Cab LTE Modem/15.8.1(1)	RFP asks for combined router/server.we understand this means ithat the router should support hypervisor architecture to support Linux OS within and VM/Containers.	Please Refer Addendum and Corrigendum-02B
2072	2			184	Section6B/Cab LTE Modem 15.8.1(1)	RFP as for router/server.Request to specify the minimum interafces. Router should have minimum 2x10/100/1000 Gigabit Ethernet LAN ports and atleast 2 serial ports (RS232 / RS 485) for connecting Some SCADA system or any other application.	Please Refer Addendum and Corrigendum-02B
2073	2			184	New in Section6B/Cab LTE Modem/15.8.1	Gateway should have POE ports to power up devices like IP Video Camera, the switch ports should support functionalities like VLAN, Inter VLAN Routing	Please follow Bid Conditions
2074	2			185	Section6B/Cab LTE Modem 15.8.1(7)	RFP requres support of advanced security features include VPN/DMVPN, VRFs and firewall. We request to add the below features to enhance the security: 1.The device should have built-in security features so that firewalling, intrusion prevention, point to point & point to multipoint automated IP tunnels (GRE, IPSEC) based upon traffic pattern to encrypt the data (using industry standard security protocols like DES, 3DES, AES encryption) between source & destination nodes can be provided to protect network from external threats, such as viruses/trojans. 2.Gateway should support following VPN Protocols & Features : L2tp, L2tpV3, Ipsec Vpn, should support the functionality of forming dynamic tunneless Vpn, should support IKEv2, should support ipv6 for IPsec & Ikev2, Should support 3Des, AES, MD5, SHA-1 algorithms, support GRE protocol, DMVPN 3.Router should be able to support atleast 10 IP sec tunnels for secure VPN connectivty.	Please follow Bid Conditions
2075	2			184	New in Section6B/Cab LTE Modem/15.8.1	Router should support Industry-standard 4G LTE diagnostics and monitoring tools for troublieshooting of field issues.	Please follow Bid Conditions

Note- Pending Queries shall be replied shortly