Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
1	2	6B	13.4.1		Tenderer shall submit the detailed plan of transfer of technology along with MOU with suitable Indian companies or company having proven track record and are working inrelated areas for all major systems/ subsystems. The contractor will not impose any technical or commercial condition on the Indian company receiving transfer of technology and this stipulation should be reflected in the MOU as well. In regard to TMS, the Indian Company shall, before the expiry of contract, become independent in handling of future changes in TMS configuration failing which a penalty of INR 1 crore shall be imposed on the contractor.	Please confirm that independency for changes in configuration only applies to TMS, and not to safety critical elements such as Interlocking or ETCS L2 equipment (Trackside and Onboard).	Please refer Addendum & Corrigendum-02B & 05B
2	2	6B	2.2 & 2.2.1		2.2. D-G-M Corridor 2.2.1. "…ETCS Level 2(For all purposes ETCS Level 2 means ETCS Hybrid Level 3 as asked for in this PS) and ETCS Level 1. "	Considering that ETCS Level 2 and ETCS Hybrid Level 3 are different technical solutions and in order to avoid any kind confusion, please confirm ETCS Level to be implemented in this project. As those levels are mentioned in the tender documents do we have to understand that Level 2 should be implemented for future migration to Hybrid Level 3?	Please refer Addendum & Corrigendum-05B
3	2	6B			LIST OF STANDARDS/SPECIFICATIONS Computer Based Interlocking IR RDSO/SPN/192/2005 Relay Interlocking IR IRS: S36 Electric Signalling & Interlocking Equipment IR IRS: S23 Providing necessary support and documents (viz. SIL4 certification documents, Safety case, Type test result etc.) required including compliance for getting safety worthiness of the Train Control and Signalling System certified from Indian authorities viz. Railway Board, RDSO and Commissioner of Metro Railway Safety;	Is it mandatory to submit certification at tender stage or such certification could be obtained while executing the project?	Please follow Bid Conditions
4	2	6B	A&C 2B	2 (sl.5)	Addendum and Corrigendum No. 02B Serail no 2 (Point-1) Serainl No25 Section 6B: PS-Signalling and Train control 5.3.6.1	Serail No-5 : point 1 , Provide Trailable Point machines. Serial NO - 25, preferably trailable Point Machines Clause removed PS: 5.3.6.1: Depot point machines should confirm the IRS point machines - as raised earlier, there is no IRS reference for trailable point machine; so inconsistency in the requirement to be clarified with correct type / refernce for the depot point machine requirement	Please refer Addendum & Corrigendum-05B
5	2	6B	A&C 2B	2 (sl.5)	Addendum and Corrigendum No. 02B Serail no 2 (Point-2) Section 6B: PS-Signalling and Train control 5.11.1.3	3 aspect signal to be replaced with single aspect signal and Route indicators to be removed	Please refer Addendum & Corrigendum-05B
6	2	6B		Addendum 17 of 83	Employer's Requirement Part-2, Section 6B: PS-Signalling and Train control, Appendix N Clause No. 4.4 Transfer of Control between TMS & CBI: The Automatic and Manual …….. VDU Display in the SCR. In case of failure of both Central TMS and Local TMS, train shall run normally in ATO and ATP/FS mode. When the links …….. Point Locking and Approach Locking, etc.	When there is failure of both Local TMS and Central TMS, ATO mode will not work. Kindly rephrase the requirement.	Please follow Bid Conditions
7	2	6B		47 of 420	Employer's Requirement Part-2, Section 6B: PS-Signalling and Train control / 5.11.1 The mainline line side signal aspect shall be used in fallback ETCS Level 1 and degraded modes as under	Bidder Assumes There is no Shunt Signals in mainline. for turn back Main signals only will be used, Shunt signals will be provided in Depots only.Please Confrim.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
8	2	6B			Employers Requirement Part-2,Section 6B: PS-Signalling & Train Control Alendix S Clause Number 1.2.1	PLease clarify the total Area that will be provdied to Signalling & Telecom Contractor Our understanding is Signalling & Telecom Contractor will be allocated an areas of 1200 SQM ad 600 Sq Meter respectively at each depot, wcih means that a total area of 2600 Sq Meter will be allocated to - Please confirm	Please refer Addendum & Corrigendum-05B
9	2	6B			Employers Requirement Part-2,Section 6B: PS-Signalling & Train Control Alendix S Clause Number 1.2.7	Please clarify the Number of Site office required to be provdied for Employer	Please refer Addendum & Corrigendum-05B
10	2	6B		6R1 of 7	5.Attachment 3 Appendix V_R1/SMD2/Installation, Testing and Commissioning of Test Lab for ETCS and LTE	Bidder request to confirm expectation of SMD2 Milestone. In signalling PS there is no requirement related to Test lab for ETCS & LTE.. Please provide more deatil about this milestone	Please refer Addendum & Corrigendum-05B
11	2	6B		6R1 of 7	5.Attachment 3 Appendix V_R1/SMD4/CatLog of Sub-systems/ Systems spare parts (hard and electronic format) for DGM-corridor	Bidder request to confirm expectation of SMD4 Milestone.Spares will be delivered as part of SMC1 Milestone .. Please provide deatil about SMD4 milestone. Expectation of this milestone is not clear	Please refer Addendum & Corrigendum-05B
12	2	6B		49 of 420	Section 6B_Particular Specification _Signalling and Train Control / 5.12.5 Infill balises/ Euroloop/ Radio infill shall be provided in advance of the signal to update the movement authority in advance.	Infill balise is not required for ETCS L2 operation; since ETCS L1 is being degraded (invoked rarely)movement in DGM project, no much of benefit can be achieved to advance MA through infilll balise. Kindly confirm?	Please follow Bid Conditions
13	2	6B		369/420	Section 6B_Particular Specification _Signalling and Train Control / 5.1 After erection of materials and equipment through wall and opening has been completed, it is the responsibility of the Contractor to fill up voids and openings with fire resistant materials 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. Foolproof sealing system is a pre-requisite for proving protection against fire, water, energy / power loss, humid temperature variations, pull tension and rodents, wherever cables are entering in to the signalling equipment rooms, control room, OCC, signalling equipment cabinets, power and UPS room, building and other signalling equipment.	Our understanding is all the cable & pipe passing through the walls & duct inside the SER/CER shall be closed with fire resistance material. Please confirm	Please follow Bid Conditions
14	2	6B		370/420	Section 6B_Particular Specification _Signalling and Train Control / 5.3 Material description Specifications: Composition: Low smoke index, halogen free rubber compound based on Ethylene Propylene Diene Monomer (EPDM). The material (EPDM rubber) of module with center plug / wrap / core shall be fire resistant as per UL 1479 of BS 476/20 and ensure protection against dust, water and penetrating solid objects as per IP54/55 for all indoor applications and IP67 for all outdoor applications (IEC 60529). The fire resistant rating of the sealing material shall be more than 2 hours. The sealing system shall be EPDM Modular based cable-sealing system based on multi-diameter technology. Shelf life of module shall be 30 Years and shall be insoluble in water. Section 6B_Particular Specification _Signalling and Train Control / 6.7.3 The Train Control and Signalling System shall conform to IEC 60529 Ed. 2.0 b to the following levels: (1) Trackside equipment: IP code 54; (2) Internal trainborne equipment: IP code 52; and (3) External trainborne equipment: IP code 67.	As per section 6.7.3., Our understanding for track side cable termination enclosure shall comply with IP54, hence we have we have considered cable gland with IP66 as standard for outdoor cables entry.please confirm	Please refer Addendum & Corrigendum-02B
15	2	6B		370/420	Section 6B_Particular Specification _Signalling and Train Control / 5.4 The modular sealing system and fire barrier shall be installed where: (a) Voids, sleeves, and openings appear on wall, floor, beam and shaft, provided for cable tray / raceway installation, which must be sealed after the erection work, shall be completed. (b) Voids, sleeves and openings provided for future installation (c) Voids exist between conduits and sleeves (d) Voids exist between cabling and cable tray / raceway on fire wall and floor (e) Voids exist between cable tray / raceway and sleeves on fire wall and floor (f) The method of fire barrier installation shall be in accordance with the manufacturer's instruction and listings.	our understanding is , this requirement is limited to All the cabinet/rack/cubicle inside SER/CER shall have bottom cutout & cable entry points and after completion of work remaining cutout shall be closed with fire resistance sealing solution. Please confirm	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
16	2	6B		36 of 420	Section 6B_Particular Specification _Signalling and Train Control / 5.3.1.5 ETCS Level 1, ATP Mode shall be available in both the Depots except in the Depot maintenance area, as indicated in the Employer's Drawings. However, Depot test track shall be equipped with both ETCS Level 1 and Level 2.	Please confirm number of test track in DGM Corridor?Both the depots or only in Modipuram Depot?	Please refer Addendum & Corrigendum-05B
17	2	6B		22 of 420	Section 6B_Particular Specification _Signalling and Train Control / 4.1.6 Failure of transient nature including those with post investigation status as "No fault found", shall be considered as relevant failure if in the opinion of the Engineer these are attributable to signalling. The decision of engineer shall be final	Our understanding is that the post investigation status "No Fault found" is the case where no failure has been found during investigation, this means no replacement / repair has taken place, please confirm the rationale behind including this category into the relevant category. The final sentence "The decision of the engineer shall be final" is misleading. We suggest to erase or change it in "The decision of the engineer shall be based on the evaluation done on the repair sheet".	Please follow Bid Conditions
18	2	6B		23 0f 420	Section 6B_Particular Specification _Signalling and Train Control / 4.4.2.4 The Train Control and Signalling System shall achieve a Mean Time between Maintenance Action (MTBMA) of no less than 28 days per 17 route km approx of the Line. MTBMA is the average time between maintenance being required on a piece of equipment, sub-system or a system. The equipment shall be clubbed as (a) Trackside ATC (b) Onboard ATC	The (b) onboard ATC targets are not verifiable as this computation doesn't depend on the line kms, please confirm a suitable rationale for this target.	Please refer Addendum & Corrigendum-02B
19	2	6B		23 of 420	Section 6B_Particular Specification _Signalling and Train Control / 4.2.4 Maintenance actions shall include hardware failures requiring a repair or software reboot/reconfiguration/reloading.	Our understanding is that all non harware maintenance activities on a hardware like software reboot/reconfiguration/reloading shall be not be considered as maintenance activities, please confirm the rationale behind this clause.	Please follow Bid Conditions
20	2	6B		23 of 420	Section 6B_Particular Specification _Signalling and Train Control / 4.3.3 The availability figures shown in Table 4-1 shall be met by the Train Control and Signalling System per 17 route km approx of the line. For calculation purpose, only relevant failures viz failure of track detection device, signal, point machine, interlocking, on-board ATC	The onboard ATC targets are not verifiable as this computation doesn't depend on the line kms, please confirm a suitable rationale for this target.	Please follow Bid Conditions
21	2	6B		14 of 420	Section 6B_Particular Specification _Signalling and Train Control / 2.3/Contigency Plan	Bidder request customer to confirm below points .. . If contigency plan is excercised ,please provide tentative Start & End Date . Please confirm expectation of Temp OCC ,in terms of Hardware for both Signalling & Telecom . Do we need to have complete OCC setup like Jangpura.. Please confirm . Please confirm expectation in terms of T&C . How trains need to be tested as part of contigency plan . Due to dealyed access of Duhai Depot is there any plan to use Temp OCC for performing Stage-1 ROD. Please confirm	Please follow Bid Conditions
22	2	6B		26 of 420	Section 6B_Particular Specification _Signalling and Train Control / 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	Our understanding is that the software reboot does not cause repair / replacement of LRU, therefore please confirm how this category shall be relevant to be included in the MTTR time measurement.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
23	2	6B		377 of 420	Section 6B_Particular Specification _Signalling and Train Control / Appendix N 10.2 The Contractor shall provide the following certifications from approved validation agency: (ii) Reliability and fail - safety of the interlocking system. (iv) Expected MTBF. (v) Expected MTBWSF. (vi) Expected MTTR	Please confirm if the datasheet from COTS supplier / sub contractor / main contractor be considered enough as certification for the mentioned RAM metrics.	Please follow Bid Conditions
24	2	6B		10 of 420	Section 6B_Particular Specification _Signalling and Train Control / Point Machine IRS S:24	There is no IRS standard exist for Ballast less track envoirnement/working. Please clarify	Please refer Addendum & Corrigendum-05B
25	2	6B		22 of 420	Section 6B_Particular Specification _Signalling and Train Control/ 4.1.5	There is no reference of EN safety standards 50126 & 50129 in the IRS standards. Please clarify	Please follow Bid Conditions
26	2	6B		419 of 420	Part 2 Section 6B: PS-Signalling and Train control/KEY DATES FOR MISCELLANEOUS MILESTONE/SMB3/Construction of Site office for Employer at Depot	Bidder understand that S&T Contractor need to construct Employer office only at one Depot . Please confirm our understanding . Please confirm whether Employer office to be constructed in Duhai Depot or Modipuram Depot…?	Please refer Addendum & Corrigendum-05B
27	2	6B		419 of 420	Section 6B_Particular Specification _Signalling and Train Control / APPENDIX V – KEY & ACCESS DATES Table reporting KEY DATES FOR MISCELLANEOUS MILESTONE	In this table system safety cases are scheduled only "After 3 Yrs. Of Stage-4 KD- 11" (SME3 and SME4). Please clarify when the delivery of the safety case (Generic Application and Specific Application for each stage are expected)	Please refer Addendum & Corrigendum-02B
28	2	6B		25 of 420	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.	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
29	2	6B		142 of 420	Section 6B: PS-S&TC, Chapter 13, Clause 13.4.1 Tenderer shall submit the detailed plan of transfer of technology along with MOU with suitable Indian companies or company having proven track record and are working in related areas for all major systems/ subsystems. The contractor will not impose any technical or commercial condition on the Indian company receiving transfer of technology and this stipulation should be reflected in the MOU as well.	We understand that if Tenderer itself is an Indian company, there is no question or requirement of "MOU with a suitable Indian company". Because that will make no sense. Please do not answer with "Please follow Bid Conditions" or "Please refer Section 6B Chapter 13, Clause 13.4" as these do not answer the Queries related to ToT. Please confirm with 'Yes' or 'No'. And if 'No', please elaborate and provide a suitable justification.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
30	2	6B		142 of 420	Section 6B: PS-S&TC, Chapter 13, Clause 13.4 13.4 Transfer of Technology	"Transfer of Technology" (ToT) is a serious matter and needs to be clarified. In our industry "Transfer of Technology" is defined as transfer or movement or flow of technical knowledge, data, designs, prototypes, inventions, software, and/or trade secrets from one organisation to another organisation. The technology transfer process is guided by the policies and values of each respective organisation. Let us be tranparent and be clear on the exact scope and the expectations. Please do not answer with "Please follow Bid Conditions" or "Please refer Section 6B Chapter 13, Clause 13.4" as these do not answer the Queries related to ToT. 1. The term "Transfer of Technology" is not defined in the Bid Conditions and has been used quite loosely. Please confirm the requirement is limited to 'TRAINING' only. 2. Please replace clause 13.4.2. in Section 6B Chapter 13 by "TOT shall be essential but limited to installation, and maintenance support training only."	Please refer Addendum & Corrigendum-05B
31	2	6B		408	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)	The Delhi-Ghaziabad-Meerut corridor consists of 25 stations, the Track Plan is available for 24 stations viz Sarai Kale Khan to Modipuram Depot. Request to provide the Track Plan of Jangpura Station.	Please refer Addendum & Corrigendum-02B
32	2	6B	5.3.2.3	45	5.3.2.3 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.	The SBI intervention requested is not in line with UNISIG specification. This requirement goes beyond that which is required in UNISIG and would be very difficult to implement, therefore, we request to remove this SBI requirement at platforms otherwise compliance to UNISIG could not be maintained In ATO mode the ATO will ensure the correct stopping position and in non-ATO mode the driver advisory system will provide indications to the driver to stop at the next platform. Request you to modify the requirements accordingly.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
33	2	6B	5.8.3.2	52	5.8.3.2 All trains shall be provided with redundant 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.	The customer should please provide an MTBF target to achieve the required availability for the Onboard Unit (as similar listed for the LTE section of this tender). The requirements for the Onboard Unit seem to be inspired from Mass Transit specifications which are significantly different to those used in Main Line. In order to avoid significant development effort, an MTBF target would be best to allow each competitor to choose their preferred architecture to meet the required availability. This is the industry standard approach in Main Line projects. For GoA 2 ATO will have the driver as a fallback so a redundancy requirement for the ATO is not necessary	Please refer Addendum & Corrigendum-05B
34	2	6B		399	Appendix O7.4 (p393) 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: The customer should please provide an MTBF target to achieve the required availability for the Onboard Unit (as similar listed for the LTE section of this tender). In order to avoid significant development effort, an MTBF target would be best to allow each competitor to choose their preferred architecture to meet the required availability. This is the industry standard approach in Main Line projects and focusing on MTBF targets allows the customer to ensure the desired availability is reached. Regarding ATO: The ATO-OB and ATO-TS HW platforms do not support 2oo2 HW/2oo3 HW. The ATO is considered a non-vital component and therefore there are no hazard and safety functions assigned to ATO-OB/TS. Hence, safe computation according to CENELEC standards exploiting 2oo2/2oo3 HW is not required	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
35	2	6B	6.4.3.4	103	6.4.3.4 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. It is expected that no safety related requirements are to be fulfilled by the ATO-Onboard. The SW of the ATO-Onboard is not safety related as defined in CENELEC EN50128. It is understood regarding the SIL2 request, that the customer seeks additional quality measurements for the software development process compared to the normal applications outside the scope of railway applications. The SW development can be designed compliant to the SIL2 process defined in the CENELEC EN50128. However, there is no option to achieve compliance with EN50126/50129 and neither the SW itself nor the HW can fulfill SIL2. Please remove the requirement to achieve SIL 2 for the ATO.	Please refer Addendum & Corrigendum-02B
36	2	6B	10.4	354	10.4 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	The ATO system will not receive explicit coasting commands from the TMS. The TMS will provide a schedule, including absolute departure and arrival times (UTC). The ATO-Onboard calculates the optimum speed profile locally. If the timetable provides allowances, the ATO usually compensates travel time reserves by means of coasting (=no fractioning, no braking). Please adjust the requirement accordingly.	Please refer Addendum & Corrigendum-05B
37	2	6B	4.9.2.1	28	4.9.2.1 ATO mode shall stop within ± 300 mm for 99.98% of station stops	Please note that this requirement goes beyond both of the harmonized ETCS or ATO standards (e.g. SS.026/SS.125). Based on project experience the stopping accuracy of +/-500mm (proposal: w/ probability of 99.98%) can be achieved. Please note that the ATO-Onboard will provide requirements for the Rollingstock Manufacturer's performance in order to fulfill this stopping accuracy. In case the Rollingstock Manufacturer cannot meet the performance requirements, the stopping window will increase as well as the likelihood for stopping outside the window. In addition, track data engineering must be sufficiently precise, e.g. granularity, resolution and errors for gradients or number, position and precision of balises. Please adjust the requirement to +/-500mm.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
38	2	6B	4.9.2.3	28	4.9.2.3. These stopping accuracy requirements shall be achieved with a 1% soap solution sprayed on the surface of the rails throughout the braking distance.	Please remove this requirement from the scope of the signaling provider. Slip/Slide (WSP) control is the responsibility of the rollingstock manufacturer and its associated brake control equipment. The signaling provider is not able to dictate the vehicle design to ensure a high level of stopping accuracy under all adhesion conditions.	Please follow Bid Conditions
39	2	6B	4.9.3.1	35	4.9.3.1 If the Train stops within safety conditions for door opening authorization (generally, -0.7m, +1m from the train stopping position), the train control & signaling 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 authorization window defined above, the Train Control and signaling 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
40	2	6B	2.6.4	16	2.6.4 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 harmonized, 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 remove ATO and PSD subsystems from this requirement as there are not yet any harmonized standards.	Please follow Bid Conditions
41	2	6B	A&C 2B	3	Addendum and Corrigendum No. 02B Sr. No 3 - [Add the following New Note in PS] Note: If any standard is superseded by the new revision/version then Latest issues or versions of internationally recognized standards need to be considered.	The latest version of standards to be considered, shall be upto bid submission date only. Compliance to any revision or amendments for norms/standards post bid submission cannot be guaranteed in general. Please confirm.	Please follow Bid Conditions
42	2	6B	A&C 2B 3.6.3.1	3	Addendum and Corrigendum No. 02B Employer's Requirement Part-2, Section 6B: PS-Signalling and Train control, Chapter-3 Clause No. 3.6.3.1 The Signalling and Telecom Contractor will be provided a space of about 1200 sqm and 600 Sqm respectively at each of the two (02) suitable places for constructing temporary storage facilities for Contractor as mentioned in Appendix A.	Please clarify if there will be a total of 4 locations i.e. 2 locations of 1200sqm and 2 locations of 600sqm OR Total 2 location i.e. one 1200sqm and one 600 sqm.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
43	2	6B	A&C 2B 5.11.2.6 i	9	Addendum and Corrigendum No. 02B Sr. No 34 - Add the following new Sub Clause No. 5.11.2.6 in Clause No. 5.11.2 in PS] Route Indicators are not required.	If route indicators are not required as stipulated in the addendum list, can you please confirm the requirement of Sr no 5 [Add the following New Sub Clause No. 3.2.1.3 in Clause No. 3.2.1 in PS] 2) 3 aspect, Shunt, Buffer light and **route indicator** signals with accessories. Please clarify.	Please refer Addendum & Corrigendum-05B
44	2	6B	A&C 2B	10	Addendum and Corrigendum No. 02B Sr. No 38 -Asset Protection Systems Asset Protection System (APS) shall include Hot Axle Box Detector (HABD). The system shall be minimum SIL2, however hazard analysis shall be carried out during detailed design stage to identify appropriate SIL level for the complete functionality.	The HABD is in the scope of Rolling stock contractor, hence this requirement shall be in the scope of Rolling scope contractor and need not be part of this S&TC tender specification.	Please follow Bid Conditions
45	2	6B	A&C 2B	16	Addendum and Corrigendum No. 02B Sr. No 69 - [Add the following new note to Clause No. 13 in PS] Note: Protocols / data structures shall be shared with NCRTC by the signaling contractor and it shall be property of NCRTC. NCRTC shall have the right to use and implement these protocols / data structure in future corridors for achieving interoperability between different signaling systems.	Please note that some protocols are proprietary information and thus cannot be shared and handed over ownership rights. Hence request you to amend this clause.	Please follow Bid Conditions
46	2	6B	12.2	1	Clause 12.2 Spares list The Contractor shall submit to the Employer's Engineer a list of spares required as per GS. The list of spares shall include the Employer's list including the quantity mentioned for each item as given in Appendix P of this PS.	The list of spares that we provide as part of Appendix P will be used as spares during the DLP period. We will make use of these spares as immediate replacement of any defective modules/items and we will replace them with the repaired/replacement module/item. Please confirm our understanding is correct.	Please refer Addendum & Corrigendum-05B
47	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
48	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
49	2	6B	5.1.2	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
50	2	6B	3.2.1	383	Appendix O 3.2.1. 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
51	2	6B	4.9.3.4	29	4.9.3.4 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 signaling or ATO systems.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
52	2	6B	5.7.2.6	46	5.7.2.6 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
53	2	6B	5.7.3.1	46	5.7.3.1 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 signaling or ATO systems.	Please follow Bid Conditions
54	2	6B	2.6.4	16	2.6.4 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 harmonized, 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
55	2	A&C 01		1	Appendix V : Key dates	From the revised information from the Customer is it correct to interpret the Dates KD6 to KD9 inclusive are Start Dates and KD10 as a Completion Date ? Then this would mean that the Service Trial may last one month, please confirm.	Please refer Addendum & Corrigendum-02B
56	2	A&C 01		1	Appendix V : Key dates	From the revised information from the Customer the actual KD-4 dates is absent for all stages are we to interpret these dates to be the same are KD-5? Or how are these dates to be arrived at before the Rolling Stock Schedule is available?	Please follow Bid Conditions
57	2	A&C 01		2	Appendix V :Key dates KD11	AS the D date is absolutely fixed at this point time, we request NCRTC to convert this requirement also to "D+ days" rather than 01.03.2023..etc	Please follow Bid Conditions
58	2	A&C 01 6B		4	Sr. No 11 Notwithstanding the service capacity requirement above, the Train Control and Signalling System shall provide a minimum theoretical signalled headway of 120 seconds and an operational headway of 180 secs in ETCS Level 2 (with fixed virtual blocks) on D-G-M Corridor signalled routes between-	There is no details on the headway requirements of ETCS L2 with/without ATO, ETCS L1 or Manual / IxL operations. Any assumptions not validated against specific requirements may result in huge changes/NCC during project execution. Thus uncertainty can result in increased signals, Axle counters, cables, IxL equipments, power supply requirements, LEU, Balises, etc.	Please refer Addendum & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
59	2	6B			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
60	2	6B			Additional Query	Please specify No of ESP per Platform	Please follow Bid Conditions
61	2	6B			Additional Query	Civil DGN of Main line Girder , Tunnel and station Bldg. is required	Please refer Addendum & Corrigendum-05B
62						Please confirm that the Employer will pay all of his staff's salaries, travelling, subsistence and other related allowances during the whole execution of works including training in contractor's offices.	Please refer Section 6B Clause 13.4.2.1 & Financial Bid, Descr. MS for Stage MISCELLANEOUS General Requirements
63						Please confirm that impedance bonds (chapter 5.3.7.4 signalling and train control document) have to be supplied by signalling contractor.	Please follow bid conditions
64						Please confirm that the supply of UPS is out of the scope of signalling contractor (5.3.12.1 signalling and train control document).	Please refer Section 6B Clause 3.4.2.3
65						According to tender specifications, the line will have hot axle box detectors (HABD). Please confirm the number and location of them.	Shall be finalised at Design stage
66						Please confirm that HABD's information is upload to TMS by means of IXL. Therefore, an interface between HABD and IXL exists.	Please refer Section 6B Appendix A Clause No. 10 S&T, PSD Vs Rolling Stock, S.No. 23
67						Please confirm that maintenance staff will be Employer's personnel and contractor will only supply spare parts during defect liability period.	Please refer Section 6B Clause No. 11.2
68						Please confirm that all technical rooms will be airconditioned.	Plerase refer Section 6B Appendix A Clause No.1 Signalling & Telecommunication (S&T) and UG Stations and Tunnel Contractor. S.No. 35 and Clause No. 16 S&T vs OCC Contractor S.No. 6
69						Please could you send us drawings with the location (kilometre points) of point machines?	Shall be shared at Design stage

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
70	2		Section 6B_Particular Specification_Appendix I	356/420		Bidder requests to confirm the operating temperature for signalling cables. The outdoor cables in elevated section can confirm to 0-70 degree celcius. The under ground cables can confirm to 0-65 degree celcius.	Please follow bid conditions
71	2		Section 6B_Particular Specification / 5.11.1.1 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	47/420		Our understanding is that there will be Bidirectional movement in ETCS-L2, and unidirectional movement in ETCS-L1 . Please confirm that our understanding is correct .	Please refer Addendum & Corrigendum-05B
72	2	6B			Employers Requirement Part-2, Section 6B: PS-Signalling and Train control, Chapter 5, Clause No. 5.31.5	Please detail the list of interfaces and functions that must be ensure from Local TMS servers in case of failure of Central TMS	Please follow Bid Conditions
73	2	6B			Employers Requirement Part-2, Section 6B: PS-Signalling and Train control, Appendix D Clause No.9, Table 9-1 S&T Contractor and Third party ITMS Contractor	Please clarify if the the Central TMS must supply the functions planned even for the third-party integrated timetable system in order to be able to perform the same set of funcions when the third-party integrated timetable system is not available	Please follow Bid Conditions
74	2	6B			Employers Requirement Part-2, Section 6B: PS-Signalling and Train control, Appendix D Clause No.9,	Please clarify the delivery plan for the third-party integrated timetable system taking into account the request schedule for the Central TMS system	Please follow Bid Conditions
75	2	6B			Employers Requirement Part-2, Section 6B: PS-Signalling and Train control, Appendix D Clause No.9, Table 9-1 S&T Contractor and Third party ITMS Contractor	Please clarify if the third-party integrated timetable system will be interface directy with the IXL and ETCS system planned for the D-G-M corridor. The intefaces request in the table 9.1 seem not aligned with the schema in chaper 9.1 where the ATP-IXL-ETCS system are connected to the Central TMS and not to the third-party timetable system	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
76	2	6B		18 of 420	Section 6B_Particular Specification _Signalling and Train Control / 3.2.1.2 (19) Once the OCC at Jangpura gets ready, it will become Main Control Centre. In case operation from OCC is not possible, all the controls will be transferred to BCC for the entire line. Simultaneous control operation from the two Control Centres shall not be possible. The control functionality provided at BCC shall however, be of the same degree as provided at OCC. All references to the Operations Control Centre (OCC) elsewhere in the PS shall also be taken for the Backup Control Centre (BCC), if the BCC is controlling the corridor. BCC shall be replica of OCC in regard to equipment and functions. The system shall be capable of logging ATP, RBC, Interlocking and other system alarms, maintenance management system including data storage facility at BCC similar to OCC. Signalling contractor shall conduct ergonomic study for entire OCC &BCC.	We understand that BCC requested is to replicate control & display without any hardware inclusions; and not a diaster recovery system; Please confirm	Please follow Bid Conditions
77	2	6B		69 of 420	Section 6B_Particular Specification_Signalling and Train Control/ 5.21.5	Diagnostic and Maintenance System to receive processed data from PSD and Hot Axle Detection System, for notifying Operator with Alarm, in case of anamolies. The PSD and HADS to send the Alarm message to display in DMS. The Diagnostic and Maintenance System is not required to process the PSD and HADS data (for HADS reference- Section 5.43: HABD will perform the required processing). Kindly confirm is the understading is right?	Please follow Bid Conditions
78	2	6B		419 of 420	Part 2 Section 6B: PS-Signalling and Train control/KEY DATES FOR MISCELLANEOUS MILESTONE/SME2/Ergonomic Study and Furniture of Equipment Room and OCC/BCC as defined in Employer's Requiremen	Bidder request customer to provide area/ room layout of OCC & BCC for Ergonomic study	Please refer Addendum & Corrigendum-05B
79	2	6B		28 of 83	Addendum and Corrigendum No. 02B S.No.105 (Section 6B: PS-S&TC, Chapter 5, Clause No. 2.3.5) S.No. 105 Modified Document/Form/Clause/Sub Clause: Temporary Operation Control Centre with all functions similar to OCC shall be provided at same station for the train operation requirement. These equipment can be reused.	As per our understanding, OCC equipment will be deployed temporarily at same station, and then same equipment is to be moved to the permanent OCC site upon site availability and readiness. Please confirm.	Please follow Bid Conditions
80	2	6B		49 of 83	Addendum and Corrigendum No. 02B S.No.151 (Section 6B: PS-S&TC, Chapter 5, Clause No. 5.33, Sub-clause 5.33.5.1) S.No. 151 Modified Document/Form/Clause/Sub Clause: 5.33.5.1. BCC will be at Duhai Depot. BCC will be first operational before OCC and it shall act as an OCC till the commissioning of OCC at Jangpura. All installations at BCC and Back up CER shall be in scope of signalling contractor like the main OCC. Back up OCC shall remain intact after commissioning of OCC and it will act as a backup for OCC. BCC will remain in cold Standby.	As per our understanding, BCC will be operational first and act as an OCC till the time the permament OCC is ready and the equipment being temporarily deployed at the Temporary OCC (located at same station) will be moved to the permanent OCC later upon site availability and readiness. In the network there are at all times only two sites for OCC and BCC. Please confirm.	Please follow Bid Conditions
81	2	6B		28 of 83 and 49 of 83	Addendum and Corrigendum No. 02B S.No.105 and S.No. 151 / Section 6B: PS-S&TC, Chapter 5, Clause No. 2.3.5 and Clause No. 5.33, Sub-clause 5.33.5.1 S.No. 105 Modified Document/Form/Clause/Sub Clause: Temporary Operation Control Centre with all functions similar to OCC shall be provided at same station for the train operation requirement. These equipment can be reused. S.No. 151 Modified Document/Form/Clause/Sub Clause: 5.33.5.1. BCC will be at Duhai Depot. BCC will be first operational before OCC and it shall act as an OCC till the commissioning of OCC at Jangpura. All installations at BCC and Back up CER shall be in scope of signalling contractor like the main OCC. Back up OCC shall remain intact after commissioning of OCC and it will act as a backup for OCC. BCC will remain in cold Standby.	The bid documents only provide dates of Access to Jangpura Yard, which is in mid of Stage 2 (or just 1-day prior to ROD of Stage 1), and not for Jangpura Station (location of Temporary OCC). We understand that Temporary OCC readiness and activities will occur strictly as per the Key Dates and Access Dates of Stage 1 in order to ensure Geo-Redundancy for Stage 1 Service. Please confirm and also provide the specific Key Dates and Access Dates for Jangpura Station.	Temporary OCC is not planned at Jangpura. Please follow Bid Conditions regarding Location of Temporary OCC.

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
82	2	6B	Addendum and Corrigendum No. 02B S.No.105 (PS-S&TC, Chapter 5, Clause No. 2.3.5)	28 of 83	**S.No. 105** **Modified Document/Form/Clause/Sub Clause:** Temporary Operation Control Centre with all functions similar to OCC shall be provided at same station for the train operation requirement. These equipment can be reused.	As per our understanding, OCC equipment will be deployed temporarily at same station, and then same equipment is to be moved to the permanent OCC site upon site availability and readiness. Please confirm.	Please follow Bid Conditions and Addendum & Corrigendum-02B
83	2	6B	Addendum and Corrigendum No. 02B S.No.151 (PS-S&TC, Chapter 5, Clause No. 5.33, Sub-clause 5.33.5.1)	49 of 83	**S.No. 151** **Modified Document/Form/Clause/Sub Clause:** 5.33.5.1. BCC will be at Duhai Depot. BCC will be first operational before OCC and it shall act as an OCC till the commissioning of OCC at Jangpura. All installations at BCC and Back up CER shall be in scope of signalling contractor like the main OCC. Back up OCC shall remain intact after commissioning of OCC and it will act as a backup for OCC. BCC will remain in cold Standby.	As per our understanding, BCC will be operational first and act as an OCC till the time the permament OCC is ready and the equipment being temporarily deployed at the Temporary OCC (located at same station) will be moved to the permanent OCC later upon site availability and readiness. In the network there are at all times only two sites for OCC and BCC. Please confirm.	Please follow Bid Conditions and Addendum & Corrigendum-02B
84	2	6B	Addendum and Corrigendum No. 02B S.No.105 and S.No. 151 / Section 6B: PS-S&TC, Chapter 5, Clause No. 2.3.5 and Clause No. 5.33, Sub-clause 5.33.5.1	28 of 83 and 49 of 83	**S.No. 105** **Modified Document/Form/Clause/Sub Clause:** Temporary Operation Control Centre with all functions similar to OCC shall be provided at same station for the train operation requirement. These equipment can be reused. **S.No. 151** **Modified Document/Form/Clause/Sub Clause:** 5.33.5.1. BCC will be at Duhai Depot. BCC will be first operational before OCC and it shall act as an OCC till the commissioning of OCC at Jangpura. All installations at BCC and Back up CER shall be in scope of signalling contractor like the main OCC. Back up OCC shall remain intact after commissioning of OCC and it will act as a backup for OCC. BCC will remain in cold Standby.	The bid documents only provide dates of Access to Jangpura Yard, which is in mid of Stage 2 (or just 1-day prior to ROD of Stage 1), and not for Jangpura Station (location of Temporary OCC). We understand that Temporary OCC readiness and activities will occur strictly as per the Key Dates and Access Dates of Stage 1 in order to ensure Geo-Redundancy for Stage 1 Service. Please confirm and also provide the specific Key Dates and Access Dates for Jangpura Station.	Temporary OCC is not planned at Jangpura. Please follow Bid Conditions regarding Location of Temporary OCC.

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
85	2	6B	5.19	59	Clause 5.19 TMS Functions : (23) Delay distribution management	The functional requirements of the mentioned functionality have not been provided in the tender or in the 02B. P24_Addendum and Corrigendum-02B. Please provide minimum functional requirements of the following functionalities as specified under TMS functions: (23) Delay distribution management	Please refer Addendum & Corrigendum-05B
86	2	6B	5.26.4.2	71	Clause 5.26.4.2	Please elaborate the meaning of "model" to understand the possible modification requirements in clause 5.26.4.2: It shall be possible for the Employer & Employer's Engineer to modify the model.	Please refer Addendum & Corrigendum-05B
87	2	6B	5.34.5.1	84	Clause 5.34.5.1 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 finalized in design stage.	Please provide minimum functional requirements of the Hand Held Terminal to help us estimate the efforts and design accurately	Please follow Bid Conditions
88	2	6B	5.35.1	85	Clause 5.35.1 vs 11. Attachment 3 Appendix C(R1): List of TMS Workstations	Clause 5.35.1 shows a pictures with a configuration that we have not been able to identify with any of the positions requested list of TMS Workstation from Appendix C or Appendix C(R1). Please, could you clarify this point?	Please refer Addendum & Corrigendum-02B
89	2	6B	5.35.9	86	Clause 5.35.9 vs 11. Attachment 3 Appendix C(R1): List of TMS Workstations	Clause 5.35.9 request for the OCC and BCC, 2 high resolution projector system (not less than 100 inches), whereas Appendix C (R1) (List of TMS Workstation) requires 2 Quantity of Workstations with 2 Monitors (>100"). Please, could you confirm whether the OCC Theatre and BCC require **2 positions** with 2 monitors at least 100 inches, or **1 position** with 2 monitors at least 100 inches?	Please follow Bid Conditions
90	2	6B	Clause No 9 of appendix D	1	Clause No 9 of appendix D 9.1 TMS Architecture "Third Party Integrated Time table Management & Display + Protocol converter "	"Third Party Integrated Time table Management & Display + Protocol converter " scope will not be in the current tender. That means we have only TMS requirements in the current tender no CTMS requirements. Please confirm our understanding is correct	Please follow Bid Conditions
91	2	A&C 01	5.33.4.1.1	48/49 2	02B. P24_Addendum and Corrigendum-02B: 5.33.4.1.1 vs 11. Attachment 3 Appendix C(R1): List of TMS Workstations	Clause 5.33.4.1.1 request for the Crisis Room, 2 high resolution projector system (not less than 100 inches), whereas Appendix C (R1) (List of TMS Workstation) requires 2 Quantity of Workstations with 2 Monitors (>100"). Please, could you confirm whether the OCC Theatre and BCC require 2 positions with 2 monitors at least 100 inches, or 1 position with 2 monitors at least 100 inches?	Please follow Bid Conditions
92	2	A&C 01	5.33.5.1	49	02B. P24_Addendum and Corrigendum-02B: 5.33.5.1.	Clause 5.33.5.1 says "BCC will remain in cold Standby". Please, could you then confirm whether the BCC, once the OCC is operational, will be configured as cold Standby?	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
93	2	A&C 01		1	12. Attachment 4 Clause No. 9 of Appendix D	Please provide the details on supply scope for third party ITMS (Integrated Time Table Management and display + Protocol convertor).Also please specify when this part of scope of work would be tendered .	Please follow Bid Conditions
94						Please confirm that the following control centres have to be installed: - OCC. - BCC. - Local control in each station with interlocking. - DCC in each depot. We understand that when in tender document appears "peripheral / local control", it is the same control centre and peripheral control is not a new one to be installed in other location, please confirm.	Please follow bid conditions
95	2	6A	10.7.1		Transfer of Technology shall be essential and shall include system assembly, manufacturing, installation, maintenance, software customisation and training of Employer's personnel as detailed in the GS and PS.	What level of technology transfer is expected? ToT for system knowledge, maintenance and repair of failures? ToT for Configuration capacity? ToT for Manufacturing capacity in India or anywhere else world-wide? (as state in Clause 10.7.4) ToT applies to all systems/sub-systems of the project?	Please follow Bid Conditions
96	2	6A	10.7.2		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.	Please clarify what does exactly means support for the period of minimum 15 years.	Please follow Bid Conditions
97	2	6A	10.7.4		For any Spare Parts that the Contractor is unable to supply throughout the design life of the Works, or where the Contractor ceases availability support of that item before the end of such design life or if the Contractor ceases trading, the Contractor undertakes to transfer the relevant intellectual property rights, design rights and technology to the Employer and the Employer shall have the full right to manufacturing drawings, schedules, software and any other information needed to manufacture the relevant item. Such rights shall give the Employer complete freedom to manufacture the item in India or anywhere else world-wide. The Contractor shall also undertake to notify the Employer two years in advance of the intended cessation of spares availability of any item.	Please confirm that the transfer of relevant intellectual property rights, design rights and technology and full right to manufacturing only applies to spare parts and not to equipment of the systems.	Please follow Bid Conditions
98	2	6A		10-4 of 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 follow Bid Conditions
99	2	6A		GS 13-5 of 8	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
100	2	6A	3.7.4.2	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 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 programmed.	Please follow Bid Conditions
101	2	6B			Employers Requirement Part-2,Section 6B: Appernidx - A 7 S&T (Signalling) vs Depot 26	Please confirm if the land allocation (1200 Sq Meter) along D-G-M crridor is over and above the land allocatioon indictaed in PS Clasue 1.2.1	Please refer Addendum & Corrigendum-05B
102	2	6B			Employers Requirement Part-2,Section 6B: Appernidx - A 8 S&T (Telecom) vs Depot	Please confirm if the land allocation (600 Sq Meter) along D-G-M crridor is over and above the land allocatioon indictaed in PS Clasue 1.2.1	Please refer Addendum & Corrigendum-05B
103	2	6B		269 of 420	Section 6B_Particular Specification _Signalling and Train Control / 10. S&T, PSD Vs Rolling Stock/21. Driver Identification reader	We understand that this requirement is limited to 2 nos of Driver Identification reader in each driving cab; Please confirm; Also please clarify, which contract provisions shall supply Smart card.	Please refer Addendum & Corrigendum-05B
104	2	6B		265 of 420	Section 6B_Particular Specification_10.S&T, PSD Vs Rolling Stock Signalling Scope: To supply the equipment to the Rolling Stock Contractor's Works (item 1 to 10 except item 7,8,9) (4) Speed measuring sensors and speedometer for signalling modes Rolling Stock Scope: To provide space in the vehicle design for fixing and installation at the manufacturer's facility, by the Rolling Stock Contractor, under the supervision of the S&T Contractor.	We understand that RS contractor will provide suitable location to install the signalling speed sensors for meeting its operation requirement such as non-motorized and non-braked axle. Please confirm.	Please refer Addendum & Corrigendum-05B
105	2	6B		292 of 420	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-05B
106	2	6B		292 of 420	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-05B
107	2	6B		292 of 420	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-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
108	2	6B		265 of 420	Section 6B: PS-S&TC Appendix A - DESIGN AND CONSTRUCTION INTERFACE MANAGEMENT 9.4 List of Interface sheets for S&T S.No. 10. S&T, PSD Vs Rolling Stock	For Item 7 (antennae, cab modems, train radios including Driver Display, etc.) it is crucial that space is correctly provisioned in the vehicle design. It is also understood that the Rolling Stock Contractor shall provide Item 8 (measuring sensor and odometer for non-signalling mode) and Item 9 (train lines/Ethernet Connection) and not Item 7 (Antennae & radio for train radio including special cables etc.). We thus request that the Signalling vendor is to supply Item 7 along with the remaining OBU items being supplied, to the Rolling stock vendor for fixing and installation at the manufacturer's facility, by the Rolling Stock Contractor, under the supervision of the S&T Contractor. Please confirm.	Please refer Addendum & Corrigendum-05B
109	2	6B	Section 6B: PS-S&TC Appendix A - DESIGN AND CONSTRUCTION INTERFACE MANAGEMENT 9.4 List of Interface sheets for S&T S.No. 10. S&T, PSD Vs Rolling Stock	265 of 420	Item 7 = Antennae & radio for train radio including special cables etc. Item 8 = Train lines/Ethernet connection Item 9 = Speed sensing devices for non signalling modes SIGNALLING: To supply the equipment to the Rolling Stock Contractor's Works (item 1 to 10 except item 7,8,9) ROLLING STOCK: To provide space in the vehicle design for fixing and installation at the manufacturer's facility, by the Rolling Stock Contractor, under the supervision of the S&T Contractor. The speed measuring sensor and odometer for non-signalling mode will be provided by Rolling Stock Contractor. To provide train lines/Ethernet Connection as per S&T requirement.	For Item 7 (antennae, cab modems, train radios including Driver Display, etc.) it is crucial that space is correctly provisioned in the vehicle design. It is also understood that the Rolling Stock Contractor shall provide Item 8 (measuring sensor and odometer for non-signalling mode) and Item 9 (train lines/Ethernet Connection) and not Item 7 (Antennae & radio for train radio including special cables etc.). We thus request that the Signalling vendor is to supply Item 7 along with the remaining OBU items being supplied, to the Rolling stock vendor for fixing and installation at the manufacturer's facility, by the Rolling Stock Contractor, under the supervision of the S&T Contractor. Please confirm.	Please refer Addendum & Corrigendum-05B
110						Please confirm that scada is out of the scope of signalling contractor and the train control & signalling system shall only provide alarms to the scada system.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
111						Please confirm that CCTV workstation is only for live streaming of CCTV camera from train and therefore the images have not to be stored by signalling contractor.	Please follow Bid Conditions
112	2		02B. P24_Addendum and Corrigendum-02B/Employer's Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter-4 New Clause No. 4.6.3.3	3 of 83		Bidder request customer to confirm below points • 1. Maintenance Vehicle will have One Driver cab/ Driver Desk per train or two per train . 2. Is Driver Identification reader required for Maintenance Vehicle. If yes 1 per train or 2 per train ..? 3. Is Onboard Digital Counter required for Maintenance Vehicle. If yes 1 per train or 2 per train ..?	Please refer Addendum & Corrigendum-05B
113	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	Acceptable but shall be specific to particular project as awarded by NCRTC and site/project name must be included in the certificate scope.
114	2			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.	No. SHE manpower shall only be on the payrole of main contractor not outsourcing/third party. Each and every SHE personnel shall always be on full time basis.
115	2			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 follow Bid Conditions
116	2			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 follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
117	2			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 follow Bid Conditions
118	2			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 follow Bid Conditions
119	2			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 follow Bid Conditions
120	2			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-05B
121	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 follow Bid Conditions
122	2	6G		11, 35, 42	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 1.3.7 B. (iii) EMC tests: EN 50121-5, EN 61000-4-2-95, EN 61000-4-3-97, EN 61000-4-4-95, EN 61000-4-5-95, EN 61000-4-6-96, EN 61000-4-8-93, EN 61000-4-11-94, IEC 60801 (part 2) 4.11.3 The Contractor shall comply with the requirements of the international standards EN 50121-4/-/5 Railway Applications – Electromagnetic Compatibility, 2003 and related standards and the IEC 61000-6-2 and IEC62236 – 4 & 5 for Electromagnetic Compatibility, or equivalent Standards Approved by the Employer. EMC considerations shall be incorporated in the Contractor's procedures for functional Safety and Engineering Verification. 4.11.7 Installation and Mitigation Guidelines A consistent series of guidelines, such as the IEC61000-5 series and EN 50121- 4 & 5, shall be observed wherever applicable.	1. Generally, PSD system shall comply to EN 50121-4 standard. But, in the bid document, it is mentioned EN 50121-5. Hence, please clarify which part of the standard EN 50121 to be followed. 2. IEC 60801 (part 2) has been obsolete. IEC 60801 (part 2) has replaced by EN 61000-4-2-95. Please remove IEC 60801 (part 2) standard from the bid clause.	Please refer Addendum & Corrigendum-05B

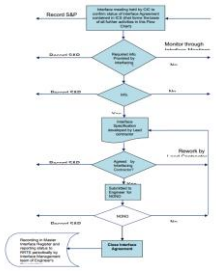
Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
123	2	6G		18-19	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 2.2.2 Contingency Plan In case of unavailability of access to Duhai Depot, Contingency plan as mentioned below shall be executed. 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. This IBL will be used to carry out static tests during project work of Rolling Stock, Signalling & Train Control and for maintenance work. In such eventuality, Mainline Section will be used for Dynamic testing of trains instead of Depot Test Track. Temporary Operation Control Centre shall be provided at same station for the train operation requirement. If this contingency plan is executed, then two siding are required between Duhai and Murad Nagar station for stabling of two trains at night (01 train in each siding). These sidings shall be converted into mainline once Stage 2 between Duhai to Meerut South opens for revenue operation. Platform which is converted into temporary IBL for contingency plan, installation of PSG/PSD on that platform shall be done once this contingency plan gets restored to original plan (platform). Detailed arrangements shall be finalized at the design stage.	Please confirm the full form of IBL in the abbreviations section. Also, please confirm that IBL stands for temporary test track.	Please refer Addendum & Corrigendum-05B
124	2	6G		24	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 3.1.21 Works which are not to be subcontracted by the PSD Contractor shall be as below: - NOTE: Following activities cannot be further subcontracted for PSD System by Specialist Sub contractor/ JV member meeting the requirement of Key activity 2.4.2 in Section 3 of EQC: ➢ Design of PG system (Mechanical, Electrical, Electronics and software for the system.) ➢ Manufacture of Door Control Unit.	Please clarify the mentioned clause in elaborate manner.	Please refer Addendum & Corrigendum-05B

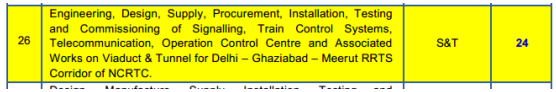
Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
125	2	6G		24, 44, 48	3.2.1 System Components and Interfaces ➢ These elements shall have the appropriate properties, and be of adequate design, to safely accommodate all the design loads identified herein in addition to PSG/ PSD dead weight, operational and dynamic loads. Maximum allowable deflections of the PSG/ PSD installation are 10 mm. 4.14.1 The PSG/PSD structure shall withstand the effect of cyclic and repetitive loading pressures associated with crowd loads, impact and train movements over the design life of the PSG/PSD installations. The effect of loading due to a run through train at 100 Kmph shall also be considered. Maximum allowable (fully elastic) deflection at the PSG/PSD frame members on which the glass is fixed, under worst case combined loading conditions, shall be 10mm from the static position. 5.1.13..3 The PSG/ PSD structure shall accommodate the effect of cyclic and repetitive loading pressures that shall be placed on it from the forces associated with train movement and passenger /crowd loading, impact pressures and environmental conditions over the design life of the PSG/ PSD installations. Under extreme loading pressure, no structural elements or glazed sections (moveable or fixed) shall suffer permanent deformation or damage and no PSG/ PSD panel shall become detached from its mountings. Maximum allowable (fully elastic) deflection shall be as per below: A. PSG installations: - PSG frame members on which the top of PSG facade shall be 10 mm from the static position and no part of facade should infringe the KE or damage the PSG facade under deflection. B. PSD installations: - PSD frame members on which the glass is fixed, under worst case combined loading conditions, shall be 10 mm from the static position for PSD, out of this 10 mm deflection PSD. No part of PSD facade should infringe the KE or damage the PSD façade under deflection.	Please confirm the value of the maximum elastic deflection allowed for glass part of PSD and PSG system.	Please follow Bid Conditions
126	2	6G		38	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 4.6.1 The System shall be designed such that the Mean Time to Restore (MTTR) figures for a trained technician to repair and return a failed piece of PG equipment to revenue service shall not exceed 60 minutes (except for structural part). The mean time to repair shall be 30 minutes	Please give more information about what comes under structural part. For example, glass panels, header covers,wear & tear parts etc.	Please refer Addendum & Corrigendum-05B
127	2	6G		63-64	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 5.20.2 C. Glazing and door frame seals/ gaskets and door edge buffers: Miscellaneous rubber, silicone, plastic and polymer items such as seals/gaskets for the glazing and door frames and leading edge buffers to the doors shall have a minimum oxygen index of 33 when tested to BS6853 Appendix-A shall have a temperature index of greater than 300oC. These miscellaneous materials shall also exhibit low smoke emission when tested to BS 6583 Appendix B.5.1 so that A0≤ 0.2 m2/g F. Lubricating Oils and Grease: Lubricating oil and grease shall be compatible with any seals, hoses and surface finishes so that they do not have a detrimental effect on performance or appearance of any part of PSG installation. Lubricating oil and grease shall be of “fire resistant” type and shall have: (i) Flash point temperature greater than 1800 C (ii) Spontaneous ignition temperature greater than 4500 C	Please correct the values of temperatures: 300oC to 300°C 1800 C to 180°C and 4500 C to 450°C.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
128	2	6G		76	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 8.2.1 The sequence of test shall be as follows: A. Type Tests; B. Prototype test; C. Factory Acceptance Tests (FAT); D. Installation Tests Commissioning Tests; E. Integrated Testing and Commissioning; F. Service Trials.	Please confirm that type tests and prototype tests are the same. If yes, please delete "type tests" from the clause to avoid any further confusion.	Please follow Bid Conditions
129	2	6G		110	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 14.2.19 F. criteria on which the Verification or Validation is judged to be acceptable. These criteria shall be traceable to the design and performance requirements as referred to in Clause 14.2.20.4 below.	There is no clause 14.2.20.4 in the bid document. Please provide correct section reference.	Please refer Addendum & Corrigendum-05B
130	2	6G		111	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors 14.2.20 Health, Safety and Environmental Documentation The Contractor shall submit Health and Safety Documentation to fully comply with the requirements of the Project conditions and proposed work activities in accordance with Safety, Health and Environmental manual of ITT. The Contractor shall submit to the Employer's Engineer the Health and Safety Documentation for review within 30 days of the Commencement Date of the Works.	Please provide the full form of ITT in the abbreviation section.	Please refer Addendum & Corrigendum-05B
131	2	6G		145	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors Appendix A 9 ATTACHMENTS. 9.1 Attachment A- Flow Chart for Progress Monitoring of Interface Agreements 	Please provide correctly edited flow diagram.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
132	2	6G		151, 187, 193-216	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors Appendix A 9 ATTACHMENTS. 9.3Attachment C – Indicative Interface Coordination Sheets for the present Contract Legend  26 | Engineering, Design, Supply, Procurement, Installation, Testing and Commissioning of Signalling, Train Control Systems, Telecommunication, Operation Control Centre and Associated Works on Viaduct & Tunnel for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC. | S&T | 24 **12**. Shall provide drawing for core-cutting for installation of PSD. **06**: Shall furnish the details of DG and UPS power supply requirement for PSD Operation , including backup time of power . The power supply provided to PSD must be of online redundant configuration . 06: Shall provide drawing for core-cutting for installation of PSD. 07. The Doors Installation system shall be capable of accommodating the constructional tolerance of the supporting and surrounding structure.	Please clarify the reason behind highlighting different sentences.	Please refer Addendum & Corrigendum-05B
133	2	6G		176-178	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors Appendix A 9 ATTACHMENTS. 9.4 List of Interface sheets for S&T	After count number 47, counts 36 & 37 appear. Please correct the number order.	Please refer Addendum & Corrigendum-05B
134	2	6G		239	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors APPENDIX F – CAD AND BIM STANDARDS Please see attached separate Appendix-F	Please provide Appendix F.	Please refer Addendum & Corrigendum-05B
135	2			28	3.7.1 Space for PSG/ PSD contractor	As per this clause, the contractor will be provided a space of max two locations of about 300 Sq. m. each. without any charge for constructing temporary site offices for PSG/ PSD contractor and Employer's Representatives The Site office for Employer;s representative is already part of PS of Signalling as well as Telecom, **Please clarify on how many Offices for Employers Representatives are to be provdied and also provide the details requirement**	Please refer Addendum & Corrigendum-05B
136	2			235	Employer's Requirement: Part 2Package 24Section 6G: PS-Platform Screen Doors - APPENDIX E–KEY & ACCESS DATES	As per note after Key dates, it is mentioned that commencement date considered 1st Nov 2020, In this regards, we would like to draw attention that in SIG & TLC - commencement date considered 1st Oct 2020. Bidder request for clarity on commencement date	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
137	2			4.10.1 Safety Requirements for the PG System(page 44/244)	The contractor shall prove through Safety case that following shall meet SIL4 performance. A. PG closed and locked signal B. Enable/open signal C. Interlock override D. Local Bypass	1. The description marked in red from independent 3 places are not consistent. So, please clarify the interface between PSD and S&TC, the vital interface shall be Door Enable, Door Open, Door Closed, Interlock Override, All door closed&locked or Door Open, Door Closed, Interlock Override, All door closed&locked.	Please follow Bid Conditions
138	2			5.8.1 Interface of Platform screen doors (PSD) System with Signalling (page 58/244)	A. Doors Open Command: Confirms that the train is stationary and properly aligned along the platform within the allowable tolerances (±0.3m) and signalling system requires the opening of the PSD/PSG. B. Doors Close Command: Requests the closing of the PSD/PSG. The Contractor shall consider all these signals as safety-critical and must be processed only through safety-critical design and devices. To effectively implement these aspects of the interface, all signals exchange between the two systems shall be double cut. No component failure shall result in door opening, except in response to a valid door opening command.		Please refer Addendum & Corrigendum-05B
139	2			APPENDIX A – Design and Construction Interface Management(page 191/244)	15. PSD and Signalling contractors shall ensure that all the vital signals shall be exchanged in a safe way to comply SIL 4 requirements of S&T system. The contractor shall prove through Safety case that following shall meet SIL4 performance. a) PG closed and locked signal b) Enable signal c) Interlock override d) Local Bypass Switch operation		Please refer Addendum & Corrigendum-05B
140	2				Generic Queries	Local Door Bypass Signal: Local Door Bypass shall be single doorway bypass signal. The principle shall be Local Door bypass is generated by each doorway, this signal will collect with PSC, PSC send each doorway bypass status to SIG via non-vital interface. Or Local Door Bypass switch (for train entry) shall be provided to bypass the Signalling Command from PSD. In this way the local door bypass is used for the hole platform. In addition, Local bypass switch operation and requests SIL4, in this case the Local bypass switch operation shall be interface with SIG and bypass function is for whole platform rather for single doorway. Pls clarity the Local Door Bypass purpose and the transfer route from PSD to SIG.?	Please follow Bid Conditions
141	2				Generic Queries	What is the configuration of the station supply, 380-415VAC, 50 Hz?	Please follow Bid Conditions
142	2	6G	PSD	23	2.2.2 Contingency Plan 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 elaborate on the meaning of temporary IBL.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
143	2	6G		30	3.2.1 Scope of Supply:System Components and Interfaces	Please advise the scope of the MMIs provision which shall be locally supplied.	Please refer Addendum & Corrigendum-05B
144	2	6G		32	3.4.2Contractor shall provide detailed calculation for load on UPS. The power supply shall be made available to the Contractor from E&M Contractor UPS for which Contractor shall interface with designated Contractor. Contractor shall provide distribution board with suitable protection equipment and lay the cable from E&M UPS room to their equipment location. Provision should be made in such a manner that there will be no impact on system	Does this mean that PSD supplier provide detail calculation and UPS will be provided by other contractor instead of independent PSD UPS?	Please follow Bid Conditions
145	2	6G	5.1.9	52	5.1.9 The PSG/ PSD system shall be designed for bi-directional train working on RRTS-MRTS corridors i.e. the PSG/ PSD system shall operate in reverse direction of train operation, in the similar way as operated in normal direction running .	We noted that bi-directional train operation shall be considered in the design. Please advise if 'RRTS-MRTS' in the 8th sentence means RRTS+MRTS station only or all the station regardless of RRTS and MRTS.	Please follow Bid Conditions
146	2	6G	5.2.1	54	5.2.1 Each door shall include glass panels, corresponding to those of the train. In case of breakage within a door panel, the glass must be capable of being replaced without removal of the door.	If the glass panel is broken, the separation of the doors will be required to replace the glass, as the glass is placed inside the structure of PSD. Is it possible to attach the glass again after separation of the door? To comply with the requirement, the transparent area of the glass will be reduced which will not be good esthetic.	Please follow Bid Conditions
147	2	6G	5.25.1	71	5.25.1 A PSG/PSD Fixed Drive panel area shall be used for the purpose of providing information to the passengers and/ or advertisement purpose.	As we understood, Fixed Drive Panel is only installed for PSG and header box is installed for PSD. This statement applies FDP for PSD/PSG both. Please check.	Please refer Addendum & Corrigendum-05B
148	2	6G	8.5.3 20	82	8.5.3 20 Verification of BEMS(SMS) interface operability - (emulated by Contractor if not available).	Please elaborate on the description of BEMS interface.	Please refer Addendum & Corrigendum-05B
149	2	6G	12.4.1	107 and 232	12.4.1, Appendix C The Contractor shall provide two sets of necessary tools and test & measuring equipment to meet the maintenance requirements of the Contract. The tool shall exclude ammeter, voltmeter, frequency meter, clamp meter, megger. Oscilloscope and crimping tool.	Regarding the special tool, Section 12.4.1 exclude Oscilloscope whereas Appendix C include Oscilloscope. Please check.	Please refer Addendum & Corrigendum-05B
150	2	6G		162	Appendix A 27. Platform Screen Doors	We noted that 9 car can be operated in the future. Please advise whether 9 car shall be considered in PSD design.	Please refer Addendum & Corrigendum-05B
151	2	6G	1.3.3.2.2	17	CHAPTER 1 Clause 1.3.3.2.2 General	Please clarify how many stations are to provide with PSD/PSG	Please follow Bid Conditions
152	2	6G	2.3	19	CHAPTER2 Clause 2.3 Train Door Parameters	How many doors per platform? Is the below data right? 1) MRTS: 9MSDs/platform 2) RRTS: 17MSDs/platform 3) RRTS+MRTS: 17MSDs/platform	Please follow Bid Conditions
153	2	6G	3.2.1	24	CHAPTER 3 Clause 3.2.1 System Components and Interfaces	The status and health of the PSD system shall be remotely monitored from OCC/BCC. It is possible to implement the remote monitoring function but this will not be SIL Compliant.	Please follow Bid Conditions
154	2	6G	2.2.1	17	CHAPTER 2 Clause 2.2.1 The PSG/ PSD system shall be designed for bi-directional train working on RRTS-MRTS corridors i.e. the PSG/ PSD system shall operate in reverse direction of train operation, in the similar way as operated in normal direction running	If the trains are being operated in bi-directional, the stopping need to be similar for the both directions such that the doors can be opened in the same position , Please confirm.	Please follow Bid Conditions
155	2	6G	5.7.12 A	52	CHAPTER 5 Clause 5.7.12 A PSG/ PSD Control Unit (PSC) shall provide a central connection point at each station for all control and monitoring signals within the PSG/ PSD system.	kindly provide details on installation location for PSC	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
156	2	6G	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors/12 A. The PSD contractor will be provided a space of about 300 sqm for constructing permanent site offices and storage facilities for contractor as well	204 of 244		Bidder reuest customer to provide minimum 2000 sqm for construction storage facility for PSD.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
157	2	6G	9. Attachment 1 Section 6G Particular Specification Platform Screen Doors/06 A: PSD Contractor shall supply and lay the power cables from the distribution panel in UPS room to Signalling Rooms (SER etc) and extend it	196 of 244		Please confirm whether PSD cubicles will be installed in Signalling SER or separate SER will be provided for PSD.	Please refer Addendum & Corrigendum-05B
158	2	6G	19. Attachment 1 Section 6G Particular Specification Platform Screen Doors/0: Shall verify the requirements of earths and earth bars	196 of 244		Bidder understand that for Tunnel Section Erathing provision will be provided by UG and Tunnel Contractor . Please confirm for Elevated station also it is under Elevated & station contractor	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
159	2	6G	19. Attachment 1 Section 6G Particular Specification Platform Screen Doors/Key Dates for: Section-3: Sarai Kale Khan-Sahibabad including Jungpura	238 of 244		Bidder request NCRTC to confirm the expectation of stage-3 KD-1 (Submission of Work programme & other details for this section)	Please refer Addendum & Corrigendum-05B
160	2	6G	19. Attachment 1 Section 6G Particular Specification Platform Screen Doors/Key Dates for: Section-4 - Meerut South-Modipuram including Modipuram Depot	239 of 244		Bidder request NCRTC to confirm the expectation of stage-4 KD-1 (Submission of Work programme & other details for this section)	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
161	2	6G	19. Attachment 1 Section 6G Particular Specification Platform Screen Doors/APPENDIX F – CAD AND BIM STANDARDS	244 of 244		APPENDIX F – CAD AND BIM STANDARDS is missing .Kindly provide the same	Please refer Addendum & Corrigendum-05B
162	II	Section 6C	Clause 7.2.19	Page 239	The DTS shall be from a proven OEM with previous implementation in a Railway/ Mass Rapid Transit System (MRTS) project, apart from being cost effective shall be scalable considering the Operation, Administration and Maintenance of the rail network, with state-of-art technology.	Our understanding is that Data transmission System(DTS) deployed in the Railways are SDH based FOTS system & same should also be applicable here.	Please Follow Bid Conditions
163	II	Section 6C/5.6.2.11(1) (CCTV - POE Switch)		175		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
164	II	Section 6C/5.6.2.11.2(8) (CCTV - POE Switch)		175		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
165	II	Section 6C/5.6.2.11.2(5) (CCTV - POE Switch)		175		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
166	II	Section 6C/5.6.2.11.2(3) (CCTV - POE Switch)		175		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
167	II	Section 6C/5.6.2.11.2(9) (CCTV - POE Switch)		176		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
168	II	Section 6C/5.6.2.11.3 (CCTV - POE Switch)		176		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
169	II	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	New (175) in 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
170	II	Section 6C/5.6.2.11.2 (CCTV - POE Switch)		New (175) in 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
171	II	Section 6C/5.6.2.11.2 (CCTV - POE Switch)	New (175) in POE Switch			We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please Follow Bid Conditions
172	II	Section 6C/5.6.2.11.2 (CCTV - POE Switch)		New (175) in POE Switch		We would recommend to add: "The Switch must support features like RSPAN"	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
173	II	Section 6C/5.6.2.11.2 (CCTV - POE Switch)		New (175) in POE Switch		We would recommend to add: "The POE Switch must support EN-50121 compliant, as per Railway standard".	Please Follow Bid Conditions
174	II	Section6 C/ Telephone System 6.2.1.1		192		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
175	II	Section6 C/ Telephone System 6.2.1.1		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
176	II	Section 6C / 1.12.4 Software Support		60		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
177	II	Section6 C/ Particular Specifications – Telecommunications/ General Specification/ 1.3.5		19		"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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
178	II	Section6 C/ Relevant Codes and Specifications/ 1.3.5		19		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	Please Follow Bid Conditions
179	II	Section6 C/Particular Specifications – Telecommunications/ General Specification /1.5.6.3 to 1.5.6.5		30		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
180	II	Section6 C/Particular Specifications – Telecommunications/ General Specification /1.5.7		31		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
181	II	Section6 C/ EPBAX POE Switch 6.5.3.1.25		217		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
182	II	Section6 C/ EPBAX POE Switch 6.5.3.1.25		217		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
183	II	Section6 C/ EPBAX POE Switch 6.5.3.1.25		217		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
184	II	Section6 C/ EPBAX POE Switch 6.5.3.1.25		217		We would recommend to add: "The Switch must support automation protocols like YANG, NETCONF, RESTCONF".	Please Follow Bid Conditions
185	II	Section6 C/ EPBAX POE Switch 6.5.3.1.25		217		We would recommend to add: "The Switch must support features like RSPAN"	Please Follow Bid Conditions
186	II	Section6 C/Data Transmission systems/ 7.4.4.3		243		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
187	II	Section6 C/Data Transmission systems/ 7.5.5.2.4		248		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
188	II	Section6 C/Data Transmission systems/ 7.5.5.2.4		248		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
189	II	Section6 C/Data Transmission systems/ 7.5.5.3.2		249		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
190	II	Section6 C/Data Transmission systems/ 7.6.2.4 / Core Layer (ii)		252		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
191	II	Section6 C/Data Transmission systems/ 7.6.2.4 / 2) Distribution & Access Layer		252		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
192	II	Section6 C/Data Transmission systems/ 7.6.2.4 / 2) Distribution & Access Layer		252		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
193	II	Section6 C/Data Transmission systems/ 7.7		256		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
194	II	Section6 C/Data Transmission systems/ 7.7		256		Kindly clarify this Port requirement table is related to Core and Distribution Layer.	Please Follow Bid Conditions
195	II	Section6 C/Data Transmission systems/ 7.7		256		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
196	II	Section6 C/Data Transmission systems/ 7.6.2.4 / 2) Distribution & Access Layer		252		Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please Follow Bid Conditions
197	II	Section6 C/Data Transmission systems/ 7.6.2.4 / Core Layer (ii)		252		Kindly clarify that the Data Transmission device should be as per EN50121 compliant in Core, Distribution and Access Layer	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
198	II	Section6 C/Data Transmission systems/ Core Layer / 7.7.1.2 Security Features		257		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
199	II	Section6 C/Data Transmission systems/ Core Layer / 7.7.1.6 Security Features		259		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
200	II	Section6 C/Data Transmission systems/ 7.7.2 Distribution Switch		260		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
201	II	Section6 C/Data Transmission systems/ Core 7.7.1.4 and Distribution Switch / 7.7.2.4		258 & 269		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
202	II	Section 6C/particular Specification/Telecommunication 4.5.1.5		146 of 349		**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
203	II	4.6.2.1 (1) Master Clock (vi)		Page 147 of 359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
204	II	4.6.2.1 (3) Display Clocks		Page 149 of 359		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
205	II	5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): S. No 2		167		This should be made to Active Pixels - 4MP 16:9 format. (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
206	II	5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) S. No 2		169		This should be made to Active Pixels - 4MP 16:9 format. (Most of the OEMs produce either 4MP camera or 5MP camera therefore 4MP cameras may be consider. It will give fair opportunity to all reputed OEMs.)	Please Follow Bid Conditions
207	II	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) S. No 6		171		This should me made to Stream 2: H.264, 1080p @25fps & 720p @25 fps. (Stream 2: H.264, 1080p @25fps & 720p @50/60 is not technically correct. Stream 2 should be equal to or less than Stream 1.)	Please refer Addendum & Corrigendum-05B
208	II	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) S. No 24		172		Camera 360 degree pan rotation to be divided in 4 sectors. (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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
209	II	5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) S. No 24		172		Pan speed should be between 150-240 degree per second & tilt speed should be from 70-120 degree (Most manufacture has cameras with pan speed of 150 -240 degree per second & tilt speed from 70-120 degree per second so it should be change accordingly to have fair competition.)	Please Follow Bid Conditions
210	II	Section 6C	Clause 1.12.5.1.1	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
211	II	Section 6C	1.12.5.3.2	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
212	II	Section 6C	1.12.6.1.2	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
213	II	Section 6C	1.12.6.1.9	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
214	II	Section 6C	1.12.6.5	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
215	II	Section 6C	2.3.3.4	79	**Part-2: Section: 6C - Particluar Specifications - Teleco Clause: 2.3.3.4** The Main and Backup MMI shall be provi 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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
216	II	Section 6C	2.4.2.5	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
217	II	Section 6C	2.4.8.6	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
218	II	Section 6C	2.5.15.1 (1)	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
219	II	Section 6C	2.6.3.8 (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 refer Addendum & Corrigendum-05B
220	II	Section 6C	2.6.3.8 (6, 1	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;	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
221	II	Section 6C	2.6.5.1	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
222	II	Section 6C	3.2.9	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
223	II	Section 6C	3.4.1.5	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
224	II	Section 6C	3.5.1.1 (6, V	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
225	II	Section 6C	3.5.1.1 (7, i	117	**Part-2: Section: 6C - Particluar Specifications - Telecommunic System (PIDS) Clause 3.5.1.1 (7, ix)** The displayed information sh required distances and at positions of up to ±70°, vertically, from th ±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
226	II	Section 6C	3.6.5.1 (7)	125	**Part-2: Section: 6C - Particluar Specifications - Telecommunic System (PIDS) Clause 3.6.5.1 (7)** It shall be possible for platform 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
227	II	Section 6C	4.3.2.1(1)	143	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4 : Master Clock System (MCS)** **Clause 4.3.2.1(1):** A Master Clock system at OCC and BCC, receiving synchronization signal from GNSS receiver, antenna, Pole/Tower with Aviation Lamp, converter, extension and connection cables	Please specify meaning and purpose of Pole/Tower with Aviation Lamp.	Please Follow Bid Conditions
228	II	Section 6C	4.5.1.5 (3)	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
229	II	Section 6C	4.6.2.1 (1)	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
230	II	Section 6C	4.6.2.1(3)	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
231	II	Section 6C	4.6.2.1 (3)	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 our understanding. ver please specify, if the clock dial should consist of numerals or line with suitable hands for a clear visibility and even distribution of LED ation throughout the dial.	Please Follow Bid Conditions
232	II	Section 6C	5.3.2.1 (19)	157	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : System (CCTV) 5.3.2.1 (19)** Laptops pre-loaded with CCTV system softwar	Are these Laptops mentioned in CCTV system different from laptop to be ed in PAS system if yes then please define the quantity	Please Follow Bid Conditions
233	II	Section 6C	5.4.2.3	158	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : System (CCTV) 5.4.2.3** The Contractor shall ensure that the CCTV system 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 us experience. Kindly remove this from the clause	Please Follow Bid Conditions
234	II	Section 6C	5.5.1.10	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
235	II	Section 6C	5.6.2.6	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
236	II	Section 6C	5.6.2.14.1 (	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
237	II	Section 6C	5.6.2.15.1 (	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
238	II	Section 6C	Clause: 6.2.5.2 Clause: 6.3.2.5.2	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 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
239	II	Section 6C	Clause: 6.5	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 ivity to nearest building/locations like Depot, TSS, ASS etc. om nearest IP-PBX system.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
240	II	Section 6C		210	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6,** managed switches shall be installed in TER at all locations. The switches shall be conne Ethernet links of the DTS to form the IP PBX switch network. The Ethernet link shall be provided as part of DTS Contractor in the TER's and CER.	The Ethernet ports required for Telephone system can be taken from DTS. d switch maay not be required. Please revise the clause.	Please Follow Bid Conditions
241	II	Section 6C		206	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-6,** 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 dware but will be logically separated.	Please Follow Bid Conditions
242	II	Section 6C		209	**Part-2: Section: 6C - Particluar Spe** 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
243	II	Section 6C & 6B	Clause 7.2.4 Clause 7.2.5 Clause 7.3.3.3 Clause 7.5.1.1 Clause 5.42.3	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
244	II	Section 6C	Clause 7.2.	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
245	II	Section 6C	Clause 7.3.	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
246	II	Section 6C	Clause 7.4.	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
247	II	Section 6C	Clause 7.5.	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 b 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
248	II	Section 6C	Clause 7.6.2.1 (Ch DTS) Clause 7.6.2.4 (viii) PS Tel	248	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Ch (DTS) Clause 7.6.2.1** The figure below shows a typical outline schematic of th 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 clause 7.6.2.1 should be direct from OCC to Rithani and OCC to MES ectively or it has to be connected to Duhai station.	Please Follow Bid Conditions
249	II	Section 6C	Clause 7.6.	251	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : C (DTS) Clause 7.6.2.1 of PS telecom** The figure below shows a typical outline 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 esign with 10 GE fiber network** or any alternate design can be used	Please Follow Bid Conditions
250	II	Section 6B & 6C	Appendix R 1.1 Clause 7.6.2.1(DTS)	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
251	II	Section 6C	Clause 8.5.	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
252	II	Section 6C	Clause 8.6.	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
253	II	Section 6C	Clause: 9.6	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
254	II	Section 6C	Clause: 9.5	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
255	II	Section 6C	5.6.2.11	175	**Section – 6C: Particular Specifications – Telecommunications** **5.6.2.11** Layer 2 Switches for Field The Switch shall be high performance, manageable and shall have minimum 28x10/100Mbps ports including 2x1Gigabit Fibre Uplink ports.	At platform level, 16-20 end devices are installed which will require 24 ports. If one switch of 24 port fails, whole platform will become out of network. For higher availiability, we recommend to consider a combination of 16 & 8 1G port switch cobination to divide the over all risk. So, we request you to allow a cobination of 16 & 8 1G port switch to meet 24 port swicth requirement. Please change the clause as The Switch shall be high performance, manageable and shall have minimum 28x10/100/1000 Mbps ports (or combination of 16x1G Base-T and 8x1G Base-T Switch) including 2x1Gigabit Fibre Uplink ports.	Please Follow Bid Conditions
256	II	Section 6C	5.6.2.11	175	**Section – 6C: Particular Specifications – Telecomm** **5.6.2.11** Layer 2 Switches for Field Operating temperature 0°C to + 60°C, Humidity up to	Please clarify, do we need to cosnider a NEMA-TS2 certified industrial switch to meet the temperature requirements? The NEMA-TS-2 certification, certifes swicth for its high temperature operabiltity.	Please Follow Bid Conditions
257	II	Section 6C	Clause 8.2.	265	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.2.4** Intruder Detection equipment shall be installed at selected sites: 1) Around building entrances including stations and depots (round the clock fornormally un-manned buildings and outside normal working hours for sitesmanned for a part of the day); 3) At other critical locations related with safety or security;	Our understading is that the perimeter IDS is needed for depots. The main entry/exits of the stations to be monitored for intrusion with shutter sensor at the doors. Pls clarify. We will cover the locations/rooms given in the RFQ. Kinldy clarify the OTHER critical locations.	Please Follow Bid Conditions
258	II	Section 6C	Clause 8.3.	267	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.3.2 Scope of Supply8.3.2.1** 9) 12 Core OF cable for depot, OCC/BCC and Ramps at underground and at grade depot to elevated stations;	Our understanding is the OF cable is part of FOTS not ACID system.	Please Follow Bid Conditions
259	II	Section 6C	Clause 8.5.	270	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS)** Clause 8.5.2 Access Point Controller	We recommend to include & consider the following features in controller: - - The controllers/Reader Interface controllers / General Purpose Controllers are directly connected to the TCP I/p. -IPv4 & IPv6 communication -SNMP protocol for NMS and SCADA integration -The communication between the reader and controller is on OSDP (Open Supervised Device Protocol) The encryption is 256 bit -In case of Biometric reader the template should be stored in the controller which is in secured area. This will enhance the security of the system.	Please Follow Bid Conditions
260	II	Section 6C		273	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 6) GUI Functions (ii) Select and view CCTV image at each access point location, individually or in combination	Change reference not available, Our understanding is that the CCTV footage to be shown in the CCTV HMI for any alert/security breach in the access control sysyem.	Please refer Addendum & Corrigendum-02B
261	II	Section 6C	Clause 8.2.	265	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8:** Access Control and Intrusion Detection System (ACIDS) Clause 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.	The complete data base is in the central server and the work station for the printing application is connected to central server. There are no local server at the stations. Therefore our understanding is that card printing workstatio is a "Dedicated work station" for the card printing not the standalone work station.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
262	II	Section 6C		18	Vol-2, Section – 6C: Particular Specifications – Telecommunications 1.3.3.3 Contingency Plan	With reference to S. No.-105 of Addendum & Corrigendum-02B, We understand that Temporary OCC with all Telecom Sub-system Installations and functionality will include only Core components. There will not be any provision for OCC Theatre Setup and Surveillance Room Setup. Please confirm. Please clarify, whether Temporary OCC will be used till Phase-1 ROD or it is required only till Initial testing.	Please Follow Bid Conditions
263	II	Section 6C		18	Vol-2, Section – 6C: Particular Specifications – Telecommunications 1.3.3.3 Contingency Plan	We understand that additional Space for OCC CER Racks will be available in Temporary OCC location. Please confirm.	Please Follow Bid Conditions
264	II	Section 6C		86	Vol-2, Section – 6C: Particular Specifications – Telecommunications 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.	We understand that Station Wise Announcement from OCC & BCC shall be made from PIDS/PAS MMI, not from OCC/BCC Hardwired Control Panel. Please confirm.	Please refer Addendum & Corrigendum-05B
265	II	Section 6C		88	Vol-2, Section – 6C: Particular Specifications – Telecommunications 2.5.7.3 Messages relating to fire detection and alarm system 1) On detection of fire alarm, operator in SCR / Platform Announcement Device /Security Room can also manually make live announcements to alert the passengers and staff and broadcast evacuation message.	As per requireemnt of PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendice F, there is no provision of PAS Control Panel at Security Control Rooms of Station/OCC/BCC/Depots. Please remove the requirement of "**Announcement from Security Control Room**".	Please Follow Bid Conditions
266	II	Section 6C		91	Vol-2, Section – 6C: Particular Specifications – Telecommunications 2.5.13.1 (2) MMI for PAS and PIDS shall be integrated/ implemented on a common Terminal/Workstation. MMI at Station Control Room should be an industrial grade workstation kept in TER/CER and all signals extended to SCR/ OCC/ BCC Theatre (Monitor, Mouse, Keyboard etc.)	Since, Workstation will be kept in TER/CER having controlled Environment, Industrial Grade Workstation is not required. We request to remove the requirement of Industrial Grade Workstation.	Please refer Addendum & Corrigendum-02B
267	II	Section 6C		95	Vol-2, Section – 6C: Particular Specifications – Telecommunications 2.5.16.1 (1) The equipment shall incorporate a self-diagnostic process for monitoring at least all amplifiers and loudspeaker circuits. In the event of a fault being detected, an alarm shall be given on the control panel at OCC & BCC also at SCR MMI.	We understand that faults related to amplifier and loudspeaker circuits of a particular location i.e. Station, OCC/BCC , an alarm shall be given on their respective Control Panel. **Please confirm.**	Please refer Addendum & Corrigendum-05B
268	II	Section 6C		86	Vol-2, Section – 6C: Particular Specifications – Telecommunications 2.5.5.2 The Contractor shall develop full details of the PAS zone assignment for full coverage of the areas mentioned above and submit to the Employer's Representative for review.	Generally Depot require 7 to 8 number of Zones. Please specify the maximum number of Zones, required for Depot.	Please Follow Bid Conditions
269	II	Section 6C		114	Vol-2, Section – 6C: Particular Specifications – Telecommunications 3.5.1.1.(4) Platform Visual Information Displays 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.	We understand that scrolling/flipping can be used to display Train Information like destination information, arrival & departure time, train length, train occupancy details and other information in Display Line 1 and Display Line 2 (clause 3.5.1.1 (4) (a) & (b)) . Please confirm.	Please Follow Bid Conditions
270	II	Section 6C		115	Vol-2, Section – 6C: Particular Specifications – Telecommunications 3.5.1.1.(5) Concourse areas Visual Information Displays (ii) The displays shall be installed in the unpaid side of the gate line, as close as possible to the station entrances and also above or adjacent to, the ticket gate lines.	We understand that the Count of Concourse area Visual Information Displays for Unpaid area is as per Financial BID, Annexure 2, Schedule 3: Supply and Delivery of PIDS SYSTEM,item no. 7. Please confirm.	Please Follow Bid Conditions
271	II	Section 6C		125	Vol-2, Section – 6C: Particular Specifications – Telecommunications 3.6.5.1 (6) It shall be possible to display information on LED display in different pre-stored formats which shall include display of advertisements and commercial information. Design of display formats shall be user friendly with use of application interface software.	With reference to clause 3.2.9, We understand that the requirement to display of advertisements and commercial information will be achieved in TFT Panel Only at Underground Station Concourse. Please confirm.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
272	II	Section 6C		125	Vol-2, Section – 6C: Particular Specifications – Telecommunications 3.6.27.2 This shall include a spelling check and identification of words and phrases of an offensive or unacceptable nature, all of which shall require to be corrected and/or removed prior to message transmission.	We understand that NCRCTC will provide the "database" required for identification of words and phrases of an offensive or unacceptable nature, which will be integrated by Telecom System for PAS System message transmission. Please confirm.	Please Follow Bid Conditions
273	II	Section 6C		166	Vol-2, Section – 6C: Particular Specifications – Telecommunications 5.6.2.4 Housing Arrangement for Fixed IP box type camera: IP 66 enclosure	As per clause 5.5.1.11, IP 66 Enclosure is required for Camera Housings of Outdoor Installations, whereas, as per requirement of clause 5.6.2.4, IP 66 Enclosure is required for all Indoor and Outdoor Camera Housings. We request to ammend the requirement of **IP 66 Enclosure** to **IP 54 Enclosure** for all Indoor Camera Housing.	Please Follow Bid Conditions
274	II	Section 6C		169	Vol-2, Section – 6C: Particular Specifications – Telecommunications 5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night): IP 66 enclosure	As per clause 5.5.1.11, IP 66 Enclosure is required for Camera Housings of Outdoor Installations, whereas, as per requirement of clause 5.6.2.4, IP 66 Enclosure is required for all Indoor and Outdoor Camera Housings. We request to ammend the requirement of **IP 66 Enclosure** to **IP 54 Enclosure** for all Indoor Camera Housing.	Please Follow Bid Conditions
275	II	Section 6C		175	Vol-2, Section – 6C: Particular Specifications – Telecommunications 5.6.2.10 IR Illuminator: IP 66 enclosure	We understand that Ingress Protection Grade IP 66 is required for Outdoor Installations. We request to consider Ingress Protection Grade IP54 for Indoor Installations. Please ammend the requirement of this clause accordingly.	Please Follow Bid Conditions
276	II	Section 6C		198	Vol-2, Section – 6C: Particular Specifications – Telecommunications 6.5.1.1.1 Network Topology 1) There are two main nodes at OCC and BCC respectively. The main node shall be connected with ETHERNET links to the Telephone Exchanges at individual stations. The ETHERNET Links should form a ring with not more than 4 station exchanges in each ETHERNET ring as further explained in next Para. The interconnection plan should be designed and approval shall be taken from employer. The Contractor shall provide necessary ETHERNET Link port cards in his system and all required materials for ETHERNET connectivity between exchanges.	As Telephone Backbone is fully IP based, Telephone Ring architecture will follow the FOTS Ring architecture. Please ammend the requirement of clause 6.5.1.1.1 and 6.5.1.2.5 accordingly.	Please Follow Bid Conditions
277	II	Section 6C		270	Vol-2, Section – 6C: Particular Specifications – Telecommunications "8.5.2.1 7) The open/closed sensor shall detect when a door, gate or turnstile has been opened and if a pre-set allowable time threshold has been exceeded an alarm shall be raised locally at the access point and at the operator's MMI. The pre-set time shall be adjustable.	With reference to clause 8.5.3.1 and 8.5.4.1, we understand that ACID MMI needs to be provided only at OCC and BCC Security Controller position. Please confirm.	Please Follow Bid Conditions
278	II	Section 6C		284	Vol-2, Section – 6C: Particular Specifications – Telecommunications 9.5.1 6) All two-way Radio (over LTE/ TETRA/ TEDS/ GSM/ GSM-R) voice conversations including on-board PA announcements from OCC/BCC (excluding radio DMO mode)	With reference to clause 9.5.1.5 of PS Ch-9, we understand that "voice converstations over **LTE"** for all two-way Radio communication needs to be recorded in CVRS. Please remove options of TETRA/ TEDS/ GSM/ GSM-R and ammend the clause accordingly.	Please Follow Bid Conditions
279	II	Section 6C		355	Vol-2, Section – 6C: Particular Specifications – Telecommunications PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendix P	Please provide the IT requirements as same is not given in Appendix-A, Part -2 (PS- Signaling).	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
280	II	Section 6C		48	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-1- General- 1.11.1.24 All cable laying, cable termination, containment laying, fixture and equipment installation to be done as per approved method statements. CAT 6A STP Cable shall comply with all standards of structural cabling. Contractor to propose installation material and accessories as per design. Contractor to submit all method statements for Employer's representative review at least 3 months prior to commencement of the work.	As per Appendix I,clause 1.5, UTP Cat 6 or better DATA CABLE needs to be used for Telecom System. We request to ammend the clause 1.11.1.24 accordingly.	Please Follow Bid Conditions
281	II	Section 6C		143	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4 : Master Clock System (MCS) Clause 4.3.2.1(1): A Master Clock system at OCC and BCC, receiving synchronization signal from GNSS receiver, antenna, Pole/Tower with Aviation Lamp, converter, extension and connection cables	We understand that Antenna will be installed on top of the OCC/BOCC building and for same, tower and Aviation lamp is not required. Please confirm.	Please Follow Bid Conditions
282	II	Section 6C		147	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-4- Master Clock System 4.6.2.1 (3) Display Clocks (ii) Clocks shall be provided as follows:	Quantity of Indoor Digital Clocks are reduced from 545 nos. to 465 no. in Addendum -2, Financial Bid, Annexure-2, Schedule-4, item no.-3. However, requirement mentioned under clause 4.6.2.1(3)(ii) Table 4.2 is not updated accordingly. We request to modify the Table 4.2 accordingly.	Please refer Addendum & Corrigendum-05B
283	II	Section 6C		156	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5- CCTV System 5.2.3 (3)Locations outside the stations: RSS (Receiving substation) SCADA Room, Control Rooms, Entrances, Exits, Parking areas, RSS boundary (Perimeter), Ancillary buildings, Pump Room, DG Set/ room, cross passages in tunnels ,Mid shafts (tunnel shafts, escape routes on the viaduct, other exit points on the viaduct), station's subway, specially identified theft prone areas should be covered by CCTV.	Please provide the location and quantity of total number of Cross Passages in tunnels, escape routes on the viaduct, other exit points on the viaduct, station's subway, parking areas.	Please Follow Bid Conditions
284	II	Section 6C		163	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5- CCTV System 5.6.1.1 (2) All control equipment e.g. servers/Terminal, storage devices etc. shall be placed in TER/CER of each station/depot/OCC/BCC in standard racks. The contractor must make provision for guarding/ covering all the Switch racks (IP 66 complied) with a canopy like structure that are installed in field, at PF (PSB/ Shafts) or in concourse to ensure damages from water (rains/ overflowing of overhead water tanks/ any other leakages). The locations for installing these switches must be so chosen to improve maintainability and to prevent damages due to such reasons.	As per Addendum & Corrigendum-02B, Financial BID, Annexure 2, Schedule 5, Item8, Supply and Delivery of CCTV SYSTEM, We understand that separate NVR is not required at Duhai Depot . Please confirm.	Please Follow Bid Conditions
285	II	Section 6C		159	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5- CCTV System 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.	Please share the total quantity of Watch Towers.	Please Follow Bid Conditions
286	II	Section 6C		192	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5- CCTV System 5.8.6.1 For automatic camera view of activated Emergency phones and Help Point Telephones.	We understand that this interface requirement is applicable only for Cross Passage Emergency Phones ,where CCTV Coverage needs to be provided as per clause 5.2.3(3). Please confirm.	Please Follow Bid Conditions
287	II	Section 6C		252	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-7-DTS System 7.6.2.4(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.	With reference to clause 5.6.2.11 and 7.6.2.4 (viii), we understand that Star or Ring Topology as per design requirement can be used for Industrial Grade Field Switch Connectivity. Please confirm.	Please Follow Bid Conditions
288	II	Section 6C		275	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-8-ACID System 8.3.2 Scope of Supply The scope of supply for each of the Station, Technical rooms, Depot, Maintenance Centre in OCC and BCC, HQ, MTS, RSS, Ramps, cross passages etc	With refence to S. No. 220 of Addendum-2B, requirement of Access Control and Intrusion Detection is removed from the ACID System. We request to remove the **scope of supply for Cross Passage** from clause 8.3.2.	Please Follow Bid Conditions
289	II	Section 6C		276	8.4.1.7 PIN management shall ensure that existing PINs are voided at regular intervals, or on operator demand, and that new PINs are issued, only to current system users.	With reference to Addendum02, Annexure-2, Financial Bid Schedule8, we understand that IP Reader with RFID and Biometric Feature needs to be supplied. We request to remove the requirement of PIN Management and Keypad in IP Reader from the clause 8.4.1.7 and 8.5.2.1 (10) (11).	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
290	II	Section 6C		279	8.5.3.4 The detection techniques / modalities shall include one or more of the following, all of which shall operate in conjunction with each other and the CCTV System, to continuously track intruders within and across zones and all areas within the confines of the site.	Since, requirement of clause 8.5.3.14 i.e. " automatic positioning and continuously adjust pan, tilt and zoom to keep the intruder within the cameras field of view" is ammended in S. No. 213 of Addendum-2, we request to ammend the requirement of "**continuous tracking of Intruders through out the site area**" mentioned under clause 8.5.3.4 .	Please Follow Bid Conditions
291	II	Section 6C		280	8.5.3.15 Handover shall be provided between different cameras to maintain effective tracking of the intruder throughout the site area.	Since, requirement of clause 8.5.3.14 i.e. " automatic positioning and continuously adjust pan, tilt and zoom to keep the intruder within the cameras field of view" is ammended in S. No. 213 of Addendum-2, we request to ammend the requirement of "**effective tracking**" mentioned under clause 8.5.3.15.	Please Follow Bid Conditions
292	II	Section 6C		315	CH- 11/ APPENDIX- F/ CLAUSE 1.2.6.1 (5) , S. No.-225 of Addendum and Corrigendum-02B The Large Screen Graphics Wall shall be installed in the Security Control Room . 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.	With reference to Addendum and Corrigendum-02B, Annexure-2, Financial Bid, Schedule-5, Item#11, we understand that one no. of Large Screen Graphics Wall (5X2) needs to be installed at Security Control Room of OCC only. Please confirm.	Please Follow Bid Conditions
293	II	Section 6C		327	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapte11, Appendix-I- 1.1.2.1.4 The requirements described here in below shall meet the anti-termite, pest resistant properties as far as possible and mechanical & electrical properties of the cables both during and after installation to meet the other requirements of the specifications.	We understand that this requirement is applicable only for Outdoor Cables. Please confirm.	Please Follow Bid Conditions
294	II	Section 6C		355	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapte11, Appendix-P-IT Requirement	IT requirement is not found in Part2-Particular Specification of Signalling and train Control System Appendix-A, Part -2. Please provide the same.	Please refer Addendum & Corrigendum-05B
295	II	Section 6C		327	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapte11, Appendix-I- 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).	We understand that this requirement is applicable for Tunnel area only if for some particular test of cables, no relevant International/Indian Standard is available. Please confirm.	Please Follow Bid Conditions
296	II	Section 6C		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
297	II	Section 6C		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
298	II	Section 6C		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
299	II	Section 6C		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
300	II	Section 6C		180	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.18(6) 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
301	II	Section 6C		180	Vol-2, Section – 6C: Particular Specifications – Telecommunications, Chapter-5-CCTV System 5.6.2.18(7) Depot/OCC/BCC/Ramp Perimeter Protection:	With reference to clause 5.6.2.18 (2) (viii), we understand that CCTV System with Video Analytics regarding Perimeter Intrusion detection needs to be provided for Perimeter Protection of Depot, Ramp and RSS only. Please confirm.	Please Follow Bid Conditions
302	II	Section 6C		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
303	II	Section 6C			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
304	II	Section 6C			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 needs to be considered only for Entry/Exit location of Control and Operations room , equipment rooms, Plant Rooms of Stations, Depot buildings, IBL, SBL, Wash Plant, Workshop, Electrical Sub-station, OCC and BCC needs to be considered. Please confirm.	Please Follow Bid Conditions
305	II	Section 6C		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
306	II	Section 6C		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
307	II	Section 6C		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
308	II	Section 6C		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 refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
309	II	Section 6C			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
310	II	Section 6C		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
311	II	6C	2.4.2.5	81	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: Request you to amend the clause as follows: "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
312	II	6C	2.4.8.6	84	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
313	II	6C	2.6.3.8 (2)	102	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. Therefore 200 W capacity to be replaced with "Suitable power capacity".	Please refer Addendum & Corrigendum-05B
314	II	6C	2.6.3.8 (6, 1	102	Clause 2.6.3.8 (6, 1): RMS power output - 200W-500W RMS or as required by individual or paralleled modular units;	Same explanation as at clause 2.6.3.8 (2) above. Specification of power capacity (of minimum 200 W) is not necessary & relevant as other capacity power amplifier will also serve the purpose of application. Therefore 200 W capacity to be replaced with "Suitable power capacity".	Please Follow Bid Conditions
315	II	6C	2.6.5.1	104	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
316	II	6C	3.2.9	111	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
317	II	6C	3.4.1.5	111	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
318	II	6C	5.1.1 (6, VI	116	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 ~~and~~ **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
319	II	6C	5.1.1 (7, IX	117	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
320	II	6C	3.6.5.1 (7)	125	Clause 3.6.5.1 (7): It shall be possible for platform LED PIDS, to display special information like emergency messages in different colors	Kindly clarify whether asked LED PIDS is mono color PIDS or Multi color PIDS? If Multi color PIDS, then how many colors are required for display of information on LED PIDS.	Please Follow Bid Conditions
321	II	6C	4.3.2.1(1)	143	Clause 4.3.2.1(1): A Master Clock system at OCC and BCC, receiving synchronization signal from GNSS receiver, antenna, Pole/Tower with Aviation Lamp, converter, extension and connection cables	Please specify meaning and purpose of Pole/Tower with Aviation Lamp.	Please Follow Bid Conditions
322	II	6C	4.6.2.1(3)	148	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
323	II	6C	4.5.1.5	145	Clause 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-Master clock & Master clocks. **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
324	II	6C	4.5.1.5	146	Clause 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 & Corrigendum-02B
325	II	6C	4.6.2.1 (1)	147	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
326	II	6C	4.6.2.1 (3)	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
327	II	6C	8.5.2	270	Chapter-8 Access Control and Intrusion Detection 8.5.2 Access Point Controller	We recommend to include & consider the following features in controller: - - The controllers/Reader Interface controllers / General Purpose Controllers are directly connected to the TCP I/p. -IPv4 & IPv6 communication -SNMP protocol for NMS and SCADA integration -The communication between the reader and controller is on OSDP (Open Supervised Device Protocol) The encryption is 256 bit -In case of Biometric reader the template should be stored in the controller which is in secured area. This will enhance the security of the system.	Please Follow Bid Conditions
328	II	6C	5.6.2.11	175	5.6.2.11 Layer 2 Switches for Field The Switch shall be high performance, manageable and shall have minimum 28x10/100Mbps ports including 2x1Gigabit Fiber Uplink ports. Addendum 1 5.6.2.11 Layer 2 Switches for Field The Switch shall be high performance, manageable and shall have minimum 24x10/100/1000 Base-T Mbps ports including 2x1Gigabit Fiber Uplink ports.	Please allow a combination of 16 and 8 port switch for 24 port switch requirement for wider participation. Please consider - The Switch shall be high performance, manageable and shall have minimum 24x10/100/1000 Base-T Mbps ports (or 16 port and 8 port combination) including 2x1Gigabit Fiber Uplink ports.	Please Follow Bid Conditions
329	II	6C		273	Chapter-8 Access Control and Intrusion Detection 6) GUI Functions (ii) Select and view CCTV image at each access point location, individually or in combination **Response to Query** **Sr. No 959**	Change reference not available, Our understanding is that the CCTV footage to be shown in the CCTV HMI for any alert/security breach in the access control system.	Please refer Addendum & Corrigendum-02B
330	II	6C	2.2.4	77	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 redundancy and PC software needed as separate system without any interface with OCC & BCC?	Please Follow Bid Conditions
331	II	6C	2.5.1.4	85	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
332	II	6C	2.5.7.1	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 Announcement limited to respective station only?	Please Follow Bid Conditions
333	II	6C	2.5.4	86	Clause 2.5.4 PAS Station Zones	Please specify Number of zones in the Station	Please Follow Bid Conditions
334	II	6C	2.5.5	86	Clause 2.5.5 Depot Coverage and Zoning	Please specify Number of zones in the Depot	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
335	II	6C	2.5.6	86	Clause 2.5.6 OCC, BCC & Head Quarters	Please specify Number of zones in OCC, BCC & HQ	Please Follow Bid Conditions
336	II	6C	2.5.11	90	Clause 2.5.11 Automatic Level Control	Is the Automatic Level control requirement limited to station & Depot only?	Please Follow Bid Conditions
337	II	6C	1.4.2.1	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
338	II	6C	2.5.15.2	94	2.5.15.2	Amplifier redundancy requirement is N-1 0r 1+1?	Please Follow Bid Conditions
339	II	6C	3.5.1.1 - 4(ii	114	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 characters and character height are not mentioned for LED display.	Please Follow Bid Conditions
340	II	6C	3.5.1.1	116	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
341	II	6C	3.6.1.1	121	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
342	II	6C	3.6.5.1	125	Clause 3.6.5.1 It shall be possible for platform LED PIDS, to display special information like emergency messages in different colors.	Point 7 mentioned It shall be possible for platform LED PIDS, to display special information like emergency messages in different colors. As per this statement we assume Multi colored(RGB) LED Display for platform required. Please confirm.	Please Follow Bid Conditions
343	II	6C	3.2.9	111	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. . Please specify the size details.	Please Follow Bid Conditions
344	II	6C	3.2.9	111	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 Luminance details.(Nits/condolence required) 2. Contrast ratio details. 3. Display Colors 4. Display Pixel Resolution details. 5. Display Viewing Angle.	Please Follow Bid Conditions
345	II	6C	5.5.2.3	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
346	II	6C	5.5.6.1	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
347	II	6C	5.6.2.2 5)	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
348	II	6C	5.6.2.8	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
349	II	6C	10.3.2.1	292	10.3.2.1 Pt. 2	Number of workstations for OCC & BCC, Number and type of Printers required	Please Follow Bid Conditions
350	II	6C	10.3.2.1	292	10.3.2.1 Pt. 3	Details required for "Local and remote alarm interface to Communication system supervisor"	Please Follow Bid Conditions
351	II	6C	10.7.3	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 separately ?	Please Follow Bid Conditions
352	II	6C	5.2.9	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 lighting conditions. 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
353	II	6C	5.5.3	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
354	II	6C	5.6.2.6 5.6.2.7	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
355	II	6C	1.11.1.28	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
356	II	6C		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 Fiber ports including SFP's types as SX/LX..	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
357	II	6C	7.5.5.3.2	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 Synced/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
358	II	6C	7.7.1.6	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
359	II	6C	7.7.2.1	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
360	II	6C	7.3.2	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
361	II	6C	7.3.2	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 fiber only. Kindly Confirm.	Please Follow Bid Conditions
362	II	6C	7.3.2	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
363	II	6C	7.5.5.2.3	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
364	II	6C	1.3.3.6.2	18	1.3.3.6.2 Provisioning and laying of such lengthy optical fiber 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
365	II	6C	1.11.4.1.3	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 Fiber 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 meters 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
366	II	6C	5.3.2.1	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 fiber cable within stations? Kindly confirm.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
367	II	6C	5.3.3.2	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
368	II	6C	7.5.4.8	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
369	II	6C	7.7.4.1	262	Optical Fiber 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
370	II	6C	7.7.4	262	7.7.4 Optical Fiber 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
371	II	6C	1.2.4.3	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 galvanized 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 armoring. Please confirm. 2. As per cable application, fire performance is required, hence we suggest to use Galvanized 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 & Corrigendum-02B
372	II	6C		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
373	II	6C	6.2	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
374	II	6C	6.5.3.1.25	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
375	II	6C	4.5.1.5	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-Master clock & Master clocks. 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
376	II	6C	4.6.2.1 (3)	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
377	II	6C	4.6.2.1(3)	148	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
378	II	6C	2.4.2.5	81	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
379	II	6C	2.4.8.6	84	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
380	II	6C	2.6.5.1	104	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
381	II	6C	8.2.4	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
382	II	6C	8.3.2	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 cable in ACIDS.	Please Follow Bid Conditions
383	II	6C	8.5.2	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 authorize 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
384	II	6C			General	Details required as list of total number of Parking at each station is not mentioned.	Please Follow Bid Conditions
385			Section 6C_Particular Specification_ Telecommunication, 5.4.1.3	Pg157/359		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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
386			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	Pg239/359		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
387			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	Pg 146/359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
388			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 environme	Pg 229/359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
389			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	Pg 271/359		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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
390	2		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	Pg155/359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
391			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	Pg156, 175/359		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
392			Section 6C_Particular Specification_ Telecommunication 5.3.2.1: 19) Laptops pre-loaded with CCTV system software	Pg157/359		Need clarification on application of CCTV software pre loaded on laptops.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
393			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/	Pg157/359		Need clarification on application of control equipment.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
394			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,	Pg160/359		Can we optimize switch & port qty as per our requirement?	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
395			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	Pg162/359		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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
396			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	Pg155, 163& Pg181/359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
397			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.	Pg182/359		Request to modify "(xii) The video management system shall support encryption/password protection of video for export purposes.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
398			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	Pg185/359		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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
399			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	Pg187/359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
400			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	Pg265/359		Can we get BOQ/firm location for Intrusion detection system consideration.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
401			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	Pg266/359		Detection of damage of connecting wires is not possible. Require dilution of same.	Please refer Addendum & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
402			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	Pg52/359		We understand all data cables, PAS cables, ACS cables & other ELV signal cables within station will be unrmoured. Please confirm.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
403			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	Pg52/359		By outdoor area our understanding is areas which are geographically out of station. Kindly confirm.	Please Follow Bid Conditions
404			Section 6C_Particular Specification_ Telecommunication 1.11.4.28.8 All outdoor location / junction Box shall be of stainless steel.	Pg56/359		Request approval for MS.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
405			**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**	**165**		**Please allow for Internal/External Lens**	Please Follow Bid Conditions
406			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	161		Please make H.265 as mandatory compression for Camera.	Please Follow Bid Conditions
407			5.6.2.6 :High Definition IP Fixed Box Camera (Day/Night):	167		Please allow for Box /Bullet Camera with Internal /External IR Option which is already approved @ Certain Metro Projects	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
408			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	167		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
409			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	167		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
410			5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): POE 802.3af compliant and 12VDC/24 VAC dual power options	167		Please allow for POE 802.3af/802.3at compliant and 12VDC/24VAC dual power options	Please Follow Bid Conditions
411			5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): 3. On board trusted platform module (TPM), Public key infrastructure (PKI) Support	168		Please remove it for maximum OEM Participation. PKI is a properitry to Single OEM	Please refer Addendum & Corrigendum-02B
412			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	168		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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
413			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)	169		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
414			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	169		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
415			5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-11 :- POE 802.3af compliant	169		Please allow for POE 802.3af/802.3at compliant and 12VDC/24VAC dual power options	Please Follow Bid Conditions
416			5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night) :-25:-. On board trusted platform module (TPM), Public key infrastructure (PKI) Support	170		Please remove it for maximum OEM Participation. PKI is a properitry to Single OEM	Please refer Addendum & Corrigendum-02B
417			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	171		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
418			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	171		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 refer Addendum & Corrigendum-05B
419			5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) :- Wide Dynamic Range 69 dB or better	172		WDR Must be atleast 120 dB for Better image as per Metro Station scenarios, please confirm	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
420			5.6.2.8 High Speed, High Definition IP PTZ Dome Camera (Day/Night) :PoE As per IEEE 802.3af compliant	172		Please allow for POE 802.3af/802.3at/High POE compliant and 12VDC/24VAC dual power options	Please Follow Bid Conditions
421			5.6.2.10 IR Illuminator 4 IR distance 150m	174		Please allow for Internal/External IR distance 100m	Please Follow Bid Conditions
422			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.	181		Having 100000 no of cameras is not Practical. Please allow for 10000	Please refer Addendum & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
423			(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 managem	183		Please allow for Virtualization as cluster is always a Weak Solution	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
424			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	185		SHA-256 is specific to single Oem . Please allow for SHA-128 Bit and 128 bit RSA	Please refer Addendum & Corrigendum-02B
425			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.	Page 84 of 359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
426			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/	Page 98 of 359		For addition on input & outputs shall be achieved by addition of interface unit which is fulllly hot swappable.	Please Follow Bid Conditions
427			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.	Page 98 of 359		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
428			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.	Page 103 of 359		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 Follow Bid Conditions
429				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 & Corrigendum-05B
430				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
431				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 & Corrigendum-02B
432				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
433				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
434				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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
435				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
436				Page 23 of 359	Part II A/ P24 Part-2/ Section 6C_Particular Specifications_Telecommunication / CH- 1/ CLAUSE NO. 1.4.2.1 The scope of supply shall cover the requirements of Telecom system completely. The detailed requirements shall be as given for each sub-system in the relevant Chapter of Part -2 this Particular Specification. The Contractor to please note that - in addition to any stipulation in the relevant Chapter for the particular sub-system, 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 lump sum Contract. Further, if any item mentioned in the BOQ are higher in quantity, than actually installed at sites as per approved final design, the balance quantity of items shall be handed over to the Employer by the contractor.	Request you to limit the variation to 2% of the given lumsum BOQ Quayntity, If execed it will be take care by Client and the Bidder can claim the same.	Please Follow Bid Conditions
437				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
438				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
439				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 refer Addendum & Corrigendum-05B
440				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
441				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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
442				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
443				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
444				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
445				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
446				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
447				143	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4 : Master Clock System (MCS) Clause 4.3.2.1(1): A Master Clock system at OCC and BCC, receiving synchronization signal from GNSS receiver, antenna, Pole/Tower with Aviation Lamp, converter, extension and connection cables	Please specify meaning and purpose of Pole/Tower with Aviation Lamp.	Please Follow Bid Conditions
448				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
449				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);	Our understading is that the perimeter IDS is needed for depots. The main entry/exits of the stations to be monitored for intrusion with shutter sensor at the doors. Pls clarify.	Please Follow Bid Conditions
450				265	3) At other critical locations related with safety or security;	We will cover the locations/rooms given in the RFQ. Kinldy clarify the OTHER critical locations.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
451				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;	Our understanding is the OF cable is part of FOTS not ACID system.	Please Follow Bid Conditions
452				270	8.5.2 Access Point Controller	We recommend to include & consider the following features in controller: - - The controllers/Reader Interface controllers / General Purpose Controllers are directly connected to the TCP I/p. -IPv4 & IPv6 communication -SNMP protocol for NMS and SCADA integration -The communication between the reader and controller is on OSDP (Open Supervised Device Protocol) The encryption is 256 bit -In case of Biometric reader the template should be stored in the controller which is in secured area. This will enhance the security of the system.	Please Follow Bid Conditions
453				273	6) GUI Functions (ii) Select and view CCTV image at each access point location, individually or in combination	Change reference not available, Our understanding is that the CCTV footage to be shown in the CCTV HMI for any alert/security breach in the access control sysyem.	Please refer Addendum & Corrigendum-02B
454				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.	The complete data base is in the central server and the work station for the printing application is connected to central server. There are no local server at the stations. Therefore our understanding is that card printing workstatio is a "Dedicated work station" for the card printing not the standalone work station.	Please Follow Bid Conditions
455				175	Section – 6C: Particular Specifications – Telecommunications 5.6.2.11 Layer 2 Switches for Field The Switch shall be high performance, manageable and shall have minimum 28x10/100Mbps ports including 2x1Gigabit Fibre Uplink ports.	Limited OEM's are having a 24 port switch and dependency on sigle swicth at platform of all devices will impact availiability, so we request to consider a combination of 16 and 8 port switch at platform. It will divide the risk among two switches, if any of switch failes, the whole platform will not beocme out of network. Would request you to change the clause as The Switch shall be high performance, manageable and shall have minimum 24x10/100/1000 Base-T Mbps ports (or 16 port and 8 port combination) including 2x1Gigabit Fibre Uplink ports.	Please Follow Bid Conditions
456				175	It shall support Multicasting protocols (IGMP snooping, etc.) required for CCTV system.	Please clarify, do we need to consider RSPAN (VLAN mirroring) on switch to copy and monitor voice streams of PAS on other switch/centrally at OCC?	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
457				Clause No 6.2 Overview of Telephone System	The Telephone System shall provide the RRTS staff with voice, fax and data communications between RRTS personnel internally and also externally to the PSTN on IP PBX Exchange. Objective is to use the network infrastructure which is redundant. The same infrastructure shall be used on a separate CAT6/ CAT6A / CAT 7 for Voice application on IP-PBX.In addition to IP-PBX and DLT telephones, emergency phones and help points shall also be provided for passengers for assistance when they are within the concourses, platforms etc	Please clarify the type of UTP Cable that is being used for Telephony system	Please Follow Bid Conditions
458				6.2.1.4 IP PBX Network	The Telephone System shall interface to the Radio System/ LTE to enable radio users to initiate and receive calls from IP PBX extension or from the PSTN telephones.	What is the interface on Radio , Is it PRI or SIP Please confirm	Please Follow Bid Conditions
459				6.2.2.1 Point No 5 Direct Line Telephone Communication	For emergency communication at locations close to the cross passages in tunnels	Do emergency communication required are SIP Compliant or analog is also accepted by Client	Please Follow Bid Conditions
460				6.2.4.1 Central Voice Recording System	The Telephone System shall be interfaced with a Centralized Voice Recording System for recording of designated telephone lines including emergency telephone lines. It shall be possible to select any one additional PABX phone conversation for recording purposes from the HMI. it shall be the responsibility of Telecom Contractor to coordinate, finalise the number and type of channels,interface, test and commission the recording of Telephone Communication in the CVRS. All Direct Line Telephone communication from and to all the Direct Line Consoles in the OCC/BCC / depot shall have to be recorded in the CVRS. The number of channels has to be accordingly finalized by Telecom Contractor.	If possible could you please let us Know how many channels we are expecting to get recorded at OCC amd BCC ??	Please Follow Bid Conditions
461				Clause No 6.3.2.3 Point No 4 Direct Line Telephone Communication	Power supply equipment, cables, accessories, distribution frames, cabinets, enclosures, racks and earthing etc.	Please confirm the scope of Telephone cabling , Power cabling & earthing in whom scope and Tentative Bill of Material is not mentioned in the BoQ , neither we have any drawings to calculate the estimated qty of Cables required. Please advise	Please Follow Bid Conditions
462				Clause No 6.3.2.4 Point No 6 IP PBX Phones	Power supply equipment, cables, accessories, distribution frames, cabinets, enclosures, racks and earthing etc.	Please clarify the specifications of Earthing and the scope of Earthing is in whose scope?	Please Follow Bid Conditions
463				Clause No 6.5.1.1.1 Point No 6 Point No 3	The Contractor shall lay cable up to theL3 Switch to access the Ethernet channels. IP PBX network with requisite ETHERNET rings as described above, as a minimum, shall be provided. However, to meet the requirements of the contract and requirements of the Designated Project Contractors, additional equipment/services as required shall also be provided by Contractor at no additional cost to the Employer.	who is providing passive cabling for telephony and if it is CAT6A,CAT6 or CAT7	Please Follow Bid Conditions
464				Clause No 6.5.1.3.4	The IP PBX switch network shall be connected to the Radio system/LTE to provide switching and connection for user to make telephone call connection through the hand portable/train mobile radios and call to hand portable/train mobile radios and call to hand portable/train mobile radios through telephone extension. This facility shall be programmable. Contractor shall coordinate, interface, test and commission this Interface with the Radio Contractor.	What is the interface consider on Radio equipement for Telephony Is it PRI or SIP	Please Follow Bid Conditions
465				Clause No 6.5.1.4.2	Digital trunks at ETHERNET level from DTS shall be used as tie lines between IP PBX switches. Common channel signaling conforming to ITU-T recommendations I.431 and I.441 shall be supported. The frame structure shall contain voice, data, synchronization and signaling channels.	What kind of interface is in DTS for Telephony , Is it SIP or E1	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
466				Clause No 6.5.1.5.1	All the voice circuits from the IP PBX switch shall be terminated at the main distribution frame inside the TER for distribution of the internal and external lines and interface with relevant Subsystems and Project Contract. The circuit termination shall be of IDC (insulation displacement contact) type.	Who is offering Wiring for Telephony and also we do not have tentative BoQ of Cabling estimated for this project and no drawings are shared.	Please Follow Bid Conditions
467				Clause No 6.5.1.5.5	Multi-core cables shall be provided and connected from the distribution frames inside TER or CER to the telephone distribution boxes. A minimum spare capacity of 50% pairs shall be reserved in the multi-core cables, distribution frame and the telephone distribution boxes. Where only one phone is required there also the cable used shall be of 2 pairs to provide reserve spare capacity	Who is offering Wiring for Telephony and also we do not have tentative BoQ of Cabling estimated for this project and no drawings are shared.	Please Follow Bid Conditions
468				Clause No 6.5.1.6.1 1 (b)	Basic Telephones (Lamp for message waiti)	Lamp for message waiting is old technology please remove this feature	Please Follow Bid Conditions
469				Clause No 6.5.1.6.1 Point no 2 (C)	IP Telephones (HQ) (Powered by the Layer-2/Layer-3 LAN switch)	Is the IP Phone required Gigbit Phone or 10/100 Mbps Phones please clarify	Please Follow Bid Conditions
470				Clause No 6.5.1.6.1 Point no 3 (N)	**Digital Feature Telephone** Programmable for multi-lines operations with more than one extension number assigned and	The feature is generally available in old Digital Exchanges and Digital Phones not in Pure IP based Exchanges and latest Phones please remove this clause	Please Follow Bid Conditions
471				Clause No 6.5.1.6.1 Point no 3 (R)	Digital Feature Telephone The digital feature telephone shall be programmable for multi-lines with more than one extension number assigned.	The feature is generally available in old Digital Exchanges and Digital Phones not in Pure IP based Exchanges and latest Phones please remove this clause	Please Follow Bid Conditions
472				Clause No 6.5.2.2.10	Direct Line Phones /Console At least 10 spare push buttons and/or soft keys shall be provided for assignment of additional functions or telephone lines.	Please clarify if we need to consider additional Direct Line Phones apart from the BoQ as spares	Please Follow Bid Conditions
473				Clause No 6.5.2.4.1	Emergency Telephones :- Normally when a train becomes disabled in a tunnel, the driver will be able to call for assistance by means of his train radio. However, to cater for the possibility of a train radio failure, trackside telephone from the Direct Line Communication system shall be provided at regular intervals close to the cross passages in each tunnel separately and also at the start of the tunnel at the Platform ends. These shall be situated next to the Traction Power Supply Contractor's ETP Boxes (Emergency trip Box). The exact position shall be coordinated by the Contractor as part of the Interface requirements	Are u looking to have SIP Emegency Phones or Analog Emergency Phone please clarify	Please Follow Bid Conditions
474				Clause No 6.5.2.5	Help Points (5 at Each Station)	Are u looking to have SIP help Phones or Analog help Phone please clarify	Please Follow Bid Conditions
475				Clause No 6.5.3.1.1	**VOICE OVER IP Switch network** A NMS for managing the IP PBX, IP network switches will also be provided at OCC and BCC. This NMS can be common or separate from the Telephone System NMS.	Are u looking for single NMS for all Telehony system or separate NMS for HQ IP PBX System	Please Follow Bid Conditions
476				Clause No 6.5.3.1.6	**UNIFIED MESSAGING APPLICATION (UMA)**Presence and Instant Messaging must use icons and colors for On-Line Presence, Telephony Presence (like free, busy or on phone etc), Calendar Presence, coming from Outlook calendar, User-Choice Presence, (Busy, Be right back, Away, Out to lunch and Appear off-line). The instant messaging application must allow instant messaging (chat) sessions between members.	Please clarify total number of Unified communication user and the Licenses to be considered.	Please Follow Bid Conditions
477				Clause No 6.8.1.2	Interface with DTS and Clock	Please confirm the interface consider by clock vendor for Telephony	Please Follow Bid Conditions
478				Clause No 6.8.1.3.1	Interface with Radio System / LT	Please confirm the interface consider by Radio vendor for Telephony	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
479				Clause No 6.8.1.4.2	**Passive Cabling** For Telephone System Equipment, conduits with junction/termination/gang box are to be provided by Telecom Contractor as per system requirements in technical/non-technical rooms, Administration rooms, PSP etc in station, depot and OCC/BCC areas. These conduits are to be extended from nearest S&T Data/Power trays up to location of the telecom equipment to be installed. Separate conduit for Data and Power cable to be extended	All passive working inside and outside building would be in scope of cable contractor/vendor	Please Follow Bid Conditions
480				Clause No 6.8.1.5	Interface with CCTV	Please confirm the interface consider by CCTV vendor for Telephony	Please Follow Bid Conditions
481				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
482				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
483				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
484				283/359	Clause No - 9.3.2.1 Complete CVRS Equipment with all interfaces to meet with the scope of work for OCC & BCC.	Please specify all interfaces which require recording on OCC & BCC	Please Follow Bid Conditions
485				283/359	Clause No - 9.3.2.1 Complete CVRS Equipment with all interfaces to meet with the scope of work for OCC & BCC.	Is an active-standby or active-active backup requiered?	Please Follow Bid Conditions
486				283/359	Clause No - 9.3.2.1 Complete CVRS Equipment with all interfaces to meet with the scope of work for OCC & BCC.	Do you require a backup only on recording or also on playback facilities?	Please Follow Bid Conditions
487				283/359	Clause No - 9.3.3.2 In addition, the contractor shall interface and coordinate with relevant contractors for Telephone System, PAS, Rolling Stock, Radio (LTE-R/GSM/GSMR/TETRA/TEDS), MCS, T-SCADA, Power Supply etc.	Which contractor will be providing the PAS, Rolling Stock, Radio (LTE-R/GSM/GSMR/ TETRA/TEDS), MCS, T-SCADA? Please specify the exat interfaces that require recording.	Please Follow Bid Conditions
488				284/359	Clause No - Clause No - 9.4.1.2 The Contractor shall design the CVRS to achieve an availability of 99.977%. 1) Voice producing subsystem and CVRS recorder in CER assuming a meantimeto- restore of 4-hour. 2) Playback of CVRS recorded voice and CVRS workstation assuming a meantime-to-restore of 4-hour.	A mean time to restore of 4 hours requires trained and certified staff locally onsite. Should we offer such a training for your staff to handle emergencies locally?	Please Follow Bid Conditions
489				285/359	Clause No - 9.5.4.2 The Contractor shall design the CVRS to provide search and retrieval without interrupting the real-time recording function. The search and retrieval shall be possible with any combination of the following criteria: **System recorded (TEL, RADIO, PAS, EMERGENCY PHONES & HELP POINTS, OCC)**	Please specify RADIO, PAS, EMERGENCY PHONES & HELP POINTS, OCC manufacturers and interfaces.	Please Follow Bid Conditions
490				285/359	Clause No - 9.5.7.1 The CVRS shall automatically changeover to the standby CVRS within 1 second for the standby unit to become active and start recording under the following conditions: **1) Pre-scheduled daily changeover from the active to the standby module;**	Why is it planned to have a scheduled daily failover?	Please Follow Bid Conditions
491				285/359	Clause No - 9.5.7.2 The CVRS shall automatically changeover to the standby CVRS within 1 second for the standby unit to become active and start recording under the following conditions: **Whenever fault is detected on the active module which affects the normalrecording; and**	Failover takes longer than one second to avoid false switchovers in case of high latency peaks. Is that OK?	Please Follow Bid Conditions
492				286/359	Clause No - 9.5.14. The Contractor shall design the CVRS so that the database(s) at the CER-OCC are continually updated at the CER-BCC during OCC operations.	This requires an "always on" cluster using MS SQL that must be made available by the customer. Is that OK?	Please Follow Bid Conditions
493				287/359	Clause No - 9.6.10. The Contractor shall design the CVRS for a service life of 15 years with recommended maintenance.	Service maintenance for 15 years requires a continuos service contract and having the version always up to date.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
494				288/359	Clause No - 9.7.2.1 The CVRS system shall receive time data message from the Master Clock system at central equipment for time synchronisation. For this the CVRS shall suitably interface with the Clock System. The Radio System (LTE-R/GSM/GSMR/ TETRA/TEDS) shall provide and install the interface to the Master clock System.The Contractor shall take care of all the interface requirements of Master Clock system for recording of live emergency broadcast on station PAS initiated from OCC, BCC and SCR.	We do not support time synchronisation using a master clock. Instead the CVRS will synchronize the time using NTP.	Please Follow Bid Conditions
495				288/359	Clause No - 9.7.3.1 The CVRS system shall interface with the Telephone system to permit recording of all communication from and to the OCC, BCC and Depots.	Will all coommunication systems be integrated into the telephony system?	Please Follow Bid Conditions
496				289/359	Clause No - 9.7.4. Interface between Radio (LTE-R/GSM/GSM-R/TETRA/TEDS) and Power Supply Contractor	Please specify Radion Interface.	Please Follow Bid Conditions
497				289/359	Clause No - 9.7.5. Interface with T-SCADA	Please specify T-SCADA interface.	Please Follow Bid Conditions
498				Page 254 of 359	PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 7 DTS The DTS Network Management system shall be able to automatically discover the network Equipment and associated links and place them on a topology map. The NMS shall be from the same OEM that of Core and Distribution switches.	Request you allow the different OEM for NMS and switchs, if solution is feasible and meeting the requirement. Such that bidder can Quote a more commpetitive commericail Bid.	Please Follow Bid Conditions
499				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
500				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
501				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
502				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
503				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
504				79	**Part-2: Section: 6C - Particluar Specifications - Telecomm Clause: 2.3.3.4** The Main and Backup MMI shall be provided 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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
505				81	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-2 : Public Address System (PAS) Clause 2.4.2.5 T**he 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
506				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
507				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
508				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 refer Addendum & Corrigendum-05B
509				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;	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
510				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
511				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
512				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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
513				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
514				117	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-3 : Passenger Information Display System (PIDS) Clause 3.5.1.1 (7, ix) T**he 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
515				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
516				143	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-4 : Master Clock System (MCS)Clause 4.3.2.1(1):** A Master Clock system at OCC and BCC, receiving synchronization signal from GNSS receiver, antenna, Pole/Tower with Aviation Lamp, converter, extension and connection cables	Please specify meaning and purpose of Pole/Tower with Aviation Lamp.	Please Follow Bid Conditions
517				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
518				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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
519				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
520				149	**Part-2: Section: 6C - Particluar Specifications - Telecommunic 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
521				157	**Part-2: Section: 6C - Particluar Specifications - Telecommunic 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
522				158	**Part-2: Section: 6C - Particluar Specifications - Telecommunic 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
523				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
524				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
525				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
526				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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
527				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
528				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
529				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
530				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
531				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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
532				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
533				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
534				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
535				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
536				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 TerminalEach 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 mal continuous time without recharging and without mains power	Please Follow Bid Conditions
537				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 onthe 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) inactive-active redundancy shall be used on 10G fibre links of DTSbackbone ring which are more than 35Kms.	Junction signal boost switches are not required then third and fourth ring as wn in clause 7.6.2.1 should be direct from OCC to Rithani and OCC to MES ony respectively or it has to be connected to Duhai station.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
538				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
539				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
540				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
541				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
542				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
543				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
544				175	**Section – 6C: Particular Specifications – Telecommunications** **5.6.2.11** Layer 2 Switches for Field The Switch shall be high performance, manageable and shall have minimum 28x10/100Mbps ports including 2x1Gigabit Fibre Uplink ports.	At platform level, 16-20 end devices are installed which will require 24 ports. If one switch of 24 port fails, whole platform will become out of network. For higher availiability, we recommend to consider a combination of 16 & 8 1G port switch cobination to divide the over all risk. So, we request you to allow a cobination of 16 & 8 1G port switch to meet 24 port swicth requirement. Please change the clause as The Switch shall be high performance, manageable and shall have minimum 28x10/100/1000 Mbps ports (or combination of 16x1G Base-T and 8x1G Base-T Switch) including 2x1Gigabit Fibre Uplink ports.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
545				175	**Section – 6C: Particular Specifications – Telecommunica** **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 cosnider a NEMA-TS2 certified industrial switch to meet the temperature requirements? The NEMA-TS-2 certification, certifes swicth for its high temperature operabiltity.	Please Follow Bid Conditions
546				265	**Part-2: Section: 6C - Particluar Specifications - Telecom Detection System (ACIDS) Clause 8.2.4** Intruder Detection 1) Around building entrances including stations and depots (ro normally un-manned buildings and outside normal working h manned for a part of the day); 3) At other critical locations related with safety or security;	Our understading is that the perimeter IDS is needed for depots. The main entry/exits of the stations to be monitored for intrusion with shutter sensor at the doors. Pls clarify. We will cover the locations/rooms given in the RFQ. Kinldy clarify the OTHER critical locations.	Please Follow Bid Conditions
547				267	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 8.3.2 Scope of Supply8.3.2.1** **9)** 12 Core OF cable for depot, OCC/BCC and Ramps at underground and at grade depot to elevated stations;	Our understanding is the OF cable is part of FOTS not ACID system.	Please Follow Bid Conditions
548				270	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS)** Clause 8.5.2 Access Point Controller	We recommend to include & consider the following features in controller: - - The controllers/Reader Interface controllers / General Purpose Controllers are directly connected to the TCP I/p. -IPv4 & IPv6 communication -SNMP protocol for NMS and SCADA integration -The communication between the reader and controller is on OSDP (Open Supervised Device Protocol) The encryption is 256 bit -In case of Biometric reader the template should be stored in the controller which is in secured area. This will enhance the security of the system.	Please Follow Bid Conditions
549				273	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 6) GUI Functions (ii) Select and view CCTV image at each access point location, individually or in combination	Change reference not available, Our understanding is that the CCTV footage to be shown in the CCTV HMI for any alert/security breach in the access control sysyem.	Please refer Addendum & Corrigendum-02B
550				265	**Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter-8: Access Control and Intrusion Detection System (ACIDS) Clause 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.	The complete data base is in the central server and the work station for the printing application is connected to central server. There are no local server at the stations. Therefore our understanding is that card printing workstatio is a "Dedicated work station" for the card printing not the standalone work station.	Please Follow Bid Conditions
551				195	**Part – 2 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
552				195	**Part – 2 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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
553				196	**Part – 2 Section – 6C: Particular Specifications – Telecommunications Chapter 6 – Telephone System" Clause 6.3.2.3** 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
554				196	**Part – 2 Section – 6C: Particular Specifications – Telecommunications Chapter 6 – Telephone System" Clause 6.3.2.3** 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
555				204	**"DM/ST/COR-OF/100 Package 24: Design, Supply, Installation, Testing and Commissioning of Signalling & Train Control and Telecommunication Systems for Delhi – Ghaziabad – Meerut RRTS Corridor of NCRTC - Part – 2 Section – 6C: Particular Specifications – Telecommunications Chapter 6 – Telephone System" 6.5.1.6.1** Telephone instruments shall be provided and equipped with minimu	we request to kindly add the feature as, Last 100 nos. call details on phone (Dialed, received & Missed)	Please Follow Bid Conditions
556				204	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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
557				205	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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
558				205	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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
559				207	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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
560				207, 208	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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
561				217	**Part – 2 Section – 6C: Particular Specifications – Telecommunications Chapter 6 – Telephone System" Clause 6.5.3.1.2**5 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
562				222	**Part – 2 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
563				227	**Part – 2 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 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
564				227	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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 ialed, received & Missed)	Please Follow Bid Conditions
565				231	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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 odify the same.	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
566				231	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 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
567				214	**Part – 2 Section – 6C: Particular Specifications – TelecommunicationsChapter 6 – Clause 6.5.3.1.6 Telephone System" Clause** UNIFIED MESSAGING APPLICATION (UMA)	we recommend, for high Reliability and Avalability the The UMA should be from e same make of OEM IP-PBX system.	Please Follow Bid Conditions
568	2	**Section 6C/5.6.2.11(1) (CCTV - POE Switch)**		175		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
569	2	**Section 6C/5.6.2.11.2(8) (CCTV - POE Switch)**		175		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
570	2	**Section 6C/5.6.2.11.3 (CCTV - POE Switch)**		176		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
571	2	**Section 6C/5.6.2.11.2 (CCTV - POE Switch)**		New (175) in POE Switch		We would recommend to add: "The POE Switch must support EN-50121 compliant, as per Railway standard".	Please Follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
572	2	**Section6C / Particular Specifications – Telecommunications / General Specification/ 1.3.5**		19		"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
573	2	**Section6C / EPBAX POE Switch 6.5.3.1.25**		217		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
574	2	**Section6C / EPBAX POE Switch 6.5.3.1.25**		217		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~~,~~ 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. Kindly allow **10G port or Stackable port** for larger participation (other than 2x10G uplink ports) Please consider 80 Km distance instead of 100km (100km in 1G/10G) **is not inddustry standard.**	Please Follow Bid Conditions
575	2	**Section6C /Data Transmission systems/7.6.2.4 / Core Layer (ii)**		252		**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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
576	2	**Section6C /Data Transmission systems/7.6.2.4 / 2) Distribution & Access Layer**		252		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
577	2	**Section6C /Data Transmission systems/ Core Layer / 7.7.1.6 Security Features**		259		**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. **802.1X is related to End Switches. 802.1x is not relevant for Core and Distribuution switches. Kindly delete this**	Please Follow Bid Conditions
578	2	**Section6C /Data Transmission systems/7.7.2 Distribution Switch**		260		We would request following changes 7.7.2.1 Switch Architecture 1) Distribution Switch should have Redundant Power supply. 2) **Dedicated ~~stacking~~ Ports supporting 1x100 Gbps. Kindly delete deddicated stacking port** 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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
579	2	**Section6C /Data Transmission systems/7.7.2.6 Distribution Switch**		261		9) 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, **802.1X is related to End Switches, POE End Switches,. 802.1x is not relevant for Core and Distribuution switches. Kindly delete this**	Please Follow Bid Conditions
580	II	Section 6B/15.3 Definitions (NMS)		149 OF 420		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
581	II	Section 6B/15.4 Standards (3)		149 OF 420		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
582	II	Section 6B/15.5(2) Scope		150 OF 420		Maximum distance of such structures from the middle of the railway line should be mentioned for coverage purposes.	Please follow Bid Conditions
583	II	Section 6B/15.5(2) Scope(The Proposed Solution shall comply with the following) (1)		151 OF 420		we assume EPC and PC are same.	Please follow Bid Conditions
584	II					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
585	II	Section 6B/15.5(2) Scope(The Proposed Solution shall comply with the following) (2)		151 OF 420		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
586	II	Section 6B/15.5(10) Scope		151 OF 420		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
587	II	Section 6B/15.5(2) Scope(The Proposed Solution shall comply with the following) (12)		151 OF 420		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 & Corrigendum-02B
588	II	Section 6B/15.7.2 (LTE Pole & Passive Infrastructure Specification)		165 OF 420		Only outdoor type eNodeBs are to be proposed, Please confirm.	Please follow Bid Conditions
589	II	Section 6B/15.7.10.2(Short Message Service)		179 OF 420		This functionality is to be met with Mission Critical Data over LTE as per ETSI TS 122 282 in MCX. Please confirm?	Please refer Addendum & Corrigendum-05B
590	II	Section6B/Router Specifications / 15.11(1)		192		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 refer Addendum & Corrigendum-02B
591	II	Section6B/Router Specifications / 15.11(2)		192		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
592	II	Section6 B/Router Specifications / 15.11(5)		193		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
593	II	Section6 B/Router Specifications / 15.11(5)		193		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
594	II	Section6 B/Router Specifications / 15.11(7)		193		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
595	II	New /Section6 B/Router Specifications /15.11		Quality of Service for LTE		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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
596	II	Section6 B/Cab LTE Modem/15.8.1(1)		184		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 & Corrigendum-02B
597	II	Section6 B/Cab LTE Modem 15.8.1(1)		184		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
598	II	New in Section6 B/Cab LTE Modem/15.8.1		184		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
599	II	Section6 B/Cab LTE Modem 15.8.1(7)		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
600	II	New in Section6 B/Cab LTE Modem/15.8.1		184		Router should support Industry-standard 4G LTE diagnostics and monitoring tools for troublieshooting of field issues.	Please follow Bid Conditions
601	II	6B		309/420	Part 2 Section 6B: PS-Signalling and Train control/ Appendix A/ 17. S&T (TELECOM) VS. AFC CONTRACTOR / sheet 1/2	Please clarify WLAN station coverage for portable AFC devices, what are the areas of station to be covered by WLAN ?	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
602	II	6A		Page: GS, 3-20 of 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 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 programme.	Please refer Addendum & Corrigendum-05B
603	II	6A		Page: GS, 8-1 of 5	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."	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
604	II	6B		Page 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.	Please confirm our understanding that the features that are evolving in FRMCS standard till Dec 2024 which are possible to be implemented with the offered HW and SW shall be implemented by the OEM.	Please refer Addendum & Corrigendum-05B
605	II	6B		Page 159	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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 PGW separately.	Please follow Bid Conditions
606	II	6B		Page 162	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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
607	II	6B		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
608	II	6B		Page 158	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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.	Please follow Bid Conditions
609	II	6B		Page 158	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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 refer Addendum & Corrigendum-05B
610	II	6B		Page 160	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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. Please confirm.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
611	II	6B		Page 4	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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
612	II	6B		Page 4	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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
613	II	6B		Page 7 of Part B, Specific Provisions	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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
614	II	6B		Page 178	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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 & Corrigendum-05B
615	II	6B		Page 110	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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
616	II	6B		60	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15 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
617	II	6B		151 of 420	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 follow Bid Conditions
618	II	6B		25 of 420	Chapter 4, Clause 4.3.6 Complete RBC or EPC failure, during DLP period shall call for imposition of penalty on the Signalling Contractor.	Our understanding here is EPC failure refers to complete EPC failure. Please confirm.	Please refer Addendum & Corrigendum-05B
619	2	6B		25 of 420	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.	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

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
620	II	6B		25 of 420	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
621	II	6B		Page 199 of 420	15.11 (8) iii DoS Attack Prevention	We request to amend this clause as DoS Attack Prevention/ IP Access control list.Please confirm.	Please follow Bid Conditions
622	II	6B		25 of 420	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: REL needs configuration assistance. There is no impact on business operations. Request you to amend accordingly. Please confirm.	Please refer Addendum & Corrigendum-05B
623	II	6B		137 of 420	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
624	II	6B		Page 198 of 420	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 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	Commercially available equipment worldwide supports upto +55°C operating temperature, thus we request the clause be amended accordingly. Please confirm.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
625	II	6B		Page 192 of 420	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.9 Ruggedized MCPTT Handheld Terminals (13) Designated hand portable radios shall access the PAS to make public address announcement in the station (14) The LTE system shall support the selection of the following PA zones by the hand portable radio as a minimum, • up platform; • down platform; • concourse; and • any other zone earmarked during design stage.	Please clarify that all the LTE to Telecom interfaces i.e. PAS, CDRS & Telephone will be in Central level at OCC and BCC only.	Please follow Bid Conditions
626	II	6B		160	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.6.3 Cabling (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	As we understand that MCPTT Voice and S&TC Data will be transmitted using LTE backbone and On-Board CCTV Live Stream will use Wireless System. Please confirm.	Please refer Addendum & Corrigendum-05B
627	II	6B		158	PS – Signaling – Employer's Requirements: Part 2 / Chapter 15/ 15.6 (2) Live surveillance camera feeds from trains.	As per clause 15.6.1(3), 2Mbps Uplink Capacity is available for all the applications. Live Surveillance of Only 1no. of OnBoard Camera is possible as maximum. Extra camera feeds will be handled by Wireless System. Please Confirm our understanding.	Please refer Addendum & Corrigendum-05B
628	II	6B		184	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.	We understand that the MVNO SIM provided by NCRCTC will be used only for voice calling by using Commercial Mobile Network Operators. LTE Modem will have provision to insert MVNO SIM. Please confirm.	Please refer Addendum & Corrigendum-02B
629	II	6B		265	PS – Signaling – Employer's Requirements: Part 2 / Interfaces 10. S&T, PSD Vs Rolling Stock 7. Antennae & radio for train radio including special cables etc.	Supply of Antenna & Radio for Train radio Including special cables are under LTE Scope (Signalling Contractor). Please modify the requirements accordingly.	Please refer Addendum & Corrigendum-05B
630	II	6B		265	PS – Signaling – Employer's Requirements: Part 2 / Interfaces 10. S&T, PSD Vs Rolling Stock 8. Train lines/Ethernet connection	We understand that for interconnection of Front and Rear LTE Modem, Rolling Stock will provide Ethernet Connection including Switch and Cables for Front to Rear Cab connection. Please confirm.	Please follow Bid Conditions
631	II	6B		265	PS – Signaling – Employer's Requirements: Part 2 / Interfaces 10. S&T, PSD Vs Rolling Stock 10. Wi-Fi access points with antenna (02 per cab), if required	As per PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendice Q, clause 4.7, supply of Wi-Fi access points with antenna inside Cab is not in the scope of Telecom Contractor. Please remove the requirement mentioned in the interface matrix.	Please refer Addendum & Corrigendum-05B
632	II	6B		269	10. S&T, PSD Vs Rolling Stock 22. TCMS status log(main events and alarms) and Automated wayside wheel profile measurement system	We understand Wireless System Network shall be used for downloading TCMS data in depot. Please confirm.	Please follow Bid Conditions
633	II	6B		152	PS – Signaling – Employer's Requirements: Part 2 / Interfaces 15.6 (3) IoT: Remote monitoring of Railways asset to improve their availability.	We understand that LTE Network will be used as a communication media between Asset Management System and IoT Equipments/database provided by other contractors. Please confirm.	Please follow Bid Conditions
634	II	6B		81	Addendum and Corrigendum No. 02B Row no 265: Dual SIM with Active Standby (One SIM for NCRTC Captive usage LTE Network and another SIM for ~~MVNO~~ any other Network)	We understand that ETCS Data, MCPTT data etc will be transfred only using NCRTC LTE SIM . The second SIM will be used for normal mobile phone voice calling using other Operator Network. Please confirm.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
635	II	Section 6C		356	Part-2: Section: 6C - Particluar Specifications - Telecommunications : Chapter – 11 Appendices/APPENDIX – Q /2.3.3 Critical data and Passenger Internet data should travel over separate VPN."	VPN reduces the data throughput carried on wireless network signficantly and additionally the security and threats can be managed through encryption at wireless level. Request you to kindly remove VPN clause.	Please follow Bid Conditions
636	II	6B		149 of 420	Section 6B: PS-S&TC, Chapter 15, 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, shall be considered and LTE is to be understood as the LTE for National Capital Region Transport corporation being defined in this document.	Please be informed that FRMCS Specifications are yet to be finalized for both software and hardware specifications, and sufficient clarity on this matter is not expected before 2023. Thus any features that are finalized later but not implementable using initial hardware supply or software upgrade shall be procured separately by NCRTC through the change request mechanism referred to in clause 13 'Variations and Adjustments' of Section 7: General Conditions of Contract. Please confirm.	Please refer Addendum & Corrigendum-05B
637	II	6B		73 of 83	Addendum and Corrigendum No. 02B S.No. 230 (Section 6B: PS-S&TC, Chapter 15, Clause 15.4 Standards (1)) S.No. 230 Modified Document/Form/Clause/Sub Clause: The product shall be compliant to 3GPP Rel. 15, 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, on existing Hardware through software upgrade.	Please be informed that FRMCS Specifications are yet to be finalized for both software and hardware specifications, and sufficient clarity on this matter is not expected before 2023. Thus any features that are finalized later but not implementable using initial hardware supply or software upgrade shall be procured separately by NCRTC through the change request mechanism referred to in clause 13 'Variations and Adjustments' of Section 7: General Conditions of Contract. Please confirm.	Please refer Addendum & Corrigendum-05B
638	II	6B		75 of 83	Addendum and Corrigendum No. 02B S.No.235 (Section 6B: PS-S&TC, Chapter 15, Clause 15.7.1.3 (A)) S.No. 235 Modified Document/Form/Clause/Sub Clause: The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 15 & 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.	Please be informed that FRMCS Specifications are yet to be finalized for both software and hardware specifications, and sufficient clarity on this matter is not expected before 2023. Thus any features that are finalized later but not implementable using initial hardware supply or software upgrade shall be procured separately by NCRTC through the change request mechanism referred to in clause 13 'Variations and Adjustments' of Section 7: General Conditions of Contract. Please confirm.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
639	II	6B		152 of 420	Section 6B: PS-S&TC, Chapter 15, Clause 15.6.1 (2) - 3(a) and 3(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.	The Bid Conditions do not specify the details critical for accurate network design, please confirm the following: 1. Number of UEs to be supported at the Cell edge in a sector. 2. Peak throughput required by each UE, to be supported at the Cell edge in a sector. 3. Number of Simultaneous Active Users, to be supported at the Cell edge in a sector. Based on global experience and the spectrum available at hand, we recommend: 1. Number of UEs to be supported at the Cell edge in a sector = 2 2. Peak throughput required by each UE, to be supported at the Cell edge in a sector = 2 Mbps (DL), 1 Mbps (UL) 3. Number of Simultaneous Active Users, to be supported at the Cell edge in a sector = (4 ETCS UEs and 4 MC-PTT users and 1 CCTV) Please confirm.	Please refer Addendum & Corrigendum-05B
640	II	6B		78 of 83	Addendum and Corrigendum No. 02B S.No.250 (Section 6B: PS-S&TC, Chapter 15, Clause 15.7.6 (4)) S.No. 250 Modified Document/Form/Clause/Sub Clause: Operating temp range as per clause 6.7.4.1 of chapter 6.	Please be informed that all the commercially available LTE equipment worldwide supports upto +55°C operating temperature, including in hot environmental locations such as deserts, etc. Hence, in order to allow wider participation of LTE OEMs, please modify the maximum operating temperature to +55°C.	Please refer Addendum & Corrigendum-05B
641	II	6B		81 of 83	Addendum and Corrigendum No. 02B S.No.268 (Section 6B: PS-S&TC, Chapter 15, Clause 15.11 (4)) S.No. 268 Modified Document/Form/Clause/Sub Clause: Layer 3 device should comply for following Temperature performance parameters as per clause 6.7.4.1 of chapter 6.	Please be informed that all the commercially available LTE equipment worldwide supports upto +55°C operating temperature, including in hot environmental locations such as deserts, etc. Hence, in order to allow wider participation of LTE OEMs, please modify the maximum operating temperature to +55°C.	Please refer Addendum & Corrigendum-05B
642	II	6B		74 of 83	Addendum and Corrigendum No. 02B S.No.232 (Section 6B: PS-S&TC, Chapter 15, Clause No. 15.5, Sub-clause 15.1.3 (12)) S.No. 232 Modified Document/Form/Clause/Sub Clause: 15.1.3 The proposed solution shall comply with the following: (12) The Handheld, Fixed Radio and Train Radios (Voice + data, Cab LTE Modem & Data Only Radios etc) shall have PTCRB/GCF or equivalent Interoperability certification.	PTCRB/GCF certification seems not applicable for each of these equipment/OEMs and thus we request that a.self-certification of Interoperability also be acceptable, as these equipment are prior tested and validated by us in our labs.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
643	II	6B		79 of 83	Addendum and Corrigendum No. 02B S.No.254 (Section 6B: PS-S&TC, Chapter 15, Clause No. 15.7.11 (2)) S.No. 254 Modified Document/Form/Clause/Sub Clause: 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 and the contractor is expected to provide a roadmap for the same.	As per the clarification received from NCRTC, the standards of 3GPP release, which Bidder needs to comply with is 3GPP Rel 15. However, in this clarification, it is mentioned as 3GPP Rel 16. Request you to amend this clause to 3GPP Rel.15.	Please follow Bid Conditions
644	II	6B		25 of 420	Section 6B: PS-S&TC, 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
645	II	6B		25 of 420	Section 6B: PS-S&TC, 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 that 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 refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
646	II	6B		193 of 420	Section 6B: PS-S&TC, Chapter 15, Clause 15.14 RAMS Requirements AND Section 6B: PS-S&TC, Chapter 4, Clause 4.4.4 Service Life	The term "Service Life" in Chapter 4 Clause 4.4.4 refers to "availability", which can be guaranteed only subject to the currency of a valid contiguous AMC contract. We understand that for LTE, the "Service Life" definition and applicability shall be as per NCRTC Reply in Addendum and Corrigendum No. 02B S.No.232 that refers to designed continuous operating life of equipment. Please confirm.	Please follow Bid Conditions
647	II	Section 6C		307/359	Vol-2, Section – 6C: Particular Specifications – Telecommunications PS – Telecommunication – Employer's Requirements: Part 2/Appendix D/Contract spares	Please include the contractual spares required for Appendix Q: wireless System.	Please refer Addendum & Corrigendum-05B
648	II	Section 6C		358	Vol-2, Section – 6C: Particular Specifications – Telecommunications 4.1 The Wireless subsystem shall be designed to sustain all functions needed by the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) applications. The mentioned applications are critical and shall require high availability and reliability. The Wireless system, shall, where possible be based upon COTS products.	We understand that Wireless Subsystem will carry the internet data traffic from Wayside access Point to Onboard Access Point only. Distribution of data and network coverage for Internet services for Passengers using Wi-Fi access points inside the Onboard Salon (refer clause 4.7) and within the Station and Depot Premises is the scope of other contractor. Please confirm.	Please follow Bid Conditions
649	II	Section 6C		356	Vol-2, Section – 6C: Particular Specifications – Telecommunications 1.1.3 The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	MCPTT application requires Voice Over LTE(VoLTE) proptocol for data transmission, whereas, in Wireless Netwrok, there is no provision of VoLTE protocol. We request to remove the tramisission of MCPTT requirement from Wireless System.	Please refer Addendum & Corrigendum-05B
650	II	Section 6C		356	Vol-2, Section – 6C: Particular Specifications – Telecommunications 1.1.3 The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	1. There is no standard reference of Wireless Network being used for ETCS Level2 Signalling requirement. We request to remove the transmission of ETCS Signalling Data from Wireless System.	Please follow Bid Conditions
651	II	Section 6C		356	Vol-2, Section – 6C: Particular Specifications – Telecommunications 1.1.3 The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	As we understand that Wireless System will provide coverage along the mainline track, Test Track and Stabling Lines in Depot only. There will not be any coverage inside station buildings. Also, Station Wi-Fi Internet Services will be a separate Contract without any interface with Wireless System. Please confirm.	Please refer Addendum & Corrigendum-05B
652	II	Section 6C		359	Vol-2, Section – 6C: Particular Specifications – Telecommunications 5.1 The Wireless shall interface with the following subsystems at track side and on-board. 1) On-Board ETCS 2) The TIMS system 3) On-Board CCTV 4) On-Board Infotainment Server 5) Wayside RBC 6) Asset Management System 7) Interface with LTE	As per Row No. 257 of Addendum & Corrigendum-02B, we understand that Wireless System shall be only used for Non-Vital Data i.e. Onboard CCTV and Wi-Fi Internet Services for Passengers. Please keep only below interfaces in the clause - 1) On-Board CCTV 2) Internet Services for Onboard Passengers.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
653	II	Section 6C		356	PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/APPENDIX – Q	Please clarify if interoperability within D-G-M corridor and with future corridors is requirement for wireless network.	Please follow Bid Conditions
654	II	Section 6C		356	1.1.3 The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	Please ammend the clause inline with clarification provided under Row No. 257 of Addendum & Corrigendum-02B.	Please follow Bid Conditions
655	II	Section 6C			There shall be a minimum of 29 IP based camera per train which could be increased. Provision shall be made for displaying a minimum one live stream from a train at OCC. In case where more than one camera from a train is required for live streaming, throughput generated by each camera shall be proportionately reduced (increasing image compression). The display system at OCC should be capable of displaying as many live streams from different trains on the line as the operator wants to see by selecting multiple windows on one or more MMI. The signalling contractor shall provide the CCTV management software for selection and decoding of the incoming data stream for onboard CCTV	Each NCRTC Rolling Stock Train will be of 6/9 cars, how would 1 camera live streaming be sufficient from Train to OCC, Is this requirement only valid in case of failure of Wireless Network and backup LTE system is in use?	Please refer Addendum & Corrigendum-05B
656	II	Section 6C			The network throughput requirement is min 100 Mbps per train at the max operational speed.	Please confirm each AP need to support 200Mbps (to support two trains running in opposite directions)	Please refer Addendum & Corrigendum-05B
657	II	Section 6C			The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	Please explain how MCPTT handheld devices should be supported by the wireless network?	Please refer Addendum & Corrigendum-05B
658	II	Section 6C			The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	Has the 100Mbps per train considered the requirement to support "onboard Passenger Internet data" which has typically high requirement for throughput?	Please refer Addendum & Corrigendum-05B
659	II	Section 6C			There shall be a minimum of 29 IP based camera per train which could be increased. Provision shall be made for displaying a minimum one live stream from a train at OCC. In case where more than one camera from a train is required for live streaming, throughput generated by each camera shall be proportionately reduced (increasing image compression). The display system at OCC should be capable of displaying as many live streams from different trains on the line as the operator wants to see by selecting multiple windows on one or more MMI. The signalling contractor shall provide the CCTV management software for selection and decoding of the incoming data stream for onboard CCTV	Kindly define if there is any priority requirement from the wireless equipment to support CCTV cameras?	Please refer Addendum & Corrigendum-05B
660	II	6C			new Sub-Clause 4.13 in Appendix Q] The wireless radio elements for the train-to-ground communication shall be IP 65 or higher, with or without Enclosure. Onboard antenna should be IP 67 or higher.	All Equipments at Trackside and Train Bound should support Ingress Protection Standard of IP67 or better	Please follow Bid Conditions
661	II	6C			Depot Offload	Is Depot Offload to be planned on Wireless Network and what is the planned capacity?	Please follow Bid Conditions
662	2					Kindly provide KMZ File of the Track Route	Please refer Addendum & Corrigendum-02B & 05B
663	II	6B	PS-S&TC, Chapter 13, Clause 13.4.1	142 of 420	Tenderer shall submit the detailed plan of transfer of technology along with MOU with suitable Indian companies or company having proven track record and are working in related areas for all major systems/ subsystems. The contractor will not impose any technical or commercial condition on the Indian company receiving transfer of technology and this stipulation should be reflected in the MOU as well.	We understand that if Tenderer itself is an Indian company, there is no question or requirement of "MOU with a suitable Indian company". Because that will make no sense. Please do not answer with "Please follow Bid Conditions" or "Please refer Section 6B Chapter 13, Clause 13.4" as these do not answer the Queries related to ToT. Please confirm with 'Yes' or 'No'. And if 'No', please elaborate and provide a suitable justification.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
664	II	6B	PS-S&TC, Chapter 13, Clause 13.4	142 of 420	13.4 Transfer of Technology 13.4.2 TOT shall be essential and shall include installation, and maintenance support. 13.4.2.1 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. 13.4.3 The Contractor shall undertake to supply or make arrangement with the original manufacturer to supply additional equipment required for replacement or expansion of the network in future. 13.4.4 The contractor shall undertake to provide, if required during the life of the equipment ordered, technical assistance in the form of additional drawings, maintenance practices and technical advice.	"Transfer of Technology" (ToT) is a serious matter and needs to be clarified. In our industry "Transfer of Technology" is defined as transfer or movement or flow of technical knowledge, data, designs, prototypes, inventions, software, and/or trade secrets from one organisation to another organisation. The technology transfer process is guided by the policies and values of each respective organisation. Let us be tranparent and be clear on the exact scope and the expectations. Please do not answer with "Please follow Bid Conditions" or "Please refer Section 6B Chapter 13, Clause 13.4" as these do not answer the Queries related to ToT. 1. The term "Transfer of Technology" is not defined in the Bid Conditions and has been used quite loosely. Please confirm the requirement is limited to 'TRAINING' only. 2. Please replace clause 13.4.2. in Section 6B Chapter 13 by "TOT shall be essential but limited to installation, and maintenance support training only."	Please refer Addendum & Corrigendum-05B
665	II	6B	PS-S&TC, Chapter 15, Clause 15.4 (3)	149 of 420	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 be informed that FRMCS Specifications are yet to be finalized for both software and hardware specifications, and sufficient clarity on this matter is not expected before 2023. Thus any features that are finalized later but not implementable using initial hardware supply or software upgrade shall be procured separately by NCRTC through the change request mechanism referred to in clause 13 'Variations and Adjustments' of Section 7: General Conditions of Contract. Please confirm.	Please refer Addendum & Corrigendum-05B
666	II	6B	Addendum and Corrigendum No. 02B S.No. 230 (Section 6B: PS-S&TC, Chapter 15, Clause 15.4 Standards (1))	73 of 83	**S.No. 230** **Modified Document/Form/Clause/Sub Clause:** The product shall be compliant to 3GPP Rel. 15, 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, **on existing Hardware through software upgrade.**	Please be informed that FRMCS Specifications are yet to be finalized for both software and hardware specifications, and sufficient clarity on this matter is not expected before 2023. Thus any features that are finalized later but not implementable using initial hardware supply or software upgrade shall be procured separately by NCRTC through the change request mechanism referred to in clause 13 'Variations and Adjustments' of Section 7: General Conditions of Contract. Please confirm.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
667	II	6B	Addendum and Corrigendum No. 02B S.No.235 (Section 6B: PS-S&TC, Chapter 15, Clause 15.7.1.3 (A))	75 of 83	**S.No. 235** **Modified Document/Form/Clause/Sub Clause:** The Evolved Packet Core (EPC) shall be compliant to the 3GPP Release 15 & 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.	Please be informed that FRMCS Specifications are yet to be finalized for both software and hardware specifications, and sufficient clarity on this matter is not expected before 2023. Thus any features that are finalized later but not implementable using initial hardware supply or software upgrade shall be procured separately by NCRTC through the change request mechanism referred to in clause 13 'Variations and Adjustments' of Section 7: General Conditions of Contract. Please confirm.	Please refer Addendum & Corrigendum-05B
668	II	6B	PS-S&TC, Chapter 15, Clause 15.6.1 (2) - 3(a) and 3(b)	152 of 420	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.	The Bid Conditions do not specify the details critical for accurate network design, please confirm the following: 1. Number of UEs to be supported at the Cell edge in a sector. 2. Peak throughput required by each UE, to be supported at the Cell edge in a sector. 3. Number of Simultaneous Active Users, to be supported at the Cell edge in a sector. Based on global experience and the spectrum available at hand, we recommend: 1. Number of UEs to be supported at the Cell edge in a sector = 2 2. Peak throughput required by each UE, to be supported at the Cell edge in a sector = 2 Mbps (DL), 1 Mbps (UL) 3. Number of Simultaneous Active Users, to be supported at the Cell edge in a sector = (4 ETCS UEs and 4 MC-PTT users and 1 CCTV) Please confirm.	Please refer Addendum & Corrigendum-05B
669	II	6B	Addendum and Corrigendum No. 02B S.No.250 (Section 6B: PS-S&TC, Chapter 15, Clause 15.7.6 (4))	78 of 83	**S.No. 250** **Modified Document/Form/Clause/Sub Clause:** Operating temp range as per clause 6.7.4.1 of chapter 6.	Please be informed that all the commercially available LTE equipment worldwide supports upto +55°C operating temperature, including in hot environmental locations such as deserts, etc. Hence, in order to allow wider participation of LTE OEMs, please modify the maximum operating temperature to +55°C.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
670	II	6B	Addendum and Corrigendum No. 02B S.No.268 (PS-S&TC, Chapter 15, Clause 15.11 (4))	81 of 83	**S.No. 268** **Modified Document/Form/Clause/Sub Clause:** Layer 3 device should comply for following Temperature performance parameters as per clause 6.7.4.1 of chapter 6.	Please be informed that all the commercially available LTE equipment worldwide supports upto +55°C operating temperature, including in hot environmental locations such as deserts, etc. Hence, in order to allow wider participation of LTE OEMs, please modify the maximum operating temperature to +55°C.	Please refer Addendum & Corrigendum-05B
671	II	6B	Addendum and Corrigendum No. 02B S.No.232 (PS-S&TC, Chapter 15, Clause No. 15.5, Sub-clause 15.1.3 (12))	74 of 83	**S.No. 232** **Modified Document/Form/Clause/Sub Clause:** 15.1.3 The proposed solution shall comply with the following: (12) The Handheld, Fixed Radio and Train Radios (Voice + data, Cab LTE Modem & Data Only Radios etc) shall have PTCRB/GCF or equivalent Interoperability certification.	PTCRB/GCF certification seems not applicable for each of these equipment/OEMs and thus we request that a.self-certification of Interoperability also be acceptable, as these equipment are prior tested and validated by us in our labs.	Please follow Bid Conditions
672	II	6B	Addendum and Corrigendum No. 02B S.No.254 (PS-S&TC, Chapter 15, Clause No. 15.7.11 (2))	79 of 83	**S.No. 254** **Modified Document/Form/Clause/Sub Clause:** 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 and the contractor is expected to provide a roadmap for the same.	As per the clarification received from NCRTC, the standards of 3GPP release, which Bidder needs to comply with is 3GPP Rel 15. However, in this clarification, it is mentioned as 3GPP Rel 16. Request you to amend this clause to 3GPP Rel.15.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
673	II	6B	PS-S&TC, Chapter 4, Clause 4.3.9	25 of 420	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
674	II	6B	PS-S&TC, Chapter 4, Clause 4.4.2.3	25 of 420	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 that 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 refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
675	II	6B	Section 6B: PS-S&TC, Chapter 15, Clause 15.14 RAMS Requirements AND Section 6B: PS-S&TC, Chapter 4, Clause 4.4.4 Service Life	193 of 420	15.14 RAMS Requirements Please refer to chapter 4 of this Tender. Chapter 4, Clause 4.4.4. Service Life 4.4.4.1. All components, materials, software and other support required to repair and service all Train Control and Signalling System shall be available for at least 20 years from the Employer's Taking over of the Works or Section. The exception to this shall be the central control equipment, which shall be available for at least 10 years from the Employer's Taking over of the Works or Section, except the monitors, key boards, DMI which shall be available for at least 7 years.	The term "Service Life" in Chapter 4 Clause 4.4.4 refers to "availability", which can be guaranteed only subject to the currency of a valid contiguous AMC contract. We understand that for LTE, the "Service Life" definition and applicability shall be as per **NCRTC Reply in Addendum and Corrigendum No. 02B S.No.232** that refers to designed continuous operating life of equipment. Please confirm.	Please follow Bid Conditions
676	II	6A	3.7.4.2	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 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 programmed.	Please refer Addendum & Corrigendum-05B
677	II	6B	A&C 2B	74	Addendum and Corrigendum No. 02B Sr. No 232 -15.1.3 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. for the equipment (excluding Servers & workstations) For Servers & workstations it shall be 10 years.	Please note the maximum life of IT equipment's like servers and workstations is typically 3-5 years. Hence service life for these equipment's can only meet for 3-5 years, post which these are to replaced with equipment's meeting similar functionalities and requirements.	Please follow Bid Conditions
678	II	6B	7.6	394	Appendix O 7.6 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
679	II	6B	15.6.1	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 refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
680	II	6B	4.3.9	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
681	II	6B	11.8.4	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
682	II	6B	15.6.5 (5)	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
683	II	6B	15.6.2 (1)	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. Additional DG set need to be catered for meeting the requirement by NCRTC	Please follow Bid Conditions
684	II	6B	15.7.2 (i)	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 refer Section 6B Clause No 6.7.3
685	II	6B	15.7.4.1 (11	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.	Do you have to do a separate test here? Is it to be demonstrated before or in the project?	Please Refer Clause 8.8.4.10
686	II	6B	15.7.10	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
687	II	6B	15.8.1 (10)	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
688	II	6C	1.1	356	**1.1 Wireless Network :The requirements for the wireless network .** Employers requirement Part -2 overlap the requirements of LTE network in the document . (Employer's Requirement: Part 2, Section 6B: PS-Signalling and Train control) is the described wireless network system intended as a fallback for LTE?	We understand that this wireless network must not be an LTE network. Is this true ?	Please follow Bid Conditions
689	II	6C	1.1.3	356	**1.1.3 : Wireless Network:** The primary task of the Wireless is to seamlessly convey bi-directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains"	1. Please provide details on the number of Stabling lines are there. 2.Can the MCPTT be software based ? For example Application on the mobile device	Please refer Addendum & Corrigendum-02B & 05B
690	II	6C	1.1.3	358	**1.1.3 :** The Passenger internet data is required.	**Clause:4.10** Please Clarify Passenger internet is in our scope or not ?	Please follow Bid Conditions
691	II	6C	5.1 (7)	359	**5. Interfaces : 5.1 (7) :** Interface with LTE Subsystem for VOIP on the handheld Terminals and Dispatchers.	Please clarify and explain us the purpose of this interface.	Please refer Addendum & Corrigendum-05B
692	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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
693				158	15.6.3- IoT: Remote monitoring of Railways asset to improve their availability	1. Please suggets, how many 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
694						1. Please suggest, how many total users need to be configured for HSS/MCPTT/EPC. 2. Total SIM requirements mentioned in the SOR is 800 for this Corridor. Please confirm that there would be 800 users as per SOR.	Please follow Bid conditions
695				179	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 note that the current architecture does not support SMS.	Please refer Addendum & Corrigendum-05B
696				179	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 note that the current architecture does not support SMS.	Please refer Addendum & Corrigendum-05B
697						We understand that OCC in Jangpura will be ready in 2024. Please clarify how the Geo-redundant equipment for the project will be deployed at the launch in 2023.	Please follow Bid Conditions
698				189	15.7.13 (15)	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
699					General	please specify requirement of Charging Gateway for P/S GW with Raw Cdrs Storage duration	Please follow Bid Conditions
700					General	please specify requirement of Mediation Server with Network elements for which Cdrs to be stored and Cdrs Storage duration	Please follow Bid Conditions
701				165	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 refer Addendum & Corrigendum-05B
702				152	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
703					General	Is there any need to have certificate Authority based secure communciation implementation between eNodeB and Trasnport via IPSec ? This will avoid any non authorized BTS/Site hacking	Please follow Bid Conditions
704				Page 190 of 420	Addendum and Corrigendum No. 02B - Dated 16.06.2020 - Employers Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter 15, Clause 15.9 (5) Wireless connectivity, sub clause (i) 3GPP Release 15 and upgradable to FRMCS	All the handsets available in the market are rel 12 compliant only. The upgrade to rel 15 will require change in the complete chipset, which is currently not available. Normalize the clause to rel 12 or lower to support the handset requirements.	Please refer Addendum & Corrigendum-05B
705				Page 191 of 420	Addendum and Corrigendum No. 02B - Dated 16.06.2020 - Employers Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter 15, Clause 15.9 (11) Certifications, sub clause (ii) FCC, CE, NOM or equivalent certifications.	The NOM certification is for Mexico only. Please suggest the equivalent certification for India	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
706				111	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control. 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.	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 Elemnsts 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
707				178	Bid Document No: Package 24 Part-2 Section -6B: Particular Specifications: Signalling and Train Control. 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 follow Bid Conditions
708					Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6B: PS-Signalling and Train control, Chapter 15, Clause 15.4 Standards (1) The product shall be compliant to 3GPP Rel. 1615, 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, **on existing Hardware through software upgrade.**	Since FRMCS standards are not frozen and technical requirements are not clear, we request FRMCS support to be provided with requisite HW & SW.	Please refer Addendum & Corrigendum-05B
709				172	Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6B: PS-Signalling and Train control, Chapter 15, Clause No. 15.7.6 (4) Operating temp range: 0°to +70°Celsius	As per ETSI EN 300 019-1-3 Operating temp range of Indoor Telecom products is -5°to +45°Celsius and as per ETSI EN 300 019-1-4 Operating temp range of Outdoor Telecom products is -40°to +55°Celsius. Request to follow ETSI recommendation for Telecom Products.	Please refer Addendum & Corrigendum-05B
710					Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6C: PS-Telecommunication, Appendix Q Clause 4.12 Add the following new clause (4.12.2) in clause 4.12 in PS] All outdoor equipment shall be IP66 or higher	Request to maintain Outdoor Telecom product compliance to IP65 as initally in the RFP.	Please follow Bid Conditions
711				75	Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter 15, Clause No. 15.7.1.3 The EPC shall have provisioning system that should be able to configure service parameters and acts as a central repository of data, along with HSS provisioning for quick integrations with another core network vendor, for other RRTS corridors	The provisioning System is not part of the EPC as the central provisioning and central data repository function handled by HSS. HSS can be centralised and can integrate with another core network vendor over 3GPP Standard interfaces for usage in other RRTS Corrdors. Alternatively, HSS can be placed at two sites in full redundancy with common DB. Please confirm can we consider the HSS proposed as the provisioning system for EPC Network	Please follow Bid Conditions
712				77	Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter 15, Clause No. 15.7.1.17(P) The PCRF shall provide a direct interface towards MMESGW that will enable the launch of added value use cases.	PCRF supports Gx interface to PCEF function i.e. PGW in case of LTE-EPC. Please confirm if we need to support Gx interface between PCRF and PGW. Please confirm the clause referring to PGW in place of SGW	Please refer Addendum & Corrigendum-05B
713				76	Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter 15, Clause No. 15.7.11 [Add the following new Sub Clause (H) in Clause No. 15.7.11 in PS] H. Support of content screening, white-lists and blacklists	The Content screening depends on the DPI Database detection capabilities and readiness to screen the content. PGW supports blaclisting and whitelisting of content, traffic, web sites through Deep pcket Inspection. Please clarify the type of content to be screened and does the whitelist and blacklist to be applied for web URL.	Please refer Addendum & Corrigendum-05B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
714				79	Addendum and Corrigendum No. 02B - Dated 16.06.2020 Employers Requirement Part-2, Section 6B: PSSignalling and Train control, Chapter 15, Clause No. 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 contract	please confirm if the 3GPP release 16 or release 15 to be considered. As mentioned in several places in the response to Pre-bid queries R16 is replaced by R15.	Please follow Bid Conditions
715				Annex and Addendum	Annexure to Technical proposal and Addendum	**Availability of Design Manager (LTE):** To be mobilized Within 1 month from Commencement Date of work full time till completion of project. We feel that Design Manager is not required for full time till completion of project and request to amend as bidders to consider as per own requirement and only to Design phase. Such experts are expensive for such long duration **Testing and Commissioning Engineer In charge (LTE) :** To be posted at site at least 2 months before start of S&TC system installation and upto six months after commissioning of last section - We feel the duration of requirement is too long and suggest to amend as required during testing and commisioning period	Please follow Bid Conditions
716	2			Part 2, Section 6C, Page 239, Clause 7.2.16	The DTS networks serving the rail subsystems shall not be connected to the internet.	We do understand that OA-IT network is converging on to common Distribution Switch & OCC/BCC Core Switches mentioned in Data Transmisson System. Please confirm if our understanding is correct.	Please follow Bid Conditions
717	2			Part 2, Section 6C, Page 239, Clause 7.2.17	The DTS shall also serve as the backbone connectivity for Wi-Fi system.	Considering wi-fi network is being used for Internet connectivity, Clause 7.2.16 contradicts this clause. Kindly confirm if there is a common network at Distribution & Core Switches.	Please follow Bid Conditions
718	2			Part 2, Section 6C, Page 239, Clause 7.2.19	The DTS shall be from a proven OEM with previous implementation in a Railway/ Mass Rapid Transit System (MRTS) project, apart from being cost effective shall be scalable considering the Operation, Administration and Maintenance of the rail network, with state-of-art technology.	Request to modify as: The DTS shall be from a proven OEM with previous implementation in a Railway/ Mass Rapid Transit System (MRTS)/Critical Network project, apart from being cost effective shall be scalable considering the Operation, Administration and Maintenance of the rail network, with state-of-art technology.	Please follow Bid Conditions
719	2			Part 2, Section 6C, Page 245, Clause 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 trendanalysis, and maintenance. This monitoring system shall provide facilities tohandle filing, storage, display, and printing of historical records.	By SDN, we infer that Management system of DTS network should support REST API interfaces on North Bound from Day 1. Kindly confirm.	Please refer Addendum & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
720	2			Page 252, Part 2, Section 6C, 7.6.2.4	1) Core Layer (i) OCC and BCC shall serve as the core layer of the DTS. (ii) The OCC and BCC shall each be equipped with Carrier Grade Core Switch of 40G in active-active redundancy and operate as one logical Layer 3 switch.	We understand that bidder has to provide two Switches configured with Active-Active redundancy for High Availability at OCC location as well as BCC location which should meet the interfaces mentioned in Clause 7.7.1. Please confirm	Please follow Bid Conditions
721	2			Page 256, Part 2, Section 6C, 7.7.1		Please note that as per network architecture (7.6.2.1 at Page 251 Part 2, Section 6C) Core Switch is hosting 4 nos of 10G Rings. Hence forming only 40G connectivity between OCC and BCC is too limited for any expansion. So we request you to revise physical interface requirements at Core Switch from 40G to 100G interface. Kindly confirm	Please follow Bid Conditions
722	2			Page 256, Part 2, Section 6C, 7.7.1		Access Switches of CCTV, PIDS-PAS would be terminating on to Distribution Switch, hence 1G(Optical) ports should be more than 4. We recommend to revise the number of Gig optical ports to 20 Qty. Moreover Layer 3 Switch required as per Annexure 2, Schedule 7, Financial Bid is 48 Port Switches. Our understanding is 24xGig(optical), 24x10/100/1000 Base T and 4 x10GE ports is required to be offered for Layer 3 Distribution Switch. Kindly confirm.	Please follow Bid Conditions
723	2			Page 257, Part 2, Section 6C, 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.	We understand that bidder has to provide two Switches configured with Active-Active redundancy for High Availability at OCC location as well as BCC location which should meet the interfaces mentioned in Clause 7.7.1. Chassis based Switch Architecture doesn't provide HA redundancy & upgradability as compared to two switches in Active-Active Mode.Kindly confirm.	Please follow Bid Conditions
724	2			Page 252, Part 2, Section 6C, 7.6.2.4	The OCC and BCC shall be equipped with server farm switches in active-active redundancy and shall operate as logically one layer 3 switch. All sub-system servers shall be dual homed on server farm switches	We understand that bidder has to provide two Switches configured with Active-Active redundancy for High Availability at OCC location as well as BCC location which should meet the interfaces mentioned in Clause 7.7.1. Please confirm	Please follow Bid Conditions
725	2			Page 257, Part 2, Section 6C, 7.7.1.1	Core Switch Architecture: (ii) Number of Slots - Minimum of 6 slots	We understand that Chassis based Architecture for Core Switch is not a mandatory requirement as bidder can offer either 2 switches in Active-Active mode or Slot based architecture meeting the RFP interface requirements. Kindly confirm.	Please follow Bid Conditions
726	2			Page 257, Part 2, Section 6C, 7.7.1.1	Core Switch Architecture: (ii) Number of Slots - Minimum of 6 slots	For the bidder offering Chassis based Architecture, minimum number of slots should be 12 Slots so as to accomodate the future interface requirements also.Kindly confirm.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
727	2			Page 245 Part 2, Section 6C,7.5.3.2	The DTS network shall be based on a highly modular, diverse redundant architecture to facilitate easy maintenance and upgrading, and to minimize the chances of a breakdown occurring due to common mode failures or effects.	We understand that bidder has to provide two Switches configured with Active-Active redundancy for High Availability at OCC location,BCC and Distribution Switches which should meet the interfaces mentioned in Clause 7.7.1. Kindly confirm	Please follow Bid Conditions
728	2			Page 248 Part 2, Section 6C,7.5.5.3.1.1	Type approved by TRAI (Telecom Regulatory Authority of India) for network interconnection and compliant with Indian regulatory requirements;	Please confirm if it means that the Product or any of the product in its family should be TSEC approved by BSNL QA. Kindly confirm	Please follow Bid Conditions
729	2			Page 249 Part 2, Section 6C,7.5.5.3.2 .2	IP network consists of routers/switches and support end-to-end packetbased synchronization, so packet-based synchronization techniques are required to be implemented in order to deliver synchronization signals across IP networks to various devices at network edge.	Please confirm if the network would be using PTP or NTP for time-of-day synchronization.	Please follow Bid Conditions
730	2			Page 249 Part 2, Section 6C,7.5.5.3.2 .4	The core DTS equipment shall support Ethernet synchronization preferably SyncE to IEEE 1588V2 standard/NTP. The synchronization shall have frequency as well as phase synchronization/NTP Server and Client functionality.	We understand that the network would be using either PTP or NTP for time-of-day synchronization. Kindly confirm.	Please follow Bid Conditions
731	2			Page 250 Part 2, Section 6C,7.5.5.3.3.1	Network Time Protocol (NTP) and Precision Time Protocol (PTP) are two packet-based protocols for delivery of end-to-end time-of-day synchronization across IP networks.	We understand that the network would be using either PTP or NTP for time-of-day synchronization. Kindly confirm.	Please follow Bid Conditions
732	2			Page 252 Part 2, Section 6C,7.6.2.4.2 (Distribution and 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.	1. Please specify if Industrial grade switches required PoE/PoE+ Ports. 2. Please specify the Quantity of these switches as same is not mentioned in Annexure 2, Financial Bid. Kindly specify 3. There is already mention of 24 Port Industrial grade Switch with PoE/PoE+ in CCTV Section. We request you to unify the requirement of industrial grade switches as 24 Port Switches only.Kindly confirm.	Please follow Bid Conditions
733	2			Page 252, Part 2, Section 6C,7.6.2.4.2 (Distribution and 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.	Our understanding is that CCTV will not connect to this switch. Kindly confirm if the understanding is correct.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
734	2			Inter band Carrier Aggregation: The contractor shall support inter and intra band carrier aggregation. All combinations specified by 3GPP shall be supported.	15.7.3.1 (1)	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
735	2			Application permission firewall	15.9 (4) (ii)	This feature is not required and not supported. Request to remove this clause.	Please follow Bid Conditions
736	2			Encrypted mass memory ›› Tampering detection ›› PGP encrypted email	15.9 (4) (iv)	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 & Corrigendum-02B
737	2			Remote attestation	15.9 (4) (viii)	This feature is not avaialble with most vendors. Hence request to remove.	Please follow Bid Conditions
738	2			3GPP Release 16 and upgradable to FRMCS.	15.9 (5) (i)	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 & Corrigendum-02B

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
739	2			Dual SIM with Active Standby (One SIM for NCRTC Captive usage LTE Network and another SIM for MVNO Network)	15.9 (5) (ii)	This feature is not avaialble with most vendors. Hence request to remove.	Please refer Addendum & Corrigendum-02B
740	2			Certifications - FCC, CE, PTCRB, GCF, NOM	15.9 (11) (ii)	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 & Corrigendum-02B
741	2			S.no 6.5.3.1.1 page 18 of 46	Section 6C_Particular Specification _ Telecommunication(140420) 1300 (1), S.no 6.5.3.1.1	As per this clause, calll server one will be placed at OCC & other will be placed at BCC. As in server based IP PBX system, the entire telephony is handled by the call server hence total number of equipped license is 3760 and must be present in occ as well as BCC which is not mentioed in the technical doc & in BOQ. From the BOQ it looks like multiple independent systems at various station/OCC/BCC/HQ/depot are being interconnected on ip network & server at OCC & BCC has no much role to play for functioning of the IP PBX system. Kindly clarify the architecture along with number of server for complete solution.	Please follow Bid Conditions
742	2			S.NO 3, PAGE 20 of 46	Section 6C_Particular Specification _ Telecommunication(140420) 1300 (1), S.NO 3	As mentioned in tender only 2 servers are to be supplied, one for OCC & the other fo BCC.but here OCC/BCC/HQ is mentiond which is contradictory to the statement of clause 6.5.3.1.1, kindly clarify.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
743	2			Display of CCTV images from Train to OCC	6B 5.41	Kindly confirm which type of equipment to be used for carrying CCTV images from Train to OCC - Section 6B states LTE while Section 6C states ISM Band Wireless Network (and not LTE network) Justification Wireless Radios support Asymmetric Uplink/Downlink Bandwidth and greater flexibity for Real time CCTV surveillance compared to LTE Based Radios which are mainly suited for downlink application and not uplink, hence request department to consider "Wireless Radios for carrying CCTV Traffic from Train to OCC, is the best fit technology being used in Metro Rail Projects globally including India"	Please follow Bid Conditions
744	2			There shall be provision at OCC for displaying video images from the onboard CCTV cameras provided on each train as selected by the OCC operator	6B 5.41.1	Kindly confirm which type of equipment to be used for carrying CCTV images from Train to OCC - Section 6B states LTE while Section 6C states ISM Band Wireless Network (and not LTE network) Justification Wireless Radios support Asymmetric Uplink/Downlink Bandwidth and greater flexibity for Real time CCTV surveillance compared to LTE Based Radios which are mainly suited for downlink application and not uplink, hence request department to consider "Wireless Radios for carrying CCTV Traffic from Train to OCC, is the best fit technology being used in Metro Rail Projects globally including India"	Please follow Bid Conditions
745	2				6B 5.41.2 The onboard cameras shall be provided by the Rolling Stock contractor. Rolling stock contractor and signalling contractor shall interface for control and data transfer of CCTV images from the train to OCC/SCC on the Operational screen. The hardware interface shall be furnished and installed by RS Contractor. The CCTV signal shall be provided by RS contractor at a suitable port to signalling contractor for transmission	Kindly confirm which type of equipment to be used for carrying CCTV images from Train to OCC - Section 6B states LTE while Section 6C states ISM Band Wireless Network (and not LTE network) Justification Wireless Radios support Asymmetric Uplink/Downlink Bandwidth and greater flexibity for Real time CCTV surveillance compared to LTE Based Radios which are mainly suited for downlink application and not uplink, hence request department to consider "Wireless Radios for carrying CCTV Traffic from Train to OCC, is the best fit technology being used in Metro Rail Projects globally including India"	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
746	2				6B 5.41.3 The signalling contractor shall provide the radio infrastructure for transmission of CCTV images from the train to OCC/SCC/DCC. 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. The compression algorithms and frame transfer rate shall be put up to Employer's engineer for review	Kindly confirm which type of equipment to be used for carrying CCTV images from Train to OCC - Section 6B states LTE while Section 6C states ISM Band Wireless Network (and not LTE network) Justification Wireless Radios support Asymmetric Uplink/Downlink Bandwidth and greater flexibity for Real time CCTV surveillance compared to LTE Based Radios which are mainly suited for downlink application and not uplink, hence request department to consider "Wireless Radios for carrying CCTV Traffic from Train to OCC, is the best fit technology being used in Metro Rail Projects globally including India"	Please follow Bid Conditions
747	2				6B 5.41.4 There shall be a minimum of 29 IP based camera per train which could be increased. Provision shall be made for displaying a minimum one live stream from a train at OCC. In case where more than one camera from a train is required for live streaming, throughput generated by each camera shall be proportionately reduced (increasing image compression). The display system at OCC should be capable of displaying as many live streams from different trains on the line as the operator wants to see by selecting multiple windows on one or more MMI. The signalling contractor shall provide the CCTV management software for selection and decoding of the incoming data stream for onboard CCTV	Each NCRTC Rolling Stock Train will be of 6/9 cars, how would 1 camera live streaming be sufficient from Train to OCC, also kindly refer clause 5.41.5 below where 40 live streams to be viewed simultaneously on MMI Justification For Real time video surveillance and safety as well as security of women passengers in the Train all the 29 cameras should have the possibility for live streaming in case of incident from Train to OCC, hence we request department to consider "live stream of all the cameras from each car of the Train to OCC".	Please follow Bid Conditions
748	2				6B 5.41.4 There shall be a minimum of 29 IP based camera per train which could be increased. Provision shall be made for displaying a minimum one live stream from a train at OCC. In case where more than one camera from a train is required for live streaming, throughput generated by each camera shall be proportionately reduced (increasing image compression). The display system at OCC should be capable of displaying as many live streams from different trains on the line as the operator wants to see by selecting multiple windows on one or more MMI. The signalling contractor shall provide the CCTV management software for selection and decoding of the incoming data stream for onboard CCTV	Kindly define if there is any priority requirement for cameras? Justification In case of a security incident, traffic should prioritize relevant data needed to address the incident. In this case, it should be able to provide priority to IP cameras so Real time video surveillance and safety will always be delivered prior to other traffic.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
749	2			(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	6B 15.6.1	CCTV traffic requires higher uplink, to transfer the information from the Train to the OCC. Shouldn't the uplink be much higher compared to downlink (assuming Wi-Fi which may be best effort)? Justification Wireless Radios support Asymmetric Uplink/Downlink Bandwidth and greater flexibity for Real time CCTV surveillance compared to LTE Based Radios which are mainly suited for downlink application and not uplink, hence request department to consider "Wireless Radios for carrying CCTV Traffic from Train to OCC, is the best fit technology being used in Metro Rail Projects globally including India"	Please follow Bid Conditions
750	2			Frequency 700MHz for LTE	6B 15.6.1	Justification 700MHz is FDD based LTE and not TDD based LTE, which is license band in India and NCRTC will incure recurring cost of license fee and in 5Mhz CBW if taken is only suitable for CBTC/Signalling application and not bandwidth centric CCTV application	Please follow Bid Conditions
751	2					KMZ File of the Route is not providsed, Kindly provide for frequency planning	Please refer Addendum & Corrigendum-02B & 05B
752	2				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
753	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/Appendix Q	As per appendix Q, 1.1.3,bidder requested for wireless network for bi-directional train-to ground data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations). Please clarify the use case of the Wireless Radio system since LTE networks (LTE NCRTC , LTE MVNO) is already carrying the required information. Also the proprietary wireless systems do not support MCPTT technologically making the overall requirement highly cost inefficient. We request you to remove the Appendix Q	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
754	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/Appendix Q	Bidder requests to confirm if this new radio infrastructure on ISM band is to be considered a replacement of one of the LTE radio network (LTE NCRTC , LTE MVNO) or is this a third radio bearer ? Since we already have two radio LTE networks, a third network on ISM band is not required. Kindly confirm & remove the requirement	Please follow Bid Conditions
755	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/Appendix Q	Bidder requests NCRTC to kindly update the table below reporting for the expected routing in nominal mode and in degraded modes (1 to 3). Please help us know which bearer will route which data in all scenarios.	Please follow Bid Conditions
756	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/Appendix Q 1.1.2	As per Part II A/ P24 Part-2/ Section 6C_Particular Specifications_Telecommunication / CH- 7/ CLAUSE NO. 7.2.17 - DTS shall also serve as the backbone connectivity for Wireless network system. Request NCRTC to clarify if the same connectivity (i.e. optic fiber (144 core) & the switching equipment) is to be provided also for Wireless system?	Please follow Bid Conditions
757	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/Appendix Q 1.1.3	MCPTT function not defined in 802.11 standard wireless technologies that are deployed in 2.4 Ghz & 5.8 GHz free bands, Bidder requests NCRTC to note this & remove this requirement.	Please refer Addendum & Corrigendum-05B
758	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/Appendix Q 2.1.1	Please specify the wireless system standards to be followed, Should we assume it is 802.11n or kindly share the relevant standards applicable.	Please follow Bid Conditions
759	2				PS – Telecommunication – Employer's Requirements: Part 2 Chapter – 11 Appendices/APPENDIX – Q 2.3.3	Considering 100MBPS throughput requirement per train, VPN technology will reduce the over all throughput and roaming perfromance of wireless system, we request you to remove VPN requirement.	Please follow Bid Conditions
760	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
761	2			Page 356 of 359	Section 6B: PS-Telecommunication, APPENDIX – Q WIRELESS NETWORK, 1.1.3 The primary task of the Wireless is to seamlessly convey bi- directional train-to-ground and vice-versa data communication (vital and non-vital) for the ETCS Signalling Data, MCPPT Handheld Devices, TIMS, On-Board CCTV video and Passenger Internet data (Both On-Board Passengers and Passengers at Stations) throughout the RRTS Corridor including Mainline, stations, Depots, test tracks and stabling lines for all trains.	Purpose for signalling data is not elaborated and from where the signalling data will be provided to wireless system.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
762	2			Page 356 of 359	Section 6B: PS-Telecommunication, , APPENDIX – Q WIRELESS NETWORK, 1.1.5 The network throughput requirement is min 100 Mbps per train at the max operational speed.	Criteria to derive the required bandwidth is not provided ?	Please follow Bid Conditions
763	2			Page 357 of 359	Section 6B: PS-Telecommunication, APPENDIX – Q Security Management,2.3.4 Passenger Wi-Fi services shall not disrupt transmission of mission critical data (Signalling, Voice etc) in any scenario. Signalling Data and MCX data will have priority over passenger internet.	Does it mean there will be a common radio for signalling data & other non vital data.	Please follow Bid Conditions
764	2			Page 358 of 359	Section 6B: PS-Telecommunication, , APPENDIX – Q GENERAL ARCHITECTURE DESCRIPTION "4.2 The Wireless shall as a minimum perform the following monitoring: 1) Monitor device status"	Does it mean that NMS is required to monitor the wireless network ?	Please follow Bid Conditions
765	2			Page 358 of 359	Section 6B: PS-Telecommunication, , APPENDIX – Q GENERAL ARCHITECTURE DESCRIPTION 4.7 Three On-Board Wi-Fi access points for passenger wi-fi shall also be provided in each salon (which is not in scope of this tender).	What is requirement on telecom for this interface.	Please follow Bid Conditions
766	2			Page 358 of 359	Section 6B: PS-Telecommunication, , APPENDIX – Q GENERAL ARCHITECTURE DESCRIPTION 4.12.1 All Switches shall be monitored by the Wireless Administration System through SNMP or a similar network management software package.	Where this system is going to be installed & who'll provide the system	Please follow Bid Conditions
767	2			Page 359 of 359	Section 6B: PS-Telecommunication, , APPENDIX – Q Interfaces "5.1 The Wireless shall interface with the following subsystems at track side and on-board. 1) On-Board ETCS 2) The TIMS system 3) On-Board CCTV 4) On-Board Infotainment Server 5) Wayside RBC 6) Asset Management System 7) Interface with LTE Subsystem for VoIP on the Handheld Terminals and Dispatchers."	which appendix to refer to check the interface requirements. There are no details available for any interface in appendix Q	Please refer Addendum & Corrigendum-02B
768	2			Page no. 92 of 420	Section 6B PS S&TC The end-to-end users of the radio system for sending and receiving the data for (a) control, (b) alarm, (c) events, (d) special messages/ advertisements (incl. video) to be displayed on Passenger Information System.		Please follow Bid Conditions
769	2				6C 1.1.5	Should the design consider 200Mbps per base station as minimum? Justification Considering more than one train may be passing each other (different directions) on the same time connected to the same base.	Please refer Addendum & Corrigendum-05B
770	2				6C 7.2.17	What is the planned capacity for the Wi-Fi system Justification As Wi-Fi connectivity/requirements is increasing every year (with high capacity applications and streaming), a planned high capacity network with future proof high capacity should be designed.	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
771	2					What kind of services NCRTC will like to run on free band Wireless Radio Network	Please follow Bid Conditions
772	2					Average Distance between Stations	Please follow Bid Conditions
773	2					ISM Band Spectrum to be used 2.4Ghz/5Ghz Justification India Metro has recently approved use of 5.250Ghz - 5.350Ghz and 5.470Ghz - 5.725Ghz for VTS/CCTV real time in accordance with WPC GSR 1048 (E) issued in Oct 2018 and also 2.4Ghz will not be suitable in cities due to congestion/interference as 2.4Ghz Based WiFi APs are widely used by Residentai Society and Shopping Malls	Please refer Addendum & Corrigendum-05B
774	2					Number of Trains (RRTS & MRTS) - RFP mentions RRTS (6 - 9 cars) and MRTS (3 cars) on the same Route	Please follow Bid Conditions
775	2					Kindly advise with availability of IP Network onboard	Please follow Bid Conditions
776	2					Kindly advise with availability of Single or Dual Tunnel in the 14Km underground section	Please follow Bid Conditions
777	2					Distance Between Trackside Base Stations be 500mtrs or more Justification Distance between Trackside Base Stations of 500mtrs or more will ensure reduced CAPEX costs for Track side equipment and further lowering the OPEX costs for year on year maintenance & operations (less equipment overall)	Please follow Bid Conditions
778	2					The Radio System should be scalable to take WiFi service in future which will require high throughput per train Justification The Radio System for Train to Ground Communication should be scalable which will enable to carry additional Traffic for addiding more telecom packages	Please follow Bid Conditions
779	2					Support up to 300,000 PPS Justification Support for Higher PPS enables transmission of higher data and video packets in lower channel size	Please follow Bid Conditions

Replies to Pre Bid Queries-2B

Sr. No.	Part	Section	Clause No.	Relevant Page No.the bid document	Complete Description of Clause	Queries by the bidder	Replies
780	2					Radio should be IP67 Justification Suited for outddor deployment to work in all weather conditions	Please refer Addendum & Corrigendum-02B
781	2					Radio should be asymetric 80% - 20% traffic either direction Justification Wireless Radios support Asymmetric Uplink/Downlink Bandwidth and greater flexibity for Real time CCTV surveillance	Please follow Bid Conditions
782	2	Section-6C/Chapter 5/157			5.4.1.3 The OEM shall have implemented end to end CCTV solution in minimum 3 Indian metro environment.	The criteria may kindly be modified to include OEM(s) who have implemented IP cameras for any public departments, Government departments,City surveillance projects,Smart city projects tendered by Municipal corporations & its Institutions,Police Departments,Public sector banks etc. The above modifications will result in wider and healthy competition to the benifit of NCRTC.	Please refer Addendum & Corrigendum-02B
783	2	Section-6C/Chapter 5/168			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	128G/256G is the standard SD card for all IP cameras available with all OEMs. Request you to Kindly change this clause to128G/256G SD Card	Please refer Addendum & Corrigendum-02B
784	2	Section-6C/Chapter 5/168			5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): Camera Features:Analog video out	Analog video out is not required for IP cameras, first generation ip cameras used to have the analog video out to help Installers use onsite CRT monitors to determine angles, this is an obsolete practice and favours a particular OEM that still carries this unnecessary feature. Kindly amend this clause	Please follow Bid Conditions
785	2	Section-6C/Chapter 5/168			5.6.2.6 High Definition IP Fixed Box Camera (Day/Night): Camera Features:Auto back focus	Box camera works in a field of view (FOV) environment for surveillance,hence auto back focus(ABF) not required. Kindly amend the clause accordingly.	Please follow Bid Conditions
786	2	Section-6C/Chapter 5/171			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	128G is the standard SD card for all IP cameras available with all OEMs. Request you to Kindly change this clause to128G SD Card	Please refer Addendum & Corrigendum-02B
787	2	Section-6C/Chapter 5/170			5.6.2.7 High Definition IP Fixed Dome Camera (Day/Night): Camera Features:Analog video out	Analog video out is not required for IP cameras, first generation ip cameras used to have the analog video out to help Installers use onsite CRT monitors to determine angles, this is an obsolete practice and favours a particular OEM that still carries this unnecessary feature. Kindly amend this clause	Please follow Bid Conditions

Note- Pending Queries shall be replied shortly