

Clarifications to Bidder's queries
CMRL / PHASE – II / SYS / ASA07 / 2021
27-01-2022

SN	Part	Section	Clause	Original Bid condition	Bidder's query	Reply
1	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	3.5.1.1(i)	The Contractor shall provide a complete radio control system including all the interfacing software and hardware for the interface with the cab simulator computer (during acceptance tests in the factory/depot).	Please share precise BOQ required from TETRA Radio System supplier w.r.t. Clause 3.5.1.1(i).	One set of device for simulating and testing all Tetra Interface scenarios including Signalling ,Rolling stock at Wayside,OCC and onborad.All inputs required for testing the Interface shall be simulated by the System.
2	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	16.1.6.1	RS, STC, Telecom TETRA and PSD contractors shall jointly setup an integrated test bed at CMRL premise to arrange for the integration testing of various subsystems, as a minimum but not limited to ATS, ATO, on-board CCTV management system by signalling contractor, On-board passenger information system, on-board driver display units, TCMS, On-board NVR,RTR-DMS by RS contractors, station passenger information systems etc of the Telecom contractors. The test bed shall have provision for testing the actual softwares over the actual hardware. Necessary train running mimicking simulator shall be provided by the SIG contractor to simulate a train running. RS contractors shall provide necessary simulators to simulate various failure and operational scenarios in the TCMS pertaining to the Interface data.	We understand that w.r.t. Clause- 3.5.1.1(i)/SECTION VI - B PARTICULAR SPECIFICATIONS, mockup Train Radio (Qty:01) is required for Test Bed. Please confirm understanding is correct.	One set of device for simulating and testing all Tetra Interface scenarios including Signalling ,Rolling stock at Wayside,OCC and onborad.All inputs required for testing the Interface shall be simulated by the System.
3	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	3.1.1.3	Base station controllers (BSC) and base trans-receiver stations (BTS) located along the three corridors, connected to the OCC and BCC through the Communication Backbone network (CBN), optical fibre based.	We understand that FOTS/CBN subcontractor of CMRL Telecommunication package will provide optical fibre based Communication Backbone network (CBN) for connectivity of Base station controllers (BSC) and base trans-receiver stations (BTS) located along the three corridors with OCC and BCC and any other ethernet/optical connectivity. Please confirm understanding is correct.	1. Up links to OCC/BOCC will be provided in every station by the Telecom Contractor. The core switching network (RCW,CAD/MSO/Recorder/Router/Gateways/other Tetra equipmen) in OCC and BOCC for Tetra equipments shall be in the scope of ASA-07. 2. 8 core of Dark fiber will be allocated for Tetra in each 144 Core FO cable and will be made available in Communication equipment room.
4	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	16.3.4, e	RADIO with Telephone System (TEL) – ii) For extending Fire Brigade users of CMRL portable radios to Fire Control through CMRL PABX. iii) For extending Police users of CMRL portable radios to Police Control through CMRL PABX.	We understand that Police and Fire Brigade users will be using only CMRL portable TETRA radios for calling their respective control rooms through CMRL PABX in "Chennai Metro Rail Project – Phase II" radio network . Please confirm understanding is correct.	Police and Fire Brigade users will be using only CMRL portable TETRA radios for calling their respective control rooms through CMRL PABX in "Chennai Metro Rail Project – Phase II"
5	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	2.1.2.12	When the train radio operates in train ID number talk group, communication between two-train radios or train radio and hand portable or train radio and maintenance vehicles shall take place only when authorised by HMI in OCC.	Please share Qty of "maintenance vehicles" in CMRL Phase-2 project ?.	No of Road cum rail Vehicle RRV (1 radio per vehicle with Fist Mic,External Speaker):5 No of Overhead Meaintenance Vehicles OMV (2 radio per vehicle with Fist Mic,External Speaker):3
6	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	4.3.1.4(x)	For the road-vehicle mounted Tetra Radio Sets, the required minimum coverage range shall be 50 meters on either side of elevated/at grade track and 250 meters radius of elevated/sub-surface stations	Please share Qty of "road-vehicle" in CMRL Phase-2 project ?.	No of Road cum rail Vehicle RRV (1 radio per vehicle with Fist Mic,External Speaker):5 No of Overhead Meaintenance Vehicles OMV (2 radio per vehicle with Fist Mic,External Speaker):3
7	Part 2	SECTION VI - B PARTICULAR SPECIFICATIONS	2.3.3	Space for Contractors office and storage :The Contractor will be provided with suitable space at a suitable place for constructing site office and storage facilities for contractor as well as for Employer's Engineer. The Contractor shall construct the site office and storage facility within 4 months of possession of land given by Employer. The space will be available to the Contractor till end of DLP for whole of works of ASA-07 Contract. An area of 300 Sqm space will be allotted in Poonamallee Depot.	Please confirm the duration of site office. As there are different statements as mentioned in Clause- 2.3.3, A1.4.	The space will be available to the Contractor till end of DLP for whole of works of ASA-07 Contract
8	Part 2	Part-1, SECTION IV, Bidding Forms -	A1.4	Providing and Maintaining of Project Office and other Site Offices as required for Contractor's Staff. Qty: 54 Months		The Keydate for Taking over certificate for Last stage is envisaged as 1700 which is 56 months and hence accordingly cost centre for Providing and Maintaining of Project Office and other Site Offices is considered as 54 months. Contractor may continue to use the space till the end of DLP.

9	Part 2	SECTION VI - A PARTICULAR SPECIFICATIONS	13.3.4	The quantity of Contract Spares for the consumable and non-repairable items shall be determined in accordance with the following Formula 13.1; $N = n * f * y * 24 * 365$		The provisions of Particular Specification 13.4.11 & 13.8.1.1 , supercedes the provisions of General Specification. Spares are in the scope of CAMC contract . Refer addendum.																																																												
10	Part 2	SECTION VI - A PARTICULAR SPECIFICATIONS	13.3.5	13.3.5. The quantity of Contract Spares for repairable items shall be determined in accordance with the following formula 13.2; $P(o-r) = \frac{r}{c} (nft)^c e^{-nft} / c!$ $C=0$	Statement of Clause- 13.3.4 & 13.3.5 is not clear. Please share precise Quantity of contract spares.																																																													
11	Part-1	Section – IV Bidding Forms	Clause 4.1.19, Page No. 88	4.1.19 Price Centre 'K' – 'Training and Operation & Maintenance manuals', comprises of all those obligations and ongoing activities throughout the Contract including the following but not limited to: (i) The Deployment of the Experts under the Price Centre 'Training' (100 Manweeks) may not be continuous, and they may be required to supervise the maintenance /on the job training in short periods at a time as required by the Employer. (ii) The manweeks specified in Price Centre / BOQ for Training (100 Manweeks) are tentative and will be considered for bid evaluation. The Employer at their discretion may or may not operate this item either fully or partially at the quoted price by the bidder and the contractor has no claim on this account.	As per tender requirement, Local training for Forty manweeks each for both technical personnel and operation personnel shall be around 400 days of training. Normally such requirement comes for whole telecom system and this tender is only for Tetra subsystem. As per our past experience regarding training requirement for Metros project are maximum around 8 weeks, which is around 40 days and out of that first 4 weeks before commissioning of first stage and last four weeks after commissioning of last stage. Request to please review the number of days asked for training because 400 days for local training does not seems to be practical based on Metro requirements. As per our past experience regarding training requirement for Metros project 4 weeks of offshore Training is sufficient. Please review once because four weeks of offshore training is sufficient as per our course curriculum.	Refer Addendum																																																												
12	Part-1	Section – IV Bidding Forms	Clause 4.1.20, Page No. 88	4.1.20 The Contractor shall be solely responsible for all the statutory clearances including customs, taxes, levies, octroi, transportation, Insurances, technical clearances by the Government, safety audits, other incidental services/expenses etc. required for the successful execution of this Contract. The Lump Sum price quoted by the bidder is deemed inclusive of all these costs.	As per our experience, Contractor will help in all the liaisoning activities with govt authorities and Employer shall pay all the statutory fees to the govt authorities plus all sort of documentation required to clear the process as per govt. Guidelines shall be provided by Employer as and when required. Please confirm if understanding is correct.	Bid conditions will prevail.																																																												
13	Part-1	Section – IV Bidding Forms	Clause 4.2.1, BoQ For Price Centre K, Page No. 91	4.2.1 BOQ for Price Centre 'K' – Training and Operation & Maintenance Manual: <table border="1"> <thead> <tr> <th rowspan="2">S. No</th> <th rowspan="2">Description</th> <th rowspan="2">Unit</th> <th rowspan="2">Quantity</th> <th colspan="2">Quoted Unit Rate</th> <th colspan="2">Quoted Amount</th> </tr> <tr> <th>Local Currency (INR)</th> <th>Foreign Currency (FC)</th> <th>Local Currency (INR)</th> <th>Foreign Currency (FC)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Cost for instructor week for imparting training to Employer's Technical Personnel, in Chennai</td> <td>Man-weeks</td> <td>40</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Cost for instructor week for imparting training to Employer's Technical Personnel, in off-shore locations</td> <td>Man-weeks</td> <td>20</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Cost for instructor week for imparting training to Employer's operating personnel, in Chennai</td> <td>Man-weeks</td> <td>40</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Delivery & commissioning of Computer based training systems at Chennai, as stipulated in Part 2 – Employer's requirement.</td> <td>LS</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Operating & Maintenance Manuals (Draft as well as Final, in required copies)</td> <td>LS</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">Total Amount (To be carry forwarded to Pricing Summary – Price Centre 'K')</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	S. No	Description	Unit	Quantity	Quoted Unit Rate		Quoted Amount		Local Currency (INR)	Foreign Currency (FC)	Local Currency (INR)	Foreign Currency (FC)	1	Cost for instructor week for imparting training to Employer's Technical Personnel, in Chennai	Man-weeks	40					2	Cost for instructor week for imparting training to Employer's Technical Personnel, in off-shore locations	Man-weeks	20					3	Cost for instructor week for imparting training to Employer's operating personnel, in Chennai	Man-weeks	40					4	Delivery & commissioning of Computer based training systems at Chennai, as stipulated in Part 2 – Employer's requirement.	LS	1					5	Operating & Maintenance Manuals (Draft as well as Final, in required copies)	LS	1					Total Amount (To be carry forwarded to Pricing Summary – Price Centre 'K')								As per tender requirement, Local training for Forty manweeks each for both technical personnel and operation personnel shall be around 400 days of training. Normally such requirement comes for whole telecom system and this tender is only for Tetra subsystem. As per our past experience regarding training requirement for Metros project are maximum around 8 weeks, which is around 40 days and out of that first 4 weeks before commissioning of first stage and last four weeks after commissioning of last stage. Request to please review the number of days asked for training because 400 days for local training does not seems to be practical based on Metro requirements. As per our past experience regarding training requirement for Metros project 4 weeks of offshore Training is sufficient. Please review once because four weeks of offshore training is sufficient as per our course curriculum.	Refer Addendum
S. No	Description	Unit	Quantity	Quoted Unit Rate					Quoted Amount																																																									
				Local Currency (INR)	Foreign Currency (FC)	Local Currency (INR)	Foreign Currency (FC)																																																											
1	Cost for instructor week for imparting training to Employer's Technical Personnel, in Chennai	Man-weeks	40																																																															
2	Cost for instructor week for imparting training to Employer's Technical Personnel, in off-shore locations	Man-weeks	20																																																															
3	Cost for instructor week for imparting training to Employer's operating personnel, in Chennai	Man-weeks	40																																																															
4	Delivery & commissioning of Computer based training systems at Chennai, as stipulated in Part 2 – Employer's requirement.	LS	1																																																															
5	Operating & Maintenance Manuals (Draft as well as Final, in required copies)	LS	1																																																															
Total Amount (To be carry forwarded to Pricing Summary – Price Centre 'K')																																																																		

14	Part – 2	Section – VI B	Clause - 2.1.2.6, Page No. 314	2.1.2.6. The Contractor shall liaise with all concerned authorities including WPC, Civil Aviation authorities and other local authorities and obtain necessary clearances/licences/sanctions for installation and commissioning of the Radio system. This shall include liaising for obtaining the frequency and site clearance also.	<p>We understand payment for all necessary application and processing fees to obtain the licenses shall be borne by Employer.</p> <p>Please confirm if understanding is correct.</p>	Payment for all necessary application and processing fees to obtain the licenses shall be borne by Contractor.
15	Part – 2	Section – VI B	Clause - 2.1.2.7 e, Page No. 315	e) The Contractor shall be fully responsible for the application and interfacing with the Telecommunication Licensing Authority, and for providing such design data or other information as may be needed to obtain authorization and type approval for operation on the required CMRL Radio channels. In addition, the Contractor shall liaise with the WPC Wing on the procedure for applying for licenses after the Contract award. This will include preparation of application forms etc and maintaining continuous liaison and furnishing necessary technical details, calculations, clarifications etc, as required by the licensing authority. All costs involved shall be borne by the Contractor.	<p>Contractor will help out in all the liaisoning activities with govt authorities and Employer shall pay all the statutory fees to the govt authorities plus all sort of documentation required to clear the process as per govt. Guidelines shall be provided by Employer as and when required.</p> <p>Please confirm if understanding is correct.</p>	Bid conditions will prevail.
16	Part – 2	Section – VI B	Clause 13.8, Page No. 422	<p>13.8. Support during DLP and Comprehensive Maintenance Period</p> <p>13.8.1. General</p> <p>13.8.1.1. A comprehensive maintenance plan is proposed wherein, the maintenance will be the total responsibility of the contractor including supply of spares, equipments and attending to software defects, compliance to cyber security Audits etc. The comprehensive maintenance will start from the day of taking over certificate and will run concurrently with the maintenance responsibility during Defects Liability Period (DLP). During DLP, the maintenance shall be the responsibility of the Radio Contractor including supply of stores, spares, test equipments etc. Cost arising out of the saving in DLP maintenance should be taken into consideration in the comprehensive maintenance cost.. The Comprehensive Maintenance shall be initially for five years beyond which it will be applicable with price variation clause till end of system life.</p>	<p>CAMC and DLP both cannot start from the day of taking over certificate. We recommend that DLP shall start from the day of ROD/TOC, whichever is earlier and will continue for each stage and shall continue for 730 days as per clause 1.1.3.7 of Part 3 tender document which is 2 years from TOC. After DLP completion for each stage CAMC shall start for further 5 years for each stage. We understand only 5 years of CAMC will be part of evaluation criteria for current proposal and next 10 years of CAMC for each stage as per clause 4.25 of Part 3 and BoQ shall be consider separately as per Employer's requirement and based on continuous maintenance agreement.</p> <p>Please clarify if understanding is correct & elaborate more on below clause</p> <p>"Cost arising out of the saving in DLP maintenance should be taken into consideration in the comprehensive maintenance cost"</p>	Refer Addendum
17	Part – 2	Section – VI B	Clause 13.8.2.5 , Page No. 422	13.8.2.5. The Contractor's staff shall be available on Site for maintenance support within one hour upon receiving the call-out request from the Employer and shall proceed to perform corrective actions to restore the System to normal full operation.	<p>Tender document has definition based on severity levels Level 0,1,2,3 & 4. Response time and restoration time mentioned for different severity levels . We understand contractor to follow the severity levels for reporting during DLP and AMC Period.</p> <p>Please confirm if understanding is correct.</p>	Response & Resolution Time are based on the definitons of Severity level as per clause 13.4.12.1.

18	Part – 3	Section - VIII Particular Conditions (Part A: Contract Data)	Key Dates, Page No. 99 to 108.	<table border="1"> <tr> <td>RIT-S7-KD-011</td> <td>Issuance of Taking-over Certificate for Stage 7 Revenue Service</td> <td>1700</td> <td>Total of Price Centres – H.S7.4.1 to H.S7.4.5</td> </tr> <tr> <td>RIT-S7-KD-012</td> <td>Achieve Operational Acceptance for Stage 7 Revenue Service</td> <td>2240</td> <td>Total of Price Centres – H.S7.4.6</td> </tr> </table>	RIT-S7-KD-011	Issuance of Taking-over Certificate for Stage 7 Revenue Service	1700	Total of Price Centres – H.S7.4.1 to H.S7.4.5	RIT-S7-KD-012	Achieve Operational Acceptance for Stage 7 Revenue Service	2240	Total of Price Centres – H.S7.4.6	<p>As per clause 1.1.3.7 of part 3 the DNP/DLP period for each stage shall be 730 days which is 2 years from the date of ROD of each stage. But in Key dates for each stage there is a mention of operational acceptance after issuance of TOC which we understand is the period when DLP for that stage will complete is mentioned around 540 days.</p> <p>Please clarify do we need to consider the DLP for 730 days from ROD or 540 days as mentioned in key dates for each stage.</p> <p>Other than this we understand 15 years of support mentioned in clause 4.25 of part 3 for each stage shall start from the completion of DLP of first stage. As per clause 13.8 of part 2 the CAMC shall be only for five years, which will be considered for bid price evaluation. However, further 10 years CAMC shall not be considered for price evaluation & will be considered later.</p> <p>Please help to provide clarification & amend the BoQ accordingly.</p>	<p>DNP/DLP period for each stage shall be 730 days. The conditons to fullfill for acheiving the Operational acceptance should be with in 540 days.Please refer Part-2 - Section VI A Employer’s Requirements-Appendix 13 Clause 13.6.5 Performances checking period</p> <p>Refer addendum for revised CAMC requirement.</p>
RIT-S7-KD-011	Issuance of Taking-over Certificate for Stage 7 Revenue Service	1700	Total of Price Centres – H.S7.4.1 to H.S7.4.5											
RIT-S7-KD-012	Achieve Operational Acceptance for Stage 7 Revenue Service	2240	Total of Price Centres – H.S7.4.6											
19	Part – 3	Section - VIII Particular Conditions (Part B: Specific Provisions)	Clause 1 - General Provisions, Sub-Clause 1.1.1.11, Page No. 112	Add a new Sub-Clause 1.1.1.11: “Comprehensive Annual Maintenance Contract” or CAMC means the Contractor shall, after the issuance of taking over certificate, carry out the regular maintenance of the Telecommunication Radio systems and other associated systems for a period of 15 years such that the whole metro system operates smoothly, efficiently and fit for the intended purpose it is designed for, by regular servicing, replacement of parts or carrying out emergency repairs 24 x 7, within the time limit specified in Part 2 – Technical Specifications and as approved by the Employer/Engineer.	<p>As per clause 13.8 of part 2 the CAMC shall be only for five years, which will be considered for bid price evaluation. However, further 10 years CAMC shall not be considered for price evaluation & will be considered later.</p> <p>Please help to provide clarification & amend the BoQ accordingly.</p>	Refer Addendum								
20	Part-1	Section – IV Bidding Forms	Clause - 4.1.13 (ii), Page No. 85	(ii) Supervision of Installation at the Rolling stock Manufacturers’ factories, joint testing and certification on the test track as well as in main line and commissioning for Revenue service.	<p>We understand contractor has to supervise the installation of initial two trains at Rolling stock factory. Rest installation for all the remaining train in different stages shall be conducted by rolling stock contractor only.</p> <p>Please confirm if understanding is correct.</p>	Contractor has to supervise the installation of prototype train of each Manufacturer at Rolling stock factory and also impart necessary training to RS Supplier's personnel, as part of proto-type testing, to enable the later to do the installation & testing in subsequent trains in the factory/Depot, based on the training & associated documents..Rest installation for all the remaining train in different stages shall be conducted by rolling stock contractor only.								
21	Part – 2	Section – VI B	Clause No: 1.1.3 Page No: 312 of 936	The Radio system shall have central or distributed control equipment installed in the OCC, BCC and Poonamalee depot for system control.	<p>Central switching equipment will be installed at two locations i.e. OCC & BCC or OCC & Depot. Please confirm the location where the switching equipment shall be install.</p>	The Switching equipment and all the interfacing servers shall be provided in geo redundant configuration to ensure independent operation of the Tetra Radio system for Phase 2 from any one of the following location a) OCC at Koyambedu b) BCC at Nandanam								
22	Part – 2	Section – VI B	Clause No: 2.1.2.7 c) Page No: 314 of 936	2.1.2.7 c)To enable Public Cellular Operators to offer multi-media services to the travelling public in CMRL premises, CMRL may, in future, enter into a revenue-sharing arrangement with them, to permit them to utilise space inside CMRL premises for installing their active as well as passive equipments, to share band-width on CMRL’s CBN Network and to draw power from CMRL’s power supply system; the public operators shall be responsible for the operation and maintenance of all the equipments installed by them. In the sub-surface sections, as part of this contract, the contractor shall install additional cable hangers in every 0.5 mtr in each tunnel for supporting the radiating cables (One Leaky Cable per tunnel is envisaged for he Public Cellular Operator); these additional cable hangers (meant for use by Public Cellular Operators) shall be located sufficiently away from the leaky co-axial cable of the Tetra Radio System, in order to eliminate chances of interference between different radio systems and shall space the LCX no less than 100mm from the tunnel wall.	<ol style="list-style-type: none"> 1. Please specify the type/size of radiation cable to provide the appropriate clamp for the additional radiating clamp for the public cellular operator 2. General Practice to fix the cable hanger in every 1 meter , Please specify whether to follow the cable hanger in 0.5M or 1 M. 3. Can the LCX spacing can be not less that 80 mm from tunnel wall or this spacing should be 100mm as per the clause. 	Refer Addendum								

23	Part – 2	Section – VI B	Clause No: 2.1.2.13 Page No : 316 of 936	Incoming calls to the train radio shall be automatically routed to appropriate on-train users/devices such as train emergency driver / roving attendant, PA system, Data Systems. Outgoing calls initiated by on-train users/devices shall be automatically established.	Please confirm under which scenario the call shall be routed to the emergency driver (on board radio) & roving attended. Please also help to understand how roving attended is mapped to the train to be handled	Automatic call routing to respective onboard system shall be applicable for Onboard PA, Ambient listening, Private call to Train driver. Calls to Roving attendant shall be a manual call from OCC.
24	Part – 2	Section – VI B	Clause No: 3.4.2 d) Page No: 320 of 936	d) Train Radio Control Panel (TRCP) shall be integrated into both train cabs and shall provide Train Emergency Drivers / Roving Attendants and Depot Special Machines Vehicles call functions via the radio control head.	As per our understanding TRCP and RCH provide independent features with respect to each other. Please also provide more clarity on Depot Special Machines along with their quantity.	Train Radio Control Panel (TRCP) shall be integrated into both train cabs. TRCP and RCH can work independent with respect to each other. Depot Special Machines Vehicles shall be provided with Vehicle mount radio No of Road cum rail Vehicle RRV (1 radio per vehicle with Fist Mic, External Speaker):5 No of Overhead Maintenance Vehicles OMV (2 radio per vehicle with Fist Mic, External Speaker):3
25	Part – 2	Section – VI B	Clause No: 3.4.3.4 b) Page No: 321 of 936	Packet connection-oriented data (Standard X.25 packet data),	All the new systems protocol will be based on IP & Hence request you to please remove the clause.	Refer Addendum
26	Part – 2	Section – VI B	Clause No: 3.4.8.1 Page No: 326 of 936	Complete Train Radio system shall be installed by the Rolling Stock Contractor, using the materials supplied by the Radio Contractor and under the supervision of the Radio Contractor, in such a way that the radios in the leading and trailing cabs operate in hot stand-by mode to each other, but fully independent of each other. The contractor shall use cable connections being installed by Rolling Stock Contractor between Front and Rear Cabs, for the Train Radio Hot standby features. The physical dimensions, positions, mounting holes, antenna type, cable routes, cable lengths, cable / pin connections to Rolling Stock PA/Train Information Management system (TIMS), interface hardware details, protocols, exact data rate to be exchanged, etc are to be co-ordinated with the Rolling Stock Contractor as spelt out in the applicable interface sheets forming part of interface management plan. The Train Radio shall also have its own Interface Unit to monitor the health of the radio transceivers and shall enable switching to the standby transceivers upon detection of communication failure. This interface shall communicate the events to the TIMS system. In case failure of Tetra Coverage or both radios, the Train interface units shall function using the network connectivity to OCC supplied by signaling vendor (Non CBTC Radio).	The TETRA radio system is being designed to provide overlap coverage to all the Train radios. The type of interface mentioned in the clause uses proprietary protocols & hence it is not possible for train interface unit to interface and ensure all Trainborne functionalities using its network connectivity. Hence request you to please remove the clause.	In case failure of Tetra Coverage or both radios, the Train interface units shall function using the network connectivity to OCC supplied by signaling vendor (Non CBTC Radio). This is a Preferred technical requirement. Implementation details will be finalised during design stage.
27	Part – 2	Section – VI B	Clause No: 3.4.8.4 e) iv) c) Page No: 330 of 936	iv) Train PA call shall support the following. c) Dispatching of Pre recorded messages stored in Train PA system	The list of recorded messages are agreed at the time of the Interface meeting and stored in the RCW system. As a standard practice in the deployed Metros, the RCW performs Train PA call either on adhoc basis or selects the pre-recorded from the CAD subsystem library. The PA call is based on Operation teams input at that instant. The radio system does not have the interface/capability with the Train PA system in order to access the messages. Further, it is advisable for the Train PA system to have full control of the same and any other system accessing the Train PA system may cause operational issues. Hence request you to remove the point c) of this clause.	Dispatching of Pre recorded messages stored in Train PA system- This feature is applicable for the list of recorded messages that are agreed at the time of the Interface meeting and stored in the On board PA library with corresponding message details in RCW system. This can be either streaming audio over Tetra or via triggering of message codes.
28	Part – 2	Section – VI B	Clause No: 3.4.8.4 e) v) Page No: 330 of 936	v) Train PA call shall support zone selection as envisaged by Train PA system (eg: PA Inside train, PA from outer speaker)	Please confirm if the cars inside the trains are being referred as different zones. Further, the Train PA announcement is done in the whole train as the announcement is common to all the cars in the train and not only aimed at certain car in the train. Hence, request you remove the V) in this clause.	Bid conditions will prevail.
29	Part – 2	Section – VI B	Clause No: 3.4.8.4 e) vi) Page No: 330 of 936	e) Train PA Call vi) RCW system shall enable the operator to perform scheduling of Prerecorded messages from RCW.	As a standard practice in the deployed Metros, the RCW performs Train PA call either on adhoc basis or selects the pre-recorded from the CAD subsystem library. The PA call is based on Operation teams input at that instant. There is no scheduling. Hence request you to confirm our understanding and remove the scheduling from the clause.	Bid conditions will prevail. Scheduling is limited to item b & c as per clause 3.4.8.4.e.iv

30	Part – 2	Section – VI B	Clause No: 3.4.8.4 g) Page No: 330 of 936	g) Ambient Monitoring i) The Controller shall be able to remotely switch on the microphone on the all the Passenger Emergency Intercom/call point of the Train radio listen to the received audio.	The ambient monitoring is a radio specific feature where the controller will turn on the microphone of the radio in order to listen. There is no interface defined to remotely switch on the microphone of the Passenger Emergency Intercom/call point. Hence, request you to limit the ambient monitoring to only the Radio. Please confirm.	Passenger emergency call point is a call point from where a passenger can call OCC. Similarly , a listening functionality shall be established by enabling a silent call back to passenger Intercom. This facility shall be implemented irrespective of ambient monitoring facility in the radio.										
31	Part – 2	Section – VI B	Clause No: 3.4.8.4 p) iv) Page No: 333 of 936	iv) Failure of the radio equipment shall not interrupt the normal operation of the Train-borne Signalling equipment. The train operation commands are normally sent from the UTMS to the GOA4 trains through the Wi-Fi radio network of the CBTC System. In case of failure of Wi-Fi, as a standby, it should be possible for Central signaling system to send some vital commands to Onboard and receive on board alarms through the train radio system by suitable interfacing arrangement at the OCC and onboard. The list of such vital commands and alarms will be finalised in discussion with the Engineer of CMRL. In case of failure of Tetra Coverage, as a standby, it should be possible for on board Tetra Radio to ensure all Train borne functionalities via the Non CBTC link to OCC.	The TETRA radio system is being designed to provide overlap coverage to all the Train radios. The type of interface mentioned in the clause uses proprietary protocols such it is not possible for train interface unit to interface and ensure all Trainborne functionalities using its network connectivity. Hence request you to please remove the clause.	In case failure of Tetra Coverage or both radios, the Train interface units shall function using the network connectivity to OCC supplied by signaling vendor (Non CBTC Radio). This is a Prerefred technical requirement. Implementation details will be finilised during design stage.										
32	Part – 2	Section – VI B	Clause No: 3.4.11.1 Page No: 337 of 936	The OCC and BCC shall have various control positions equipped with Radio- Access/control facilities, as listed in the table below: <table border="1" data-bbox="676 737 1362 951"> <thead> <tr> <th>Control Position</th> <th>Type of Radio Access / Control panel to be provided at the various locations for Corridor 3, 4 and 5</th> </tr> </thead> <tbody> <tr> <td>OCC</td> <td></td> </tr> <tr> <td>Traffic Controllers</td> <td>RCW + RAU one for each</td> </tr> <tr> <td>Chief Controllers</td> <td>RCW + RAU one for each</td> </tr> <tr> <td>Passenger Communication controllers</td> <td>RCW + RAU one for each</td> </tr> </tbody> </table>	Control Position	Type of Radio Access / Control panel to be provided at the various locations for Corridor 3, 4 and 5	OCC		Traffic Controllers	RCW + RAU one for each	Chief Controllers	RCW + RAU one for each	Passenger Communication controllers	RCW + RAU one for each	Please confirm whether one for each in this clause referring to each corridor.	Refer Addendum
Control Position	Type of Radio Access / Control panel to be provided at the various locations for Corridor 3, 4 and 5															
OCC																
Traffic Controllers	RCW + RAU one for each															
Chief Controllers	RCW + RAU one for each															
Passenger Communication controllers	RCW + RAU one for each															
33	Part – 2	Section – VI B	Clause No: 3.4.11.1 Page No: 338 of 936	Receiving Substation	Please provide the number of receiving substation for each corridor.	Refer Addendum										
34	Part – 2	Section – VI B	Clause No: 3.4.11.1 Page No: 338 of 936	<table border="1" data-bbox="661 1140 1389 1194"> <tr> <td>SCR</td> <td>RCP</td> </tr> <tr> <td>Station controller</td> <td>RAU</td> </tr> </table>	SCR	RCP	Station controller	RAU	RCP has already been considered in SCR, Please confirm if we need to consider RAU for station controller position for all station.	RAU and RCP are Deskmounted Radio device. One number of RCP is sufficient for Station Controller. Refer Ademtum						
SCR	RCP															
Station controller	RAU															
35	Part – 2	Section – VI B	Clause No: 3.4.11.4 Page No: 338 of 936	In the main CER of the OCC, Depot 1 and 2, RCW with full access shall be located. These units shall be used for maintenance monitoring and shall work as spares for RCWs in OCC.	Please confirm if these RCW requirement is similar to clause number 3.4.11.1 RCW Console position.	Yes. One number of RCW is sufficient in each of the these location. Refer Ademtum										
36	Part – 2	Section – VI B	Clause No: 3.4.11.5 Page No: 338 of 936	The above shown list is indicative and the minimum quantity of RCW required is 25.	As per control position table the total number of RCW are coming 29, if we consider Position for each corridor.	Refer Addendum										

37	Part – 2	Section – VI B	Clause No: 3.4.12.2 a) Page No: 338 of 936	3.4.12.2. RCW Call Features a) Train PA Call: A sub-window shall be activated when the Train Public Address broadcast, (either live or recorded) is initiated - The display shall allow the Chief Controller/Traffic Controller to set up and make PA announcements to an individual train, to a selected group of trains or to all trains in the system. The display shall support Scheduling of Prerecorded Message play lists from RCW with zone selection (Saloon area, Exterior speaker). RCW shall permit dispatching of Prerecorded messages from RCW Library as well as from Onboard Library. RCW shall permit the administrator to upload prerecorded messages to RCW Library and edit the onboard library details in the RCW System as when required.	Please confirm if the cars inside the trains are being referred as different zones. Further, the Train PA announcement is done in the whole train as the announcement is common to all the cars in the train and not only aimed at certain car in the train. The list of recorded messages are agreed at the time of the Interface meeting and stored in the RCW system. As a standard practice in the deployed Metros, the RCW performs Train PA call either on adhoc basis or selects the pre-recorded from the CAD subsystem library. The PA call is based on Operation teams input at that instant. The radio system does not have the interface/capability with the Train PA system in order to access the messages. Further, it is advisable for the Train PA system to have full control of the same and any other system accessing the Train PA system may cause operational issues. Hence request you limit the PA call to the whole train instead of the zone selection. Also, as explained above, the RCW will only access its predefined pre-recorded database from the RCW subsystem and not from the onboard library. Additionally, this can also have impact on the Train PA operation, hence request you to please remove the reference to onboard library from the clause.	The PA zones in train are envisaged as Train Interior covering complete passenger zone and Train exterior covering the exterior of the train as minimum. With respect to the Onborad Library, the list of recorded messages shall be agreed at the time of the Interface meeting and correponding details shall be updated in RCW system. Refer addendum. With respect to RCW Announcement dispatching functionality 1) Dispatching of Pre recorded messages from a Pre-recorded Library in RCW- RCW at OCC shall have Digital voice announcer with Pre recorded messages. Operator can select the Pre recorded audio file and dispatch the audio to Train like an Live call.This feature is equivalent to Live announcement in functionality where the audio souce is from the RCW voice announcer . This Pre recorded messages will be user editable and it is transmitted as audio signal, it has no connection with Onborad Library. 2) Dispatching of Pre recorded messages stored in Train PA system- This feature is applicable for the list of recorded messages that are agreed at the time of the Interface meeting and stored in the On board PA library with corresponding message details in RCW system. This can be either streaming audio over Tetra or via triggering of message codes.
38	Part – 2	Section – VI B	Clause No: 3.4.12.2 e) iii) Page No: 339 of 936	A pop-up window scroll bar shall be displayed with visual and audible alert showing detail of the Train ID, location from which the emergency call was originated. The Controller shall be informed if the call is a non UTO Mode operation during revenue service. The Controller shall be able to acknowledge the call and then select the calling train to activate two-way communication. If such a call is not answered within a pre-defined number of seconds, the call shall be transferred automatically to another designated controller.	Please clarify, which system shall provide the information on whether the train is in UTO / non-UTO mode?	Details need to be finalised as part of the interface with Signaling & RS Contractors.
39	Part – 2	Section – VI B	Clause No: 3.4.12.2 r) Page No: 341 of 936	A side menu panel shall be provided on the display to allow the type of call to be selected such as free form PA, pre-set PA messages (digital voice stored on the DVA), normal voice, status, priority or emergency calls.	Our understanding is the file system is copied from the external system. Please confirm?	With respect to RCW Announcement dispatching functionality 1) Dispatching of Pre recorded messages from a Pre-recorded Library in RCW- RCW at OCC shall have Digital voice announcer with Pre recorded messages. Operator can select the Pre recorded audio file and dispatch the audio to Train like an Live call.This feature is equivalent to Live announcement in functionality where the audio souce is from the RCW voice announcer . This Pre recorded messages will be user editable and it is transmitted as audio signal, it has no connection with Onborad Library. 2) Dispatching of Pre recorded messages stored in Train PA system- This feature is applicable for the list of recorded messages that are agreed at the time of the Interface meeting and stored in the On board PA library with corresponding message details in RCW system. This can be either streaming audio over Tetra or via triggering of message codes.
40	Part – 2	Section – VI B	Clause No: 3.4.12.2 t) iv) Page No: 341 of 936	RCW shall permit the exchange of control as envisaged in Signalling Operator work station system. Tetra contractor shall coordinate with the Signalling supplier to implement a seamless transfer of Control.	Our understanding is the seamless transfer of control is area of control. Please confirm.	The seamless transfer of control referred is the area of control.
41	Part – 2	Section – VI B	Clause No: 3.5.1.1 h) Page No: 343 of 936	h) The train radio shall be accessible from OCC via the Non CBTC network supplied by Signalling. In case of failure of Tetra Coverage, as a standby, it should be possible for on board Tetra Radio to ensure all Train borne functionalities via the Non CBTC link to OCC.	The TETRA radio system is being designed to provide overlap coverage to all the Train radios. The type of interface mentioned in the clause uses proprietary protocols such it is not possible for train interface unit to interface and ensure all Trainborne functionalities using its network connectivity. Hence request you to please remove the clause.	Refer Addendum
42	Part – 2	Section – VI B	Clause No: 3.5.5.3 (vii) Page No: 348 of 936	Squelch level	This is analog radio specification; hence please remove this clause	Refer Addendum

43	Part – 2	Section – VI B	Clause No: 3.5.8.2. Page No: 351 of 936	3.5.8.2) The antenna network for the Underground section shall be Leaky Co-axial Cable (LCX) in tunnels and a combination of LCX/LCC and low profile antenna if required at stations/Ramp Area.	Please confirm whether a Distributed antenna system with the combination of Rf low loss corrugated cable and low profile indoor antennas can be used for UG station area coverage instead of LCX & Low profile antenna.	Refer Addendum
44	Part – 2	Section – VI B	Clause No: 4.3.1.1 page 354 of 936	4.3.1.1. In UTO train operation passenger emergency communication from and to OCC from the train is most important. To keep the communication reliability high overlapping coverage at any point on the track from either side of the base stations should be planned. The minimum signal level under the worst case from the relevant base station, received by the Train borne antenna shall be at least -86 dBm or 20 dB above the receiver sensitivity level for 98% of the worst case 50m of train run along the tracks. The audio quality level under such conditions also should be good.	This requirement of -86dbm is on a higher side which will force the normal operations coverage requirement much higher and will require more number of Base station or BDA (also will increase the interference in the network) to meet the requirement. Metros deployed in India has 3uv/-97.5 dbm signal strength requirement and has not faced issues with respect to the quality of calls. The -86dBm signal strength would be an overkill which will have an impact on the number of BTS and BDAs, Hence request you to please revise the signal strength requirement to minimum 97.5dbm.	Refer addendum
45	Part – 2	Section – VI B	Clause No: 4.3.1.2 Page No: 354 of 936	4.3.1.2. The minimum signal level from the relevant base station, received by a reference dipole at 1.5 m above ground level in all coverage areas including inside the Moving (80 km/h) train compartment shall be at least -86 dBm for 98% of the worst case 50m of run in stations and in train. Signal level of minimum -86 dBm for 98% Location shall be available inside all the equipment rooms, plant rooms & operation control rooms in stations, Depot and substations. The up-link and down link audio quality level under such conditions also should be good. For deciding the coverage criteria automated measurement set up with suitable software should be used. At least 50 samples of signal strength measurement should be taken for 50 meters of travel. The coverage measurement results should be put up to the engineer for his approval.	This requirement of -86dbm is on a higher side which will force the normal operations coverage requirement much higher and will require more number of Base station or BDA (also will increase the interference in the network) to meet the requirement. Metros deployed in India has 3uv/-97.5 dbm signal strength requirement and has not faced issues with respect to the quality of calls. The -86dBm signal strength would be an overkill which will have an impact on the number of BTS and BDAs, Hence request you to please revise the signal strength requirement to minimum 97.5dbm.	Refer addendum
46	Part – 2	Section – VI B	Clause No: 4.3.1.4 x) Page No: 355 of 936	For the road-vehicle mounted Tetra Radio Sets, the required minimum coverage range shall be 50 meters on either side of elevated/at grade track and 250 meters radius of elevated/sub-surface stations	Please confirm the type of radio to be consider for road vehicles along with the quantities of road vehicles.	No of Road cum rail Vehicle RRV (1 radio per vehicle with Fist Mic,External Speaker):5 No of Overhead Maintenance Vehicles OMV (2 radio per vehicle with Fist Mic,External Speaker):3
47	Part – 2	Section – VI B	Clause No: 6.4.3.1 Page No: 364 of 936	6.4.3.1. IP 67 for external train borne equipment	IP 67 is an extremely stringent Dust and Water Protection standards. It Protects against the effects of immersion between of the equipment in water at 15cm and 1m. Duration of test is approximate 30 minutes. This will not be practically feasible for external equipment such as Antenna to be IP67. Request you to please change IP67 to IP65.	Refer addendum
48	Part – 2	Section – VI B	Clause No: 6.4.3.4 Page No: 364 of 936	6.4.3.4. IP 54 for internal train borne equipment.	The trainborne equipments are housed under temperature controlled AC environment. Thus the IP54 requirement for the same would not be practical. Hence request you to please change the same to IP20 as per technical specifications, as same is followed in most of the metro tenders Including DMRC.	Refer addendum
49	Part – 2	Section – VI B	Clause No: 6.4.3.5 Page No: 364 of 936	6.4.3.5. IP 52 for enclosures to be installed in equipment rooms.	Equipments are equipped with Temperature controlled AC environment. Thus the IP52 requirement for the same would not be practical and would attract additional cost. Hence request you to please change the same to IP20 as per technical specifications, as same is followed in most of the metro tenders Including DMRC.	Refer addendum
50	Part – 2	Section – VI B	Clause No: 6.4.4.1.1 Page No: 364 of 936	6.4.4.1.1. Train borne equipment: 0°C to 70°C;	The trainborne equipments are housed under temperature controlled AC environment. Also, considering the local weather conditions in area of deployment, 70°C shall be an overkill. Hence request to amend the maximum temperature to 55°C	Refer addendum

51	Part – 2	Section – VI B	Clause No: 6.4.4.1.2 Page No: 364 of 936	6.4.4.1.2. Trackside/Outdoor equipment: 0°C to 70°C;	Considering the local weather conditions in area of deployment, 70°C shall not be practical. Hence request to amend the maximum temperature to 55°C	Refer addendum
52	Part – 2	Section – VI B	Clause No: 6.4.4.2.1 Page 364 of 936	6.4.4.2.1. Train borne equipment: 0 to 99 % relative (condensing)	The trainborne equipments are housed under temperature controlled AC environment. Also, considering the local weather conditions in area of deployment, 99% shall not be practical. Hence request to amend the humidity to 90%.	Refer addendum
53	Part – 2	Section – VI B	Clause No: 6.4.4.2.2 Page 364 of 936	6.4.4.2.2. Trackside equipment: 0 to 99% relative (condensing)	Considering the local weather conditions in area of deployment, 99% shall not be practical. Hence request to amend the humidity to 90%.	Refer addendum
54	Part – 2	Section – VI B	Clause No: 16.1.2.7 Page No: 429 of 936	16.1.2.7. The Telecommunications TETRA Contractor shall provide necessary support and modifications in their system as part of the contract, to resolve all pending or interface related issues arising during the operation of the trains which are under the scope of the contract till completion of RS Contractor's defect notification period. The cost of these support and modifications shall be part of the actual cost of the Telecommunications TETRA contract. RS Contractor shall provide necessary support and modifications in their system as part of the contract, to resolve all pending or interface related issues arising during the operation of trains which are under the scope of the contract till completion of Telecommunications TETRA Contractor's defect liability period/defect notification period for the respective corridors and inter-corridors of the CMRL Phase 2. The cost of these support and modifications shall be part of the actual cost of the RS contract.	Based on the outcome of Interface meeting with the Rolling stock, Interface design is finalized which is then implemented as a part of agreed scope of work within the technical specifications. The changes which is not within the agreed scope of work with the Rolling Stock will have to be taken up separately.	The scope of work/responsibility , as defined in the Specifications, shall be the responsibility of the Contractor.
55	Part – 2	Section – VI B	Clause No: 16.1.5.11 Page No: 433 of 936	16.1.5.11. It shall also be noted that changes in the interface specifications such as key alarms, remote commands, interface signals and GUI specifications etc., are to be expected throughout the project execution stage and shall extend even after commencement of UTO operation based on operational and passenger requirements. TETRA contractor and RS contractor system design shall be capable of accommodating these changes without major modification in the systems. Necessary spare interface points, communication band widths etc shall be incorporated into the design from the beginning of the design phase itself to accommodate these future requirements (This is in addition to the provisions for 3 car to 6 car conversion).	Based on the outcome of Interface meeting with the Rolling stock, Interface design is finalized which is then implemented as a part of agreed scope of work within the technical specifications. The changes which is not within the agreed scope of work with the Rolling Stock will have to be taken up separately.	The scope of work/responsibility , as defined in the Specifications, shall be the responsibility of the Contractor.
56	Part – 2	Section – VI B	Clause No: 16.1.5.26 Page No: 435 of 936	16.1.5.26. TETRA. contractor shall furnish RS Contractor with the interface required between the TETRA radio system and the on-train public address system/other suitable system of RS to allow on-board passenger emergency Intercom (PEI) call point mic of RS to be used for silent listening of saloon voice through TETRA by OCC. The identifier of the PEI device (which call point in which car of the train) shall be communicated by the on-board TETRA system to the RS system for selecting the mic of that call point to be used for this feature. There shall not be any indication on the PEI call point or any other location on the train, visible for passengers, denoting the silent listening mode activation.	The ambient monitoring is a radio specific feature where the controller will turn on the microphone of the radio in order to listen. There is no interface defined to remotely switch on the microphone of the Passenger Emergency Intercom/call point. Hence, request you to limit the ambient monitoring to only the Radio. Please confirm.	Passenger emergency call point is a call point from where a passenger can call OCC. Similarly , a listening functionality shall be established by enabling a silent call back to passenger Intercom. This facility shall be implemented irrespective of ambient monitoring facility in the radio.
57	Part – 2	Section – VI B		General Query	Please share the station, depot, OCC & BCC drawing along with geo coordinates for RF Coverage analysis and IBS Solution. Please also share the route map for each corridor.	Please refer the addendum

58	Part – 2	Section – VI B		General Query	1. Please share the tender minimum BOQ and Contract spare requirement details to conclude the minimum BOQ for the project 2. We understand that emergency spares are treated as contract spares ? Do we need to include the both emergency or contract spare in the BOQ. 3. We did not find any qty for the indoor coverage solution of active and passive product details in the emergency spare list mentioned in clause 14.1.2.2.	1. Contract spares are not required as the complete package is covered under subsequent CAMC. Bidder can maintain the spares based on the design and to meet the SLA requirements which shall be submitted to the Engineer with suitable justification for obtaining NoNO. 2. Emergency spares are not contract spares. CMRL will reserve the right to purchase emergency spares to cater to any contingency on CMRL account. 3. Emergency spares are to cater to any contingency on CMRL account.
59	Part-3	Section VIII. General Conditions	Clause 14.7 - Payment, Page - 63	General Query	Please clarify the billing cycle of project during CAMC period after completion of DLP of respective stages.	Quarterly.
60	Part-1	Section – IV Bidding Forms	Clause 4 - Pricing Schedules 4.1.7, Page No. 83	Wherever the Bidder comprises a JV/Consortium and the Bidder desires separate payments to each Member of the Consortium, the Bidder shall clearly lay down the Milestones / Currencies allocated to the different Members of the JV/Consortium, which shall be in agreement with the intended percentage share of the Members as indicated in the Consortium agreement for this Contract.	Considering this clause, we understand that even billing/Invoicing will be raised by each member directly on CMRL for their respective scope of work. Kindly confirm.	Refer Addendum
61	Part-1	Section – I Instruction to Bidders (ITB)	Clause 21 - Bid Security, Clause 21.7, Page No. 19	21.7 The Bid Security of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the Bid Security shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.	If there is a Consortium arrangement between the bidding parties, which is not legally constituted. Please clarify, whether the lead bidder or each party has to provide the bid security as per their respective scope of work. As per our understanding, bid security can not be submitted on joint names of two parties & same has to be submitted by individual bidders, if required.	Refer Addendum
62	Part-3	Section VII. General Conditions	Clause - 17.6 Limitation of Liability, Page No.- 75	The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Material], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated), the Accepted Contract Amount	Please confirm that no multiplier is stated in the Contract Data & Total liability will be limited to the Accepted Contract Amount.	Bid condition is self explanatory.
63	Part-3	Section VIII. General Conditions	Clause - 14.8 Delayed Payment, Page No.- 64	Unless otherwise stated in the Contract Data, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not applicable, the interbank offered rate, and shall be paid in such currency.	Please clarify, that rate of the central bank will be considered based on which date or which financial year.	Bid condition is self explanatory.
64	Part-3	Section VII. General Conditions	Clause - 16.2 - Termination by Contractor Limitation of Liability, Page No.- 72	In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work, and (ii) terminate his employment under the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.	Request you to please confirm our understanding that Equipments already manufactured & not delivered to Employer prior to such termination on account of bank suspension on the loan or credit shall be deemed as work done. The Employer will be liable to make payment for all the manufactured equipment.	Bid condition prevails.
65	Part-3	Section VIII. General Conditions	Clause - 18 - Insurance, Page No. - 76	General Query	Please clarify the total value of Insurance for all three kind of Insurance required as per RFP. Also, please confirm on the start date of such Insurance.	Bid condition is self explanatory. Refer the Clause - 18.2 - Insurance

66	Part – 2	Section – VI B	Clause - 13.4.5.1, Page No. - 416	Contractor On-site Support Service shall provide On-site field engineer at customer designated central site to provide the customer support. On-site Support Service shall be made available for 24X7 during the term of the contract.	1. Please specify the team size and number of manpower required for the O&M 2. Please specify whether CMRL shall provide the working space and spare storage space for P&M engineer 3. Minimum duration of O&M contracts	1. Bidder can decide the team size and number based on the SLA requirement. 2. CMRL will provide working and storage space as part of CAMC. 3. Before issuance of taking over certificate of each stage, maintenance contract will be entered into for 5 years ahead based on the quantity of field assets commissioned and the unit rates quoted as part of the bid. This will be followed for each stage of commissioning. Beyond the initial period of 5 years also, CMRL reserves the right to renew the CAMC on same terms & conditions, with price escalation as per main Contract conditions. This procedure will be followed for the full design life (15 years) of the system with applicable price adjustment as per conditions of contract. Refer addendum.
67	Part – 2	Section – VI B	General Query	General Query	1. Please share the tender minimum BOQ and Contract spare requirement details to conclude the minimum BOQ for the project 2. Is Emergency spare is treated as contract spare ? Do we need to include the both emergency or contract spare in the BOQ. 3. Did not found any qty for the indoor coverage solution of active and passive product details in the emergency spare list mentioned in clause 14.1.2.2.	1. Contract spares are not required as the complete package is covered under subsequent CAMC. Bidder can maintain the spares based on the design and to meet the SLA requirements which shall be submitted to the Engineer with suitable justification for obtaining NoNO. 2. Emergency spares are not contract spares. CMRL will reserve the right to purchase emergency spares to cater to any contingency on CMRL account. 3. Emergency spares are to cater to any contingency on CMRL account.
68	Part – 2	Section – VI B	Clause - 14.2.1, Page No. - 423	The Contractor shall provide his own test equipment and tools during the installation, commissioning periods, Defects Liability Period and Comprehensive Maintenance Period.	Please clarify, If we need to include the any special tools (indoor design , testing & measurement tools) as part of the supply BOM.	During CAMC Bidder can maintain the required Tools based on the design and to meet the SLA requirements which shall be submitted to the Engineer with suitable justification for obtaining NoNO.
69	Part – 2	Section – VI B	Clause No: 5.11.1 Page No: 359 of 936	Three, multichannel, rack-mounted, voice recorders shall be provided in the OCC Recording Room, one to serve the Corridor 3, 4 and 5.	The requirement can be achieved with two voice recorders. One as Primary Recorder (at OCC) for Corridor 3, 4 and 5, and one as Redundant Recorder (at BCC) for Corridor 3, 4 and 5. Both recorders will record identical traffic in parallel, providing full redundancy. Although recordings from all 3 corridors will be in the same database, access can be partitioned so that each corridor's personnel cannot access recordings for another corridor, in effect creating separate logical databases. Please confirm if our understanding is correct.	Refer Addendum
70	Part – 2	Section – VI B	Clause No: 5.11.2 Page No: 359 of 936	One voice recorder will be back up to the other two.	The requirement can be achieved with two voice recorders. One as Primary Recorder (at OCC) for Corridor 3, 4 and 5, and one as Redundant Recorder (at BCC) for Corridor 3, 4 and 5. Both recorders will record identical traffic in parallel, providing full redundancy. Both recorders will record identical traffic in parallel providing full redundancy. Please confirm if our understanding is correct.	Refer Addendum
71	Part – 2	Section – VI B	Clause No: 5.11.3 Page No: 359 of 936	The recorders shall, during normal operation, each mirror the others recorded data on a continuous basis, while working on load-sharing basis, to ensure that each recorder has an up to date record of all voice recordings and associated call logs	Both recorders will record identical traffic in parallel, providing full redundancy and avoid any audio recording loss. Hence there is no need for load-sharing as each recorder will record all calls for all the required devices. Also it should be left to the OEM to design the system as their design philosophy	Refer addendum
72	Part – 2	Section – VI B	Clause No: 5.11.4 Page No: 359 of 936	The recorders shall additionally allow any of the following modes of operation to be Operator selectable: a) Load sharing where both recorders share the recording load;	Both recorders will record identical traffic in parallel, providing full redundancy and avoid any audio recording loss. Hence there is no need for load-sharing as each recorder will record all calls for all the required devices. Also it should be left to the OEM to design the system as their design philosophy	Refer addendum

73	Part – 2	Section – VI B	Clause No: 5.11.4 Page No: 359 of 936	b) Standby mode where the primary recorder is in operation with the secondary recorder working in auto-standby mode allowing the secondary recorder to operate on failure of the primary or when the recording capacity of the primary media has been reached.	The standard mechanism used in the recorders is that the oldest recordings are automatically deleted to create space for newer recordings, i.e. it has a sliding window period of recordings, with adequate hard disk sizes to fulfill the customer's retention period requirements. Hence we request you to delete the reference with respect to "when the recording capacity of the primary media has been reached" from the clause.	Refer addendum
74	Part – 2	Section – VI B	Clause No: 5.23 Page No: 360 of 936	The audio recorder shall automatically and continuously record both analogue and digital speech channels providing high voice quality on playback of recordings.	TETRA is a Digital radio system. Analogue is not applicable here. Please request to remove this clause.	Refer addendum
75	Part – 2	Section – VI B	Clause No: 5.24.7 Page No: 360 of 936	5.24.7 The recordings and call logs for each of the two railway corridors (Corridor 1 and Corridor 2) shall be separate and contained within their own dedicated databases.	Based on our understanding, it is a standard and operationally feasible practice to provide logical databases with respect to access of corridor 3 personnel to corridor 3, corridor 4 personnel to corridor 4 recordings, and corridor 5 personnel to corridor 5 recording shall be provisioned so that the other personnel cannot access recordings for another corridor. This creates separate logical databases in effect. Please confirm if our understanding is correct. We also request you to correct the reference of the corridor to 3,4 and 5 instead of 1, 2.	Refer addendum
76	Part – 2	Section – VI B	Clause No: 5.26 Page No: 360 of 936	5.26. Multiple options shall be provided for activation of recordings, which shall include, as a minimum, the following functions which shall be operator selectable: 5.26.1. Recording of all channels, or selected channels, on a continuous basis or for a variable, pre-set time; 5.26.2. Voice activated recording on detection of specific words or phrases (This facility shall be offered as an optional item).	Our understanding is that continuous and pre-set time activation of recording and voice activated recording is not relevant to this tender as the requirement is to record digital Tetra radio calls. Further the tender is only to record TETRA calls, which most of the radio systems now a days provide via the IP network. Please confirm that these requirements are not applicable to the TETRA recording required."	Refer addendum
77	Part – 2	Section – VI B	Clause No: 5.31.2 Page No: 361 of 936	5.31.2. The voice recorder of each corridor shall also display the operational state of the HMR and that of the other two Corridor voice recorders	The HMR abbreviation is not defined in the Part 2 document. The requirement can be achieved with two voice recorders. One as Primary Recorder (at OCC) for Corridor 3, 4 and 5, and one as Redundant Recorder (at BCC) for Corridor 3, 4 and 5. Both recorders will record identical traffic in parallel, providing full redundancy.	Refer addendum
78	Part – 2	Section – VI B	Clause No: 5.31 Page No: 362 of 936	5.33. Performance Requirements 5.33.1. The performance of the voice recording equipment shall meet the following requirements: a) Analogue input channel, in the range 300Hz to 3400Hz. b) Signal to Noise ratio >= 50dB. c) Crosstalk between channels >= 50dB. d) Distortion of Recorded channels <= 2% at 800 Hz.	The requirement mentioned in this clause is referring to Analogue standards. However, the tetra call are digital technologies. Hence request you to remove this clause.	Refer addendum
79	Part-1	Section – I Instruction to Bidders (ITB)	1. Scope of Bid 1.1, Page No. - 7	In connection with the Invitation for Bids specified in the Bid Data Sheet (BDS), the Employer, as specified in the BDS, issues these Bidding Documents (hereinafter referred to as "Bidding Documents") for the procurement of Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor as specified in Section VI, Employer's Requirements. The name, identification and number of the lot(s) (contract(s)) comprising this National Competitive Bidding (NCB) are specified in the BDS.	Please clarify, if this procurement is based on NCB (National Competitive Bidding) tendering & foreign entities are not allowed to bid in this tender and only local Indian registered entities are permitted to participate in this bid.	NCB doesnot prohibit the foriegn participation until the Snigle Entity /JV meets the minimum local content of Class 1 or class 2 as per Eligibility Criteria Public procurement (Preference to Make in India), 2017 Revision regarding : Order P-45021/2/2017-PP (BE -ii) dated 16-09-2020 and revision of Minimum Local content of Various rail components under MII-PPP order ,2017 of DPIIT No. K-14011/08/2017 -MRTS-Coord dated 14-10-2020. Non local supplier is not eligible as per the above refered MII order.

80	Part-1	Section - III Evaluation and Qualification Criteria (EQC)	2.2.2 Pending Litigation, Page No. - 61	Requirement: All pending litigation shall in total not represent more than seventy five percent (75%) of the Bidder's net worth and shall be treated as resolved against the Bidder.	Our understanding is that the pending litigations to be considered for Section III Evaluation and Qualification criteria, sub factor 2.2.2 pertain to those litigations where the Employer/End Customer/ Main Contractor has filed a claim against the bidder or where the bidder has filed a claim against the Employer/End Customer/ Main Contractor. Please confirm.	All Pending litigations, its litigation amount associated to Bidder's Network have to be listed by the Bidder in Form CON. Please refer Addendum for the revised criteria.
81	Part-1	Section - III Evaluation and Qualification Criteria (EQC)	2.2.2 Pending Litigation, Page No. - 61	Requirement: All pending litigation shall in total not represent more than seventy five percent (75%) of the Bidder's net worth and shall be treated as resolved against the Bidder.	Our understanding is that the pending litigations to be considered for Section III Evaluation and Qualification criteria, sub factor 2.2.2 pertain to those litigations where the Employer/End Customer/ Main Contractor has filed a claim against the bidder or where the bidder has filed a claim against the Employer/End Customer/ Main Contractor. Apart from this, considering various factors , <u>we request you to revise the clause as below:</u> All pending litigation shall in total not represent more than ninety five percent (95%) of the Bidder's net worth and shall be treated as resolved against the Bidder.	All Pending litigations, its litigation amount associated to Bidder's Network have to be listed by the Bidder in Form CON. Please refer Addendum for the revised criteria.
82	Part-1	Section - III Evaluation and Qualification Criteria (EQC)	2.4.2 a) Specific Experience, Page No. - 64	Requirement: Experience in "Manufacture, Supply, Installation, Testing and Commissioning of Telecommunication Radio Systems for Metro Rail /Mono Rail /Mainline Railways involving at least 5 base stations in single project. The commissioned project should have been in satisfactory revenue service at least for one year during the last 7 (seven) years (with required documentary evidence). Additionally, 30 base stations and 5 switching systems of similar make, in various projects put together, should have been in satisfactory Passenger operation for at least one year during the last 7 (Seven) years (with required documentary evidence). (i) As a Single Entity or JV member; (without engaging specialist sub-contractor(i)); OR (ii) In the capacity of specialist sub-contractor(i); between 1st September 2014 and the bid submission deadline. (All documentary evidence shall be from the client in case of Single entity/JV; or from the Project integrator in case of Specialist Subcontractor) Lead Member: Must be the OEM of Switching system and Base station (Hardware and software). Must meet requirement in respect of supply of Switching system and Base station (Hardware and software) for minimum 5 base stations in single project and minimum 30 base stations and 5 switching systems of similar make working satisfactory for one year in last 7 years, in various projects put together.	QUERY SPECIFIC TO SINGLE ENTITY BIDDING SCENARIO: 1. The project scope involves setting up TETRA system including majority of 3rd party (non-TETRA) equipment and services. The scope of TETRA OEM shall be limited to supply and commissioning of TETRA equipment only. Hence we would like to request that System Integrator with experience in Design, Supply, Installation, Testing, Commissioning and Interfacing of telecom sub system(s) in Metro/LRT/Mono Rail /Airport/Railway/large Telecom infrastructure projects should be allowed to participate as Lead Bidder. 2. Request that Tetra OEM can be part of the Consortium, which parties can make & other JV/Consortium partner's can be the lead bidder. The reason is that even if OEM is not Lead Bidder , then also TETRA OEM shall be jointly and severally liable for the project execution along with other Consortium members for complete scope of work. Please refer below query for more details.	Refer Addendum

83	Part-1	Section - III Evaluation and Qualification Criteria (EQC)	2.4.2 a) Specific Experience, Page No. - 64	<p>Requirement: Experience in "Manufacture, Supply, Installation, Testing and Commissioning of Telecommunication Radio Systems for Metro Rail /Mono Rail /Mainline Railways involving at least 5 base stations in single project. The commissioned project should have been in satisfactory revenue service at least for one year during the last 7 (seven) years (with required documentary evidence). Additionally, 30 base stations and 5 switching systems of similar make, in various projects put together, should have been in satisfactory Passenger operation for at least one year during the last 7 (Seven) years (with required documentary evidence). (i) As a Single Entity or JV member; (without engaging specialist sub-contractor(i)); OR (ii) In the capacity of specialist sub-contractor(i); between 1st September 2014 and the bid submission deadline. (All documentary evidence shall be from the client in case of Single entity/JV; or from the Project integrator in case of Specialist Subcontractor)</p> <p>Lead Member: Must be the OEM of Switching system and Base station (Hardware and software). Must meet requirement in respect of supply of Switching system and Base station (Hardware and software) for minimum 5 base stations in single project and minimum 30 base stations and 5 switching systems of similar make working satisfactory for one year in last 7 years, in various projects put together.</p>	<p>QUERY SPECIFIC TO CONSORTIUM BIDDING SCENARIO:</p> <p>1. For the Consortium mode of bidding, we would like to request that any member of the Consortium to be designated as Lead Bidder based on the scope of work split between the Consortium members. 2. We would like to request that for the purpose of 'Experience' as stated in clause 2.4.2 a), Indian subsidiary of the OEM to be allowed to use the credentials of any of the group companies of OEM. 3. The OEM shall still be part of the Consortium (though not necessarily as lead bidder). For all practical purpose, CMRL shall be engaging with the OEM for all TETRA equipment related aspects based on below reasons: a) TETRA OEM shall be joint and severally liable for the project execution along with other Consortium members for complete scope of work. b) For all Communication/Notice, TETRA OEM shall be party to the same and included in the Consortium agreement c) Given the contractual commitment for TETRA equipment support for the long term contract duration, TETRA OEM as Consortium member shall be liable for all TETRA equipment support 4. In case of Foreign Party is lead bidder in Consortium. It would not be favorable to CMRL, considering "Purchase Preference to Local Suppliers/Preference to 'Make In India' Policy" & would have GST Implications. 5. Request that Tetra OEM can be part of the Consortium, which parties can make & other JV/Consortium partner's can be the lead bidder. The reason is that even if OEM is not Lead Bidder, then also TETRA OEM shall be jointly and severally liable for the project execution along with other Consortium members for complete scope of work.</p>	Refer Addendum
84	Part-1	Section – IV Bidding Forms	Form EXP - 2(a): Specific Experience, Page No. - 142	Role in Contract - Prime Contractor Only	<p>As mentioned in Form EXP - 2a), Role of Contract is restricted to Prime Contractor only, whereas as per requirement mentioned in clause 2.4.2 a), experience In the capacity of specialist sub-contractor is also acceptable. Please clarify.</p>	Refer Addendum
85	Part-3	Section VIII. General Conditions	Clause 14.7 - Payment, Page - 63	General Query	<p>Who should be billing to CMRL, whether it should be the lead bidder or both the parties of the unregistered consortium will be billing for their own share of work.</p>	Refer Addendum
86	Part – 2	Section – VI B Particular Specification	Clause 5.24.4 - Payment, Page - 360	5.24.4. The compression type and rate, such as 32kbps ADPCM, of each channel shall be user selectable and configurable.	<p>This is relevant to Telephony. The recorders record native audio based on IP. The compression is generally done while storing the recorded data as it is. As such the compression mentioned here is only applicable for storage and should be left up to the design of each OEM to use compression or not. As each OEM will have different design philosophy. Request you to please amend the clause accordingly.</p>	Refer Addendum
87	Part – 2	Section – VI B	Clause No: 5.26 Page No: 360	<p>5.26. Multiple options shall be provided for activation of recordings, which shall include, as a minimum, the following functions which shall be operator selectable: 5.26.1. Recording of all channels, or selected channels, on a continuous basis or for a variable, pre-set time; 5.26.2. Voice activated recording on detection of specific words or phrases (This facility shall be offered as an optional item).</p>	<p>Calls are recorded when the recorder receives events that indicate a talkgroup or radio/console is involved not with respect to 1) continuous or for a variable, pre-set time 2) or based on the detection of specific words or phrases..</p> <p>Also, we understand that continuous and pre-set time activation of recording and voice activated recording is not relevant to this tender as the requirement, but more for analogue and digital device recording. Hence request you to please delete the clause.</p>	Refer Addendum

88	Part – 2	Section – VI B	General Query	Provision of Backbone	Backbone would be required in order to connect the Remote Base Station Sites. RCWs and other entities with the Switching Infrastructure. Similarly dark fibres would be required to connect the Primary (OCC) and Standby Switching Infrastructure (BCC). We understand that these requirements will be provided by the FOTS OEM via a separate Telecom tender. Please confirm.	1. Up links to OCC/BOCC will be provided in every station by the Telecom Contractor. The core switching network (RCW,CAD/MSO/Recorder/Router/Gateways/other Tetra equipmen) in OCC and BOCC for Tetra equipments shall be in the scope of ASA-07. 2. 8 core of Dark fiber will be allocated for Tetra in each 144 Core FO cable and will be made available in Communication equipment room.
89	Part – 2	Section – VI B	Clause No: 16.1.6.1 Page No: 436	RS, STC, Telecom TETRA and PSD contractors shall jointly setup an integrated test bed at CMRL premise to arrange for the integration testing of various subsystems, as a minimum but not limited to ATS, ATO, on-board CCTV management system by signalling contractor, On-board passenger information system, on-board driver display units, TCMS, On-board NVR,RTR-DMS by RS contractors, station passenger information systems etc of the Telecom contractors. The test bed shall have provision for testing the actual softwares over the actual hardware. Necessary train running mimicking simulator shall be provided by the SIG contractor to simulate a train running. RS contractors shall provide necessary simulators to simulate various failure and operational scenarios in the TCMS pertaining to the Interface data.	There are no details provided in terms of Bill of quantity (BoQ) for the TEST BED. We understand that 1 qty of Trainborne radio with its accessory need to be considered, which is already mentioned as interfacing software/hardware in clause 3.5.1.1 i) of Part 2 Particular specification. Please confirm.	One set of device for simulating and testing all Tetra Interface scenarios including Signalling ,Rolling stock at Wayside,OCC and onborad.All inputs required for testing the Interface shall be simulated by the System.
90	Part – 2	Section – VI A Employer's Requirements- Appendices	Clause 20, Page 251	20. MOCK-UPS, PROTOTYPES AND SAMPLES 20.1 Requirements 20.1.1 The Contractor shall produce mock-ups, prototypes and samples as specified, if any, in the Technical Specification of Volume -2, Part 2.	We understand that mockup, prototype and sample is referring to Volume 2 of Part 2 which is about OHS (Occupational, Health and Safety). Please clarify the relevant section to be referred.	Refer Addendum
91	NIT	NIT No: CMRL/PHASE-II/SYS/ ASA07/2021	S.No. 10	Last Date and Time of submission/uploading of Bid, - 24 Jan 2022 up to 13:00 hrs	We request CMRL to give an extension of 60 days from the current date of submission . It may be noted that we require the same considering below - (1) Christmas Holidays (2) New year Holidays both in India and US (3) Apart from Tetra ,the tender also has considerable solution requirements on IBS and other third party items . (4) Current uncertain pandemic situation	Refer Addendum
92	Part-1	Section – IV Bidding Forms	Page 140	Form FIR -2 : Current Contract Commitments	There will be several ongoing and closed contracts which Consortium members will have under implementation and these contracts will be not limited to just metro contracts. Considering this It may not be possible for bidder to provide the details of all such on-going contract. It is suggested that the bidder should be allowed to produce only a Bank Certificate showing the credit worthiness of the bidder instead of providing all the ongoing contracts which will not be feasible .	Bid conditions will prevail.
93	Part-1	Section – IV Bidding Forms	Page 146	7. Certificate confirming No deviation from Bid conditions	Its suggested that the bidder should be able to provide their comments and qualification remarks against the RFP specifications and clauses so that a clear understanding is created on all the points with respect to solution ,deployment and qualification . This is very important for successful Metro Deployment. Kindly accept.	Bid conditions will prevail.
94	Part 2	Section – VI B Particul	3.4.11.1	Station controller	Kindly clarify, In the SCR, RCP is envisaged and at station controller RAU is envisaged.	Refer Addendum
95	Part 2	Section – VI B Particular Specification	3.4.11.1	Receiving substation: RAU one for each	Please confirm the quantity of Receiving substation to determine RAU quantity	12 Number of RSSs

96	Part 2	Section – VI B Particular Specification	3.5.6.2.	RCW Servers i. The RCW Servers shall be located in OCC at Koyambedu ,BCC at Nandanam and Poonamalle depot	1. The servers at OCC and BCC will be in hot standby mode, and servers at Poonamalle depot will be in cold standby as backup to servers at OCC and BCC. Our understanding is that all the other required servers in the system will be deployed in the same configuration. Kindly confirm. 2. Please confirm if high availability is to be offered for RCW servers in OCC and BCC.	Refer Addendum
97	Part 2	Section – VI B Particular Specification	10.14.	Reporting (FRACAS software)	1. Kindly confirm if the FRACAS software to be provided for only for Radio system. 2. Kindly confirm the other subsystems to be integrated with FRACAS system provided for Radio system. 3. Kindly confirm whether Radio system should send Radio fault to existing FRACAS system	Refer Addendum
98	Part 2	Section – VI B Particular Specification	11.1.6.	Interface with CCTV VMS System. i) The Radio system shall interface with the CCTV VMS system to initiate VMS to radio calls and vice versa without the intervention of OCC	1. Kindly confirm the user, functional as well as the interface requirement of the VMS. 2. Kindly confirm the use case for integration of Radio system with CCTV VMS system.	Refer addendum
99	Part 2	Section – VI B Particular Specification	2.1.2.3.	The Contractor shall prepare a “radio network traffic report” after completion of stage 3 elevated section and second report after completion of stage 7 of underground section. This is necessary to assess the adequacy of the design for the actual demands of voice and data traffic on the network. In case of rejection by the Employer’s representative, the Contractor shall be responsible where necessary for re-configuring the Train Radio System (TRS) and providing additional hardware at no extra cost to the Employer, to ensure that the specified normal and emergency grades of service levels are achieved. The Grade of Service to be provided is 3%.	In order to dimension the system, the GoS has to be defined along with a capacity requirement. Please specify the carried traffic per per km track length or per metro station. We feel a 2 carrier traffic capacity should be guaranteed through out the track including underground section.	Refer Addendum
100	Part 2	Section – VI B Particular Specification	5.28.1.	Internal storage facility, which shall store all calls and associated call logs automatically for the required duration	Kindly confirm the storage capacity of the recorder	6 months as per Part – 2, Section – VI B Tender No. ASA07 Particular Specifications clause 3.4.6.6.b and 5.6
101	General query				1. Kindly provide the coordinates, station heights of all the stations to conduct RF propagation study. 2. Kindly provide the stations drawings of all the stations	Refer Addendum
102	General query				Please confirm that the lead bidder can authorize its indian subsidiaries or any of the consortium/JV partner (formed for this bid) in India as the primary point of contact for all project activities.	Tender condition prevail
103	General query				Please confirm whether customer or supplier to pay the custom duty and clearance charges for the foreign supply.	The Contractor shall be solely responsible for payment of all royalties, custom duties, custom clearances, port handling charges, freight and fees etc., for all imports. Refer Part-1, Section – IV Bidding Forms Clause 3.1.2
104	General query				Please confirm that all local taxes shall be paid by the customer or supplier.	The Contractor shall be solely responsible for all statutory clearances, including customs, excise, taxes, levies, octroi, transportation etc. required for successful execution of this Contract.Refer Part-1, Section – IV Bidding Forms Clause 3.1.2
105	Part 1	Section - III Evaluation and Qualification Criteria (EQC)	2.4.1	Experience under contracts in the role of prime contractor (Single entity or JV member), or Specialist Subcontractor(i) for at least the last SEVEN (7) years starting 1st September 2014.	Kindly rephrase as "Experience under contracts as a OEM/Business of TETRA Base station products (Single entity or JV member), or Specialist Subcontractor(i) for at least the last SEVEN (7) years starting 1st September 2014."	Refer Addendum

106	Part 1	Section - III Evaluation and Qualification Criteria (EQC)	15.1	In accordance with Section III, Evaluation and Qualification Criteria, if the prequalification process was conducted prior to the bidding process, the Bidder shall provide in the corresponding information sheets included in Section IV, Bidding Forms, (i) updated information on any assessed aspect that changed from that time to establish that the Bidder continues to meet the criteria used at the time of prequalification and (ii) the requested information on the additional qualification criteria stated in Section III, Evaluation and Qualification Criteria, or if the assessment of qualification criteria was not conducted prior to the bidding process, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.	1. Do we need to translate Documents (Originally in local language) submitted by foreign party in english language? 2. Do it need to be notarized and apostilled or self attestation is sufficient?	1. Yes. 2. For any document issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the document is being issued. However, any document provided by bidders from countries that have signed the Hague Convention, 1961 is not required to be legalised by the Indian Embassy if it carries a conforming apostille certificate.
107	ITB 13-14	Section – I Instruction to Bidders (ITB)	21.7	The Bid Security of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the Bid Security shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.	1. Kindly confirm Beneficiary name, address and bank detail for bank guarantee? 2. As per the received Bank guarantee format for EMD/Security Deposit names of all the consortium/JV members need to be mentioned. Please note legal entity will be formed only after award of contract and participation in the tender will be based on Lol/MoU between consortium partners. In this case bank is not ready to mention the names of all the parties on the Bid bond and can mention only the name of one party who will be responsible for BG and is a part of consortium for the bid. Kindly clarify if the same is acceptable and one party under the agreed consortium/JV can submit the BG till the time legal entity formed . 3. Further can each member under JV/consortium submit separate Bid Security for their percentage of participation? 4. Can we submit EMD in the form of BG from foreign bank? 5. We understand that EMD can also be submitted by the Indian subsidiary of OEM in INR. Please confirm.	1. Beneficiary Name shall be adopted as below: Chennai Metro Rail Limited (CMRL), Admin Building, CMRL Depot Poonamallee High Road, Koyambedu Chennai – 600 107 Refer Part-1, Section - II Bid Data Sheet (BDS) Clause 15. CMRL Bank Account & GST Details 2,3,5 .Refer Addendum 4. Bid condition Prevails
108	Part 1	Part-1, Section - III Evaluation and Qualification Criteria (EQC)	2.5	Item 1,2,3 and 4	These subsystems are supplied as part of overall turnkey project, these requirements must be met by consortium. It may not be feasible to obtain provenness certificate for each subsystem as this part of overall turnkey project. The same can be considered as a part of supply as a standard requirement of radio system and certificates for Base Station and radio should be considered OR Purchase order copy along with the delivery challan, invoices can be furnished.	Provenness certificate for the Tetra system in the Turnkey project shall be obtained from the End user. The related the Purchase order or challan copy, invoices can be submitted as a proof of deployment of each subsystem.
109	Part 1	Part-1, Section - III Evaluation and Qualification Criteria (EQC)	2.5	Item 4	The interface with onboard signalling system is not required as train radio interface with onboard signalling will be done through TCMS in all Metro projects.	Bid conditions will prevail.
110	Part-1,	Part-1, Section – IV Bidding Forms	Price Centre A to J	Staggered Payment terms	Request to have one standard payment term for Supply. 70% payment of supply within 30 days, 20% on Installation and acceptance, 10% on Handover.	Bid conditions will prevail.
111	Part 1	Part-1, Section – IV Bidding Forms	4.5.1 to 4.5.12		Request to have one standard payment term for Installation testing Commissioning & Handover. 60% on Installation 20% on Testing and commissioning, 20% on Acceptance and handover.	Bid conditions will prevail.

112	Part 1	I, Instruction to Bidders (ITB)	1.1	In connection with the Invitation for Bids specified in the Bid Data Sheet (BDS), the Employer, as specified in the BDS, issues these Bidding Documents (hereinafter referred to as "Bidding Documents") for the procurement of Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor as specified in Section VI, Employer's Requirements. The name, identification and number of the lot(s) (contract(s)) comprising this National Competitive Bidding (NCB) are specified in the BDS.	Please clarify, if this procurement is based on NCB (National Competitive Bidding) tendering & foreign entities are not allowed to bid in this tender and only local Indian registered entities are permitted to participate in this bid.	NCB doesnot prohibit the foriegn participation until the Snigle Entity /JV meets the minimum local content of Class 1 or class 2 as per Eligibility Criteria Public procurement (Preference to Make in India), 2017 Revision regarding : Order P-45021/2/2017-PP (BE -ii) dated 16-09-2020 and revision of Minimum Local content of Various rail components under MII-PPP order ,2017 of DPIIT No. K-14011/08/2017 -MRTS-Coord dated 14-10-2020. Non local supplier is not eligible as per the above refered MII order.
113	Part 1	I, Instruction to Bidders (ITB)	21.7	21.7 The Bid Security of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the Bid Security shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.	If there is a Consortium arrangement between the bidding parties, which is not legally constituted. Please clarify, whether the lead bidder or each party has to provide the bid security as per their respective scope of work. As per our understanding , bid security can not be submitted on joint names of two parties & same has to be submitted by individual bidders, if required.	Refer Addendum
114	Part 1	III, Evaluation and Qualification Criteria (EQC)	2.2.2	Requirement: All pending litigation shall in total not represent more than seventy five percent (75%) of the Bidder's net worth and shall be treated as resolved against the Bidder.	Our understanding is that the pending litigations to be considered for Section III Evaluation and Qualification criteria, sub factor 2.2.2 pertain to those litigations where the Employer/End Customer/ Main Contractor has filed a claim against the bidder or where the bidder has filed a claim against the Employer/End Customer/ Main Contractor. Please confirm.	All Pending litigations, its litigation amount associated to Bidder's Networth have to be listed by the Bidder in Form CON. Please refer Addendum for the revised criteria
115	Part 1	III, Evaluation and Qualification Criteria (EQC)	2.4.2	Requirement: Experience in "Manufacture, Supply, Installation, Testing and Commissioning of Telecommunication Radio Systems for Metro Rail /Mono Rail /Mainline Railways involving at least 5 base stations in single project. The commissioned project should have been in satisfactory revenue service at least for one year during the last 7 (seven) years (with required documentary evidence). Additionally, 30 base stations and 5 switching systems of similar make, in various projects put together, should have been in satisfactory Passenger operation for at least one year during the last 7 (Seven) years (with required documentary evidence). (i) As a Single Entity or JV member; (without engaging specialist sub-contractor(i)); OR (ii) In the capacity of specialist sub-contractor(i); between 1st September 2014 and the bid submission deadline. (All documentary evidence shall be from the client in case of Single entity/JV; or from the Project integrator in case of Specialist Subcontractor) Lead Member: Must be the OEM of Switching system and Base station (Hardware and software). Must meet requirement in respect of supply of Switching system and Base station (Hardware and software) for minimum 5 base stations in single project and minimum 30 base stations and 5 switching systems of similar make working satisfactory for one year in last 7 years, in various projects put together.	<u>QUERY SPECIFIC TO SINGLE ENTITY BIDDING SCENARIO:</u> 1. The project scope involves setting up TETRA system including majority of 3rd party (non-TETRA) equipment and services. The scope of TETRA OEM shall be limited to supply and commissioning of TETRA equipment only. Hence we would like to request that System Integrator with experience in Design, Supply, Installation, Testing, Commissioning and Interfacing of telecom sub system(s) in Metro/LRT/Mono Rail /Airport/Railway/large Telecom infrastructure projects should be allowed to participate as Lead Bidder. 2. Request that Tetra OEM can be part of the Consortium, which parties can make & other JV/Consortium partner's can be the lead bidder. The reason is that even if OEM is not Lead Bidder , then also TETRA OEM shall be jointly and severally liable for the project execution along with other Consortium members for complete scope of work.Please refer below query for more details.	Refer addendum

116	Part 1	III, Evaluation and Qualification Criteria (EQC)	2.4.2	<p>Requirement: Experience in "Manufacture, Supply, Installation, Testing and Commissioning of Telecommunication Radio Systems for Metro Rail /Mono Rail /Mainline Railways involving at least 5 base stations in single project. The commissioned project should have been in satisfactory revenue service at least for one year during the last 7 (seven) years (with required documentary evidence). Additionally, 30 base stations and 5 switching systems of similar make, in various projects put together, should have been in satisfactory Passenger operation for at least one year during the last 7 (Seven) years (with required documentary evidence). (i) As a Single Entity or JV member; (without engaging specialist sub-contractor(i)); OR (ii) In the capacity of specialist sub-contractor(i); between 1st September 2014 and the bid submission deadline. (All documentary evidence shall be from the client in case of Single entity/JV; or from the Project integrator in case of Specialist Subcontractor)</p> <p>Lead Member: Must be the OEM of Switching system and Base station (Hardware and software). Must meet requirement in respect of supply of Switching system and Base station (Hardware and software) for minimum 5 base stations in single project and minimum 30 base stations and 5 switching systems of similar make working satisfactory for one year in last 7 years, in various projects put together.</p>	<p>QUERY SPECIFIC TO CONSORTIUM BIDDING SCENARIO:</p> <p>1. For the Consortium mode of bidding, we would like to request that any member of the Consortium to be designated as Lead Bidder based on the scope of work split between the Consortium members.</p> <p>2. We would like to request that for the purpose of 'Experience' as stated in clause 2.4.2 a), Indian subsidiary of the OEM to be allowed to use the credentials of any of the group companies of OEM.</p> <p>3. The OEM shall still be part of the Consortium (though not necessarily as lead bidder). For all practical purpose, CMRL shall be engaging with the OEM for all TETRA equipment related aspects based on below reasons: a) TETRA OEM shall be joint and severally liable for the project execution along with other Consortium members for complete scope of work. b) For all Communication/Notice, TETRA OEM shall be party to the same and included in the Consortium agreement c) Given the contractual commitment for TETRA equipment support for the long term contract duration, TETRA OEM as Consortium member shall be liable for all TETRA equipment support</p> <p>4. In case of Foreign Party is lead bidder in Consortium. It would not be favorable to CMRL, considering "Purchase Preference to Local Suppliers/Preference to 'Make In India' Policy" & would have GST Implications.</p> <p>5. Request that Tetra OEM can be part of the Consortium, which parties can make & other JV/Consortium partner's can be the lead bidder. The reason is that even if OEM is not Lead Bidder, then also TETRA OEM shall be jointly and severally liable for the project execution along with other Consortium members for complete scope of work.</p>	Refer addendum
117	Part 1	IV, Bidding Forms	4.1.7	<p>Wherever the Bidder comprises a JV/Consortium and the Bidder desires separate payments to each Member of the Consortium, the Bidder shall clearly lay down the Milestones / Currencies allocated to the different Members of the JV/Consortium, which shall be in agreement with the intended percentage share of the Members as indicated in the Consortium agreement for this Contract.</p>	<p>Considering this clause, we understand that even billing/Invoicing will be raised by each member directly on CMRL for their respective scope of work. Kindly confirm.</p>	Refer addendum
118	Part 1	IV, Bidding Forms	4.1.13 (ii)	<p>(ii) Supervision of Installation at the Rolling stock Manufacturers' factories, joint testing and certification on the test track as well as in main line and commissioning for Revenue service.</p>	<p>We understand contractor has to supervise the installation of initial two trains at Rolling stock factory. Rest installation for all the remaining train in different stages shall be conducted by rolling stock contractor only.</p> <p>Please confirm if understanding is correct.</p>	Refer addendum
119	Part 1	IV, Bidding Forms	4.1.19	<p>4.1.19 Price Centre 'K' – 'Training and Operation & Maintenance manuals', comprises of all those obligations and ongoing activities throughout the Contract including the following but not limited to: (i) The Deployment of the Experts under the Price Centre 'Training' (100 Manweeks) may not be continuous, and they may be required to supervise the maintenance /on the job training in short periods at a time as required by the Employer. (ii) The manweeks specified in Price Centre / BOQ for Training (100 Manweeks) are tentative and will be considered for bid evaluation. The Employer at their discretion may or may not operate this item either fully or partially at the quoted price by the bidder and the contractor has no claim on this account.</p>	<p>As per tender requirement, local training for Forty manweeks each for both technical personnel and operation personnel shall be around 400 days of training. Normally such requirement comes for whole telecom system and this tender is only for Tetra subsystem.</p> <p>As per our past experience regarding training requirement for Metros project are maximum around 8 weeks, which is around 40 days and out of that first 4 weeks before commissioning of first stage and last four weeks after commissioning of last stage.</p> <p>Request to please review the number of days asked for training because 400 days for local training does not seem to be practical based on Metro requirements.</p>	Refer addendum
120	Part 1	IV, Bidding Forms	4.1.20	<p>4.1.20 The Contractor shall be solely responsible for all the statutory clearances including customs, taxes, levies, octroi, transportation, Insurances, technical clearances by the Government, safety audits, other incidental services/expenses etc. required for the successful execution of this Contract. The Lump Sum price quoted by the bidder is deemed inclusive of all these costs.</p>	<p>As per our experience, Contractor will help in all the liaisoning activities with govt authorities and Employer shall pay all the statutory fees to the govt authorities plus all sort of documentation required to clear the process as per govt. Guidelines shall be provided by Employer as and when required.</p> <p>Please confirm if understanding is correct.</p>	Bid conditions will prevail.

121	Part 1	IV, Bidding Forms	4.2.1	<p>4.2.1 BOQ for Price Centre 'K' – Training and Operation & Maintenance Manual:</p> <table border="1"> <thead> <tr> <th rowspan="2">S. No</th> <th rowspan="2">Description</th> <th rowspan="2">Unit</th> <th rowspan="2">Quantity</th> <th colspan="2">Quoted Unit Rate</th> <th colspan="2">Quoted Amount</th> </tr> <tr> <th>Local Currency (INR)</th> <th>Foreign Currency (FC)</th> <th>Local Currency (INR)</th> <th>Foreign Currency (FC)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Cost for instructor week for imparting training to Employer's Technical Personnel, in Chennai</td> <td>Man-weeks</td> <td>40</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Cost for instructor week for imparting training to Employer's Technical Personnel, in off-shore locations</td> <td>Man-weeks</td> <td>20</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Cost for instructor week for imparting training to Employer's operating personnel, in Chennai</td> <td>Man-weeks</td> <td>40</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Delivery & commissioning of Computer based training systems at Chennai, as stipulated in Part 2 – Employer's requirement.</td> <td>LS</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Operating & Maintenance Manuals (Draft as well as Final, in required copies)</td> <td>LS</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">Total Amount (To be carry forwarded to Pricing Summary – Price Centre 'K')</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	S. No	Description	Unit	Quantity	Quoted Unit Rate		Quoted Amount		Local Currency (INR)	Foreign Currency (FC)	Local Currency (INR)	Foreign Currency (FC)	1	Cost for instructor week for imparting training to Employer's Technical Personnel, in Chennai	Man-weeks	40					2	Cost for instructor week for imparting training to Employer's Technical Personnel, in off-shore locations	Man-weeks	20					3	Cost for instructor week for imparting training to Employer's operating personnel, in Chennai	Man-weeks	40					4	Delivery & commissioning of Computer based training systems at Chennai, as stipulated in Part 2 – Employer's requirement.	LS	1					5	Operating & Maintenance Manuals (Draft as well as Final, in required copies)	LS	1					Total Amount (To be carry forwarded to Pricing Summary – Price Centre 'K')								<p>As per tender requirement, Local training for Forty manweeks each for both technical personnel and operation personnel shall be around 400 days of training. Normally such requirement comes for whole telecom system and this tender is only for Tetra subsystem.</p> <p>As per our past experience regarding training requirement for Metros project are maximum around 8 weeks, which is around 40 days and out of that first 4 weeks before commissioning of first stage and last four weeks after commissioning of last stage.</p> <p>Request to please review the number of days asked for training because 400 days for local training does not seems to be practical based on Metro requirements.</p> <p>As per our past experience regarding training requirement for Metros project 4 weeks of offshore Training is sufficient. Please review once because four weeks of offshore training is sufficient as per our course curriculum.</p>	Refer Addendum
S. No	Description	Unit	Quantity	Quoted Unit Rate					Quoted Amount																																																									
				Local Currency (INR)	Foreign Currency (FC)	Local Currency (INR)	Foreign Currency (FC)																																																											
1	Cost for instructor week for imparting training to Employer's Technical Personnel, in Chennai	Man-weeks	40																																																															
2	Cost for instructor week for imparting training to Employer's Technical Personnel, in off-shore locations	Man-weeks	20																																																															
3	Cost for instructor week for imparting training to Employer's operating personnel, in Chennai	Man-weeks	40																																																															
4	Delivery & commissioning of Computer based training systems at Chennai, as stipulated in Part 2 – Employer's requirement.	LS	1																																																															
5	Operating & Maintenance Manuals (Draft as well as Final, in required copies)	LS	1																																																															
Total Amount (To be carry forwarded to Pricing Summary – Price Centre 'K')																																																																		
122	Part 1	IV, Bidding Forms	Form EXP - 2(a)	Role in Contract - Prime Contractor Only	As mentioned in Form EXP - 2a), Role of Contract is restricted to Prime Contractor only, whereas as per requirement mentioned in clause 2.4.2 a), experience In the capacity of specialist sub-contractor is also acceptable. Please clarify.	Refer Addendum																																																												
123	Part 2	VI-B Particular Specifications	1.1.3 3.1	<p>The Radio system shall have central or distributed control equipment installed in the OCC, BCC and Poonamalee depot for system control.</p> <p>The Radio system shall have central or distributed architecture with control equipment installed in the OCC & BCC for system control from OCC & BCC</p>	We understand that "Chennai Metro Rail Project – Phase II" having Corridor- 3, 4 & 5 will have OCC & OCC-CER at Koyambedu, BCC & BCC-CER at Nandanam and depots at Madhavaram and Poonamalee. Please confirm if this understanding is correct and share the precise locations of OCC, BCC & Depot buildings with geo coordinates.	Refer Addendum																																																												
124	Part 2	VI-B Particular Specifications	1.1.3	The Radio system shall have central or distributed control equipment installed in the OCC, BCC and Poonamalee depot for system control.	Central switching equipment will be installed at two locations i.e. OCC & BCC or OCC & Depot. Please confirm the location where the switching equipment shall be install.	Refer Addendum																																																												
125	Part 2	VI-B Particular Specifications	1.2.7, b	Fixed station radio (116 no.s) will be located at each station of corridors 3, 4 and 5.	<p>As per Clause- 1.2.5, total stations are 114nos(elevated & sub-surface). But as per Clause- 1.7,b Fixed station radio qty is 116 nos. Please share the bifurcation of 116nos. Fixed station radios. Crew control room Fixed station radios are included in 116nos. or not ?.</p> <p>Also share precise Qty of Terminal stations and crew control rooms in "Chennai Metro Rail Project – Phase II" stations.</p>	Refer Addendum																																																												
126	Part 2	VI-B Particular Specifications	1.2.7, c	Hand portables (800 no.s) will be required for the maintenance staff of signal, telecommunication, AFC, track, traction power and electrical/mechanical department as well as for the security staff. Hand portal will also be required for staff connected with depot working and shunting operations at the depot. Hand portables will also be needed one for station controller on duty and one for the commercial controller located at the station concourse.	<p>We understand that total Handportables required for Chennai Metro Rail Project – Phase II" project is 800nos.Same will be distributed among the CMRL staff as mentioned in Radio System contract and no additional handportables are required.</p> <p>Please confirm if this understanding is correct.</p>	Confirmed.																																																												
127	Part 2	VI-B Particular Specifications	2.1.2.6	The Contractor shall liaise with all concerned authorities including WPC, Civil Aviation authorities and other local authorities and obtain necessary clearances/licences/sanctions for installation and commissioning of the Radio system. This shall include liaising for obtaining the frequency and site clearance also.		Tender condition will prevail																																																												

128	Part 2	VI-B Particular Specifications	2.1.2.7 e	The Contractor shall be fully responsible for the application and interfacing with the Telecommunication Licensing Authority, and for providing such design data or other information as may be needed to obtain authorization and type approval for operation on the required CMRL Radio channels. In addition, the Contractor shall liaise with the WPC Wing on the procedure for applying for licenses after the Contract award. This will include preparation of application forms etc and maintaining continuous liaison and furnishing necessary technical details, calculations, clarifications etc, as required by the licensing authority. All costs involved shall be borne by the Contractor.	Contractor will coordinate in all the liaisoning activities with govt authorities and Employer shall pay all the fees to the govt authorities plus all sort of documentation required to clear the process as per govt. guidelines shall be provided by Employer as and when required. Please confirm if understanding is correct.	
129	Part 2	VI-B Particular Specifications	2.1.2.7 a)	The Contractor shall co-ordinate with Civil Works Project Contractors in order to provide comments or recommendation on station and depot building materials, finishes, architectural layouts, installation requirements for antenna supports, availability of proper cable duct, mounting arrangements for Leaky Co-Axial Cables (LCX) and other cables in the tunnels and elsewhere. This shall, wherever required, also include necessary co-ordination with the civil works contractor for the erection of towers on the roof/over the lift shafts/ at ground level to support the TETRA antennae at the required heights to meet the coverage objectives. Majority of the stations are designed to cater to 12 meter roof top tower (20 + 12 meters above ground level). Based on the coverage study, contractor has to coordinate for final locations.	We understand that majority of the stations are having 20meter height above ground level. Please confirm if this understanding is correct. Also, please clear on (20 + 12 meters above ground level).	Majority of the elevated stations are having a height of 20 mtr from ground and can accomadate a 12 meter roof top tower. 20 mtr station height from ground level + 12 meters Roof top tower height. Combined arrangement can attain a height of 32 mtr above ground level.
130	Part 2	VI-B Particular Specifications	2.1.2.7, c)	To enable Public Cellular Operators to offer multi-media services to the travelling public in CMRL premises, CMRL may, in future, enter into a revenue-sharing arrangement with them, to permit them to utilise space inside CMRL premises for installing their active as well as passive equipments, to share band-width on CMRL's CBN Network and to draw power from CMRL's power supply system; the public operators shall be responsible for the operation and maintenance of all the equipments installed by them. In the sub-surface sections, as part of this contract, the contractor shall install additional cable hangers in every 0.5 mtr in each tunnel for supporting the radiating cables (One Leaky Cable per tunnel is envisaged for the Public Cellular Operator); these additional cable hangers (meant for use by Public Cellular Operators) shall be located sufficiently away from the leaky co-axial cable of the Tetra Radio System, in order to eliminate chances of interference between different radio systems and shall space the LCX no less than 100mm from the tunnel wall.	1) We understand that TETRA Radio system contractor has to install additional cable hangers in every 0.5 mtr in each tunnel for supporting the Public Cellular Operator LCX radiating cables(One Leaky Cable per tunnel is envisaged for the Public Cellular Operator) but as per general practice additional cable hangers are required on every 1 meter to fix the LCX radiating cables. Please specify whether to consider the cable hanger at 0.5M or 1 M. 2)Please specify the type/size of radiation cable to provide the appropriate clamp for the additional radiating clamp for the public cellular operator 3. As per our understanding LCX spacing can be done at 80 mm from also. Please confirm.	Refer Addendum
131	Part 2	VI-B Particular Specifications	2.1.2.13	Incoming calls to the train radio shall be automatically routed to appropriate on-train users/devices such as train emergency driver / roving attendant, PA system, Data Systems. Outgoing calls initiated by on-train users/devices shall be automatically established.	Please confirm under which scenario the call shall be routed to the emergency driver (on board radio) & roving attended. Please also help to understand how roving attended is mapped to the train to be handled	Refer Addendum
132	Part 2	VI-B Particular Specifications	2.1.2.22 2.3.11	The TETRA shall be designed to reuse to the extent possible the existing frequency (7 pairs) received for Phase-1 communication systems. Facilities Provided by CMRL Forwarding of all applications for equipment and frequency clearance by various Agencies of the Government like WPC, TRAI etc. and payment of spectrum usage charges, where applicable, as per section above.	It is not possible to design the complete Radio system for "Chennai Metro Rail Project – Phase II" with reuse of existing frequency (7 pairs) received for Phase-1. Additional frequency pairs are required for the same. We understand that Employer shall pay the necessary spectrum (frequency) allocation & usage charges required for "Chennai Metro Rail Project – Phase II" including liaisoning fee with all concerned authorities including WPC, Civil Aviation authorities and other local authorities etc.Please confirm if this understanding is correct.	Tender condition will prevail

133	Part 2	VI-B Particular Specifications	3.1.1.1 3.4.11.1 3.4.11.5	Control, switching, monitoring, recording and Human Machine Interface equipment located at the operational control centre (OCC) at Koyambedu and BCC at Nandanam. There will be approximately 5 dispatcher for each corridor and a common chief dispatcher, who will be over-all in-charge of the operations. The chief dispatcher and dispatchers will be provided with RCW and RAU. They will be controlling the operations from the OCC through the Tetra system. There will also be a Rolling stock controller, S&T controller, Traction power controller, M&E controller and Track controller who will also be using the Tetra system at the OCC, for trouble-shooting and other maintenance-related co-ordination. The OCC and BCC shall have various control positions equipped with Radio-Access/control facilities, as listed in the table below: The above shown list is indicative and the minimum quantity of RCW required is 25.	(i)Please clear the bifurcation & name/position of 5 dispatcher for each corridor. (ii)Please clear that RCW with RAU also required for each position like Rolling stock controller, S&T controller, Traction power controller, M&E controller and Track controller at the OCC & BCC. (iii)Please clear the quantity of "Traffic Controllers" in OCC & BCC as per Clause- 3.4.11.1. (iv)Please clear the quantity & location of "Station controller" as per Clause- 3.4.11.1. (v)Please clear the quantity & location of "Receiving Substation" as per Clause- 3.4.11.1. (vi)Please clear the precise Qty of RCWs with RAUs required in OCC & BCC alongwith depots (Madhavaram and Poonamalee) and Qty of RCPs.	Refer Addendum
134	Part 2	VI-B Particular Specifications	3.4.2 d)	Train Radio Control Panel (TRCP) shall be integrated into both train cabs and shall provide Train Emergency Drivers / Roving Attendants and Depot Special Machines Vehicles call functions via the radio control head.	As per our understanding TRCP and RCH provide independent features with respect to each other. Please also provide more clarity on Depot Special Machines along with their quantity.	1. Refer Addendum. No of Road cum rail Vehicle RRV (1 radio per vehicle with Fist Mic,External Speaker):5 No of Overhead Meaintenance Vehicles OMV (2 radio per vehicle with Fist Mic,External Speaker):3
135	Part 2	VI-B Particular Specifications	3.4.3.4 b)	Packet connection-oriented data (Standard X.25 packet data),	All the new systems protocol will be based on IP & Hence request you to please remove the clause.	Refer Addendum
136	Part 2	VI-B Particular Specifications	3.4.8.1	Complete Train Radio system shall be installed by the Rolling Stock Contractor, using the materials supplied by the Radio Contractor and under the supervision of the Radio Contractor, in such a way that the radios in the leading and trailing cabs operate in hot stand-by mode to each other, but fully independent of each other. The contractor shall use cable connections being installed by Rolling Stock Contractor between Front and Rear Cabs, for the Train Radio Hot standby features. The physical dimensions, positions, mounting holes, antenna type, cable routes, cable lengths, cable / pin connections to Rolling Stock PA/Train Information Management system (TIMS), interface hardware details, protocols, exact data rate to be exchanged, etc are to be co-ordinated with the Rolling Stock Contractor as spelt out in the applicable interface sheets forming part of interface management plan. The Train Radio shall also have its own Interface Unit to monitor the health of the radio transceivers and shall enable switching to the standby transceivers upon detection of communication failure. This interface shall communicate the events to the TIMS system. In case failure of Tetra Coverage or both radios, the Train interface units shall function using the network connectivity to OCC supplied by signaling vendor (Non CBTC Radio).	The TETRA radio system is being designed to provide overlap coverage to all the Train radios. The type of interface mentioned in the clause uses proprietary protocols & hence it is not possible for train interface unit to interface and ensure all Trainborne functionalities using its network connectivity. Hence request you to please remove the clause.	Refer Addendum
137	Part 2	VI-B Particular Specifications	3.4.8.4 e) iv) c)	Train PA call shall support the following. c) Dispatching of Pre recorded messages stored in Train PA system	The list of recorded messages are agreed at the time of the Interface meeting and stored in the RCW system. As a standard practice in the deployed Metros, the RCW performs Train PA call either on adhoc basis or selects the pre-recorded from the CAD subsystem library. The PA call is based on Operation teams input at that instant. The radio system does not have the interface/capability with the Train PA system in order to access the messages. Further, it is advisable for the Train PA system to have full control of the same and any other system accessing the Train PA system may cause operational issues. Hence request you to remove the point c) of this clause.	With respect to RCW Announcement dispatching functionality 1) Dispatching of Pre recorded messages from a Pre-recorded Library in RCW- RCW at OCC shall have Digital voice announcer with Pre recorded messages. Operator can select the Pre recorded audio file and dispatch the audio to Train like an Live call.This feature is equivalent to Live announcement in functionality where the audio source is from the RCW voice announcer . This Pre recorded messages will be user editable and it is transmitted as audio signal, it has no connection with Onboard Library. 2) Dispatching of Pre recorded messages stored in Train PA system- This feature is applicable for the list of recorded messages that are agreed at the time of the Interface meeting and stored in the On board PA library with corresponding message details in RCW system. This can be either streaming audio over Tetra or via triggering of message codes.

138	Part 2	VI-B Particular Specifications	3.4.8.4 e) v)	Train PA call shall support zone selection as envisaged by Train PA system (eg: PA Inside train, PA from outer speaker)	Please confirm if the cars inside the trains are being referred as different zones. Further, the Train PA announcement is done in the whole train as the announcement is common to all the cars in the train and not only aimed at certain car in the train. Hence, request you remove the V) in this clause.	The PA zones in train are envisaged as Train Interior covering complete passenger zone and Train exterior covering the exterior of the train as minimum.										
139	Part 2	VI-B Particular Specifications	3.4.8.4 e) vi)	Train PA Call vi) RCW system shall enable the operator to perform scheduling of Prerecorded messages from RCW.	As a standard practice in the deployed Metros, the RCW performs Train PA call either on adhoc basis or selects the pre-recorded from the CAD subsystem library. The PA call is based on Operation teams input at that instant. There is no scheduling. Hence request you to confirm our understanding and remove the scheduling from the clause.	Bid conditions will prevail.										
140	Part 2	VI-B Particular Specifications	3.4.8.4 g)	Ambient Monitoring i) The Controller shall be able to remotely switch on the microphone on the all the Passenger Emergency Intercom/call point of the Train radio listen to the received audio.	The ambient monitoring is a radio specific feature where the controller will turn on the microphone of the radio in order to listen. There is no interface defined to remotely switch on the microphone of the Passenger Emergency Intercom/call point. Hence, request you to limit the ambient monitoring to only the Radio. Please confirm.	Passenger emergency call point is a call point from where a passenger can call OCC. Similarly, a listening functionality shall be established by enabling a silent call back to passenger Intercom. This facility shall be implemented irrespective of ambient monitoring facility in the radio.										
141	Part 2	VI-B Particular Specifications	3.4.8.4 p) iv)	Failure of the radio equipment shall not interrupt the normal operation of the Train-borne Signalling equipment. The train operation commands are normally sent from the UTMS to the GOA4 trains through the Wi-Fi radio network of the CBTC System. In case of failure of Wi-Fi, as a standby, it should be possible for Central signaling system to send some vital commands to Onboard and receive on board alarms through the train radio system by suitable interfacing arrangement at the OCC and onboard. The list of such vital commands and alarms will be finalised in discussion with the Engineer of CMRL. In case of failure of Tetra Coverage, as a standby, it should be possible for on board Tetra Radio to ensure all Train borne functionalities via the Non CBTC link to OCC.	The TETRA radio system is being designed to provide overlap coverage to all the Train radios. The type of interface mentioned in the clause uses proprietary protocols such it is not possible for train interface unit to interface and ensure all Trainborne functionalities using its network connectivity. Hence request you to please remove the clause.	Refer Addendum										
142	Part 2	VI-B Particular Specifications	3.4.11.1	<table border="1"> <thead> <tr> <th>Control Position</th> <th>Type of Radio Access / Control panel to be provided at the various locations for Corridor 3, 4 and 5</th> </tr> </thead> <tbody> <tr> <td>OCC</td> <td></td> </tr> <tr> <td>Traffic Controllers</td> <td>RCW + RAU one for each</td> </tr> <tr> <td>Chief Controllers</td> <td>RCW + RAU one for each</td> </tr> <tr> <td>Passenger Communication controllers</td> <td>RCW + RAU one for each</td> </tr> </tbody> </table> <p>The OCC and BCC shall have various control positions equipped with Radio- Access/control facilities, as listed in the table below:</p>	Control Position	Type of Radio Access / Control panel to be provided at the various locations for Corridor 3, 4 and 5	OCC		Traffic Controllers	RCW + RAU one for each	Chief Controllers	RCW + RAU one for each	Passenger Communication controllers	RCW + RAU one for each	Please confirm whether one for each in this clause referring to each corridor.	Refer Addendum
Control Position	Type of Radio Access / Control panel to be provided at the various locations for Corridor 3, 4 and 5															
OCC																
Traffic Controllers	RCW + RAU one for each															
Chief Controllers	RCW + RAU one for each															
Passenger Communication controllers	RCW + RAU one for each															
143	Part 2	VI-B Particular Specifications	3.4.11.1	Receiving Substation	Please provide the number of receiving substation for each corridor.	Refer Addendum										
144	Part 2	VI-B Particular Specifications	3.4.11.1	<table border="1"> <thead> <tr> <th>SCR Station controller</th> <th>RCP RAU</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	SCR Station controller	RCP RAU			RCP has already been considered in SCR, Please confirm if we need to consider RAU for station controller position for all station.	RAU and RCP are Deskmounted Radio device. One number of RCP is sufficient for Station Controller. Refer Ademtum						
SCR Station controller	RCP RAU															
145	Part 2	VI-B Particular Specifications	3.4.11.4	In the main CER of the OCC, Depot 1 and 2, RCW with full access shall be located. These units shall be used for maintenance monitoring and shall work as spares for RCWs in OCC.	Please confirm if these RCW requirement is similar to clause number 3.4.11.1 RCW Console position.	Yes. One number of RCW is sufficient in each of the these location. Refer Ademtum										
146	Part 2	VI-B Particular Specifications	3.4.11.5	The above shown list is indicative and the minimum quantity of RCW required is 25.	As per control position table the total number of RCW are coming 29, if we consider Position for each corridor.	Refer addendum										

147	Part 2	VI-B Particular Specifications	3.4.12.2 a)	<p>RCW Call Features</p> <p>a) Train PA Call: A sub-window shall be activated when the Train Public Address broadcast, (either live or recorded) is initiated - The display shall allow the Chief Controller/Traffic Controller to set up and make PA announcements to an individual train, to a selected group of trains or to all trains in the system. The display shall support Scheduling of Prerecorded Message play lists from RCW with zone selection (Saloon area, Exterior speaker). RCW shall permit dispatching of Prerecorded messages from RCW Library as well as from Onboard Library. RCW shall permit the administrator to upload prerecorded messages to RCW Library and edit the onboard library details in the RCW System as when required.</p>	<p>Please confirm if the cars inside the trains are being referred as different zones. Further, the Train PA announcement is done in the whole train as the announcement is common to all the cars in the train and not only aimed at certain car in the train.</p> <p>The list of recorded messages are agreed at the time of the Interface meeting and stored in the RCW system. As a standard practice in the deployed Metros, the RCW performs Train PA call either on adhoc basis or selects the pre-recorded from the CAD subsystem library. The PA call is based on Operation teams input at that instant. The radio system does not have the interface/capability with the Train PA system in order to access the messages. Further, it is advisable for the Train PA system to have full control of the same and any other system accessing the Train PA system may cause operational issues.</p> <p>Hence request you limit the PA call to the whole train instead of the zone selection. Also, as explained above, the RCW will only access its predefined pre-recorded database from the RCW subsystem and not from the onboard library. Additionally, this can also have impact on the Train PA operation, hence request you to please remove the reference to onboard library from the clause.</p>	<p>The PA zones in train are envisaged as Train Interior covering complete passenger zone and Train exterior covering the exterior of the train as minimum.</p> <p>With respect to the Onborad Library, the list of recorded messages shall be agreed at the time of the Interface meeting and correponding details shall be updated in RCW system. Refer addendum.</p> <p>With respect to RCW Announcement dispatching functionality</p> <p>1) Dispatching of Pre recorded messages from a Pre-recorded Library in RCW- RCW at OCC shall have Digital voice announcer with Pre recorded messages. Operator can select the Pre recorded audio file and dispatch the audio to Train like an Live call.This feature is equivalent to Live announcement in functionality where the audio souce is from the RCW voice announcer . This Pre recorded messages will be user editable and it is transmitted as audio signal, it has no connection with Onborad Library.</p> <p>2) Dispatching of Pre recorded messages stored in Train PA system- This feature is applicable for the list of recorded messages that are agreed at the time of the Interface meeting and stored in the On board PA library with corresponding message details in RCW system. This can be either streaming audio over Tetra or via triggering of message codes.</p>
148	Part 2	VI-B Particular Specifications	3.4.12.2 e) iii)	<p>A pop-up window scroll bar shall be displayed with visual and audible alert showing detail of the Train ID, location from which the emergency call was originated. The Controller shall be informed if the call is a non UTO Mode operation during revenue service. The Controller shall be able to acknowledge the call and then select the calling train to activate two-way communication. If such a call is not answered within a pre-defined number of seconds, the call shall be transferred automatically to another designated controller.</p>	<p>Please clarify, which system shall provide the information on whether the train is in UTO / non-UTO mode?</p>	<p>Details need to be finalised as part of the interface with Signaling & RS Contractors.</p>
149	Part 2	VI-B Particular Specifications	3.4.12.2 r)	<p>A side menu panel shall be provided on the display to allow the type of call to be selected such as free form PA, pre-set PA messages (digital voice stored on the DVA), normal voice, status, priority or emergency calls.</p>	<p>Our understanding is the file system is copied from the external system. Please confirm?</p>	<p>With respect to RCW Announcement dispatching functionality</p> <p>1) Dispatching of Pre recorded messages from a Pre-recorded Library in RCW- RCW at OCC shall have Digital voice announcer with Pre recorded messages. Operator can select the Pre recorded audio file and dispatch the audio to Train like an Live call.This feature is equivalent to Live announcement in functionality where the audio souce is from the RCW voice announcer . This Pre recorded messages will be user editable and it is transmitted as audio signal, it has no connection with Onborad Library.</p> <p>2) Dispatching of Pre recorded messages stored in Train PA system- This feature is applicable for the list of recorded messages that are agreed at the time of the Interface meeting and stored in the On board PA library with corresponding message details in RCW system. This can be either streaming audio over Tetra or via triggering of message codes.</p>
150	Part 2	VI-B Particular Specifications	3.4.12.2 t) iv)	<p>RCW shall permit the exchange of control as envisaged in Signalling Operator work station system. Tetra contractor shall coordinate with the Signalling supplier to implement a seamless transfer of Control.</p>	<p>Our understanding is the seamless transfer of control is area of control. Please confirm.</p>	<p>The seamless transfer of control referred is the area of control.</p>
151	Part 2	VI-B Particular Specifications	3.5.1.1 h)	<p>The train radio shall be accessible from OCC via the Non CBTC network supplied by Signalling. In case of failure of Tetra Coverage, as a standby, it should be possible for on board Tetra Radio to ensure all Train borne functionalities via the Non CBTC link to OCC.</p>	<p>The TETRA radio system is being designed to provide overlap coverage to all the Train radios. The type of interface mentioned in the clause uses proprietary protocols such it is not possible for train interface unit to interface and ensure all Trainborne functionalities using its network connectivity. Hence request you to please remove the clause.</p>	<p>Refer Addendum</p>
152	Part 2	VI-B Particular Specifications	3.5.5.3 (vii)	<p>Squelch level</p>	<p>This is analog radio specification; hence please remove this clause</p>	<p>Refer Addendum</p>

153	Part 2	VI-B Particular Specifications	3.5.8.2.	The antenna network for the Underground section shall be Leaky Co-axial Cable (LCX) in tunnels and a combination of LCX/LLC and low profile antenna if required at stations/Ramp Area.	Please confirm whether a Distributed antenna system with the combination of Rf low loss corrugated cable and low profile indoor antennas can be used for UG station area coverage instead of LCX & Low profile antenna.	Refer Addendum
154	Part 2	VI-B Particular Specifications	4.3.1.1	In UTO train operation passenger emergency communication from and to OCC from the train is most important. To keep the communication reliability high overlapping coverage at any point on the track from either side of the base stations should be planned. The minimum signal level under the worst case from the relevant base station, received by the Train borne antenna shall be at least -86 dBm or 20 dB above the receiver sensitivity level for 98% of the worst case 50m of train run along the tracks. The audio quality level under such conditions also should be good.	This requirement of -86dbm is on a higher side which will force the normal operations coverage requirement much higher and will require more number of Base station or BDA (also will increase the interference in the network) to meet the requirement. Metros deployed in India has 3uv/-97.5 dbm signal strength requirement and has not faced issues with respect to the quality of calls. The -86dBm signal strength would be an overkill which will have an impact on the number of BTS and BDAs, Hence request you to please revise the signal strength requirement to minimum -97.5dbm.	Refer addendum
155	Part 2	VI-B Particular Specifications	4.3.1.2	The minimum signal level from the relevant base station, received by a reference dipole at 1.5 m above ground level in all coverage areas including inside the Moving (80 km/h) train compartment shall be at least -86 dBm for 98% of the worst case 50m of run in stations and in train. Signal level of minimum -86 dBm for 98% Location shall be available inside all the equipment rooms, plant rooms & operation control rooms in stations, Depot and substations. The up-link and down link audio quality level under such conditions also should be good. For deciding the coverage criteria automated measurement set up with suitable software should be used. At least 50 samples of signal strength measurement should be taken for 50 meters of travel. The coverage measurement results should be put up to the engineer for his approval.	This requirement of -86dbm is on a higher side which will force force the normal operations coverage requirement much higher and will require more number of Base station or BDA (also will increase the interference in the network) to meet the requirement. Metros deployed in India has 3uv/-97.5 dbm signal strength requirement and has not faced issues with respect to the quality of calls. The -86dBm signal strength would be an overkill which will have an impact on the number of BTS and BDAs, Hence request you to please revise the signal strength requirement to minimum -97.5dbm.	Refer addendum
156	Part 2	VI-B Particular Specifications	4.3.1.4 x)	For the road-vehicle mounted Tetra Radio Sets, the required minimum coverage range shall be 50 meters on either side of elevated/at grade track and 250 meters radius of elevated/sub-surface stations	Please confirm the type of radio to be consider for road vehicles along with the quantities of road vehicles.	No of Road cum rail Vehicle RRV (1 radio per vehicle with Fist Mic,External Speaker):5 No of Overhead Meaintenance Vehicles OMV (2 radio per vehicle with Fist Mic,External Speaker):3
157	Part 2	VI-B Particular Specifications	5	Dedicated Voice Recording System for Radio	we are understanding that voice recorder is dedicated for recording of radio communication only like radio to radio, radio to telephony & vice-versa, radio to station PAS etc. It will not record other Analog, Digital & VOIP communication in Chennai Metro Rail Project – Phase II network. Please confirm if this understanding is correct.	Voice recorder is dedicated for recording of radio communication .
158	Part 2	VI-B Particular Specifications	5.11.1 5.11.2	Three, multichannel, rack-mounted, voice recorders shall be provided in the OCC Recording Room, one to serve the Corridor 3, 4 and 5. One voice recorder will be back up to the other two.	The requirement can be achieved with two voice recorders. One as Primary Recorder (at OCC) for Corridor 3, 4 and 5, and one as Redundant Recorder (at BCC) for Corridor 3, 4 and 5. Both recorders will record identical traffic in parallel, providing full redundancy. Although recordings from all 3 corridors will be in the same database, access can be partitioned so that each corridor's personnel cannot access recordings for another corridor, in effect creating separate logical databases. Further, as per our past metro experience we have an understanding that Employer is requiring one voice recorder in OCC- CER[primary recorder] & secondary in BCC-CER[standby recorder]. Please confirm if our understanding is correct.	Refer Addendum
159	Part 2	VI-B Particular Specifications	5.11.3	The recorders shall, during normal operation, each mirror the others recorded data on a continuous basis, while working on load-sharing basis, to ensure that each recorder has an up to date record of all voice recordings and associated call logs	Both recorders will record identical traffic in parallel, providing full redundancy and avoid any audio recording loss. Hence there is no need for load-sharing as each recorder will record all calls for all the required devices. Also it should be left to the OEM to design the system as their design philosophy	Refer addendum

160	Part 2	VI-B Particular Specifications	5.11.4, a)	The recorders shall additionally allow any of the following modes of operation to be Operator selectable: a) Load sharing where both recorders share the recording load;	Both recorders will record identical traffic in parallel, providing full redundancy and avoid any audio recording loss. Hence there is no need for load-sharing as each recorder will record all calls for all the required devices. Also it should be left to the OEM to design the system as their design philosophy	Refer addendum
161	Part 2	VI-B Particular Specifications	5.11.4, b)	Standby mode where the primary recorder is in operation with the secondary recorder working in auto-standby mode allowing the secondary recorder to operate on failure of the primary or when the recording capacity of the primary media has been reached.	The standard mechanism used in the recorders is that the oldest recordings are automatically deleted to create space for newer recordings, i.e. it has a sliding window period of recordings, with adequate hard disk sizes to fulfill the customer's retention period requirements. Hence we request you to delete the reference with respect to "when the recording capacity of the primary media has been reached" from the clause.	Refer addendum
162	Part 2	VI-B Particular Specifications	5.12	A single HMI Terminal for each recorder shall be provided within the OCC Recording Room to provide operator access to all relevant functions of the Corridor 3, 4 and 5 recorders for operation, playback, system and alarm management and archiving;	We are understanding that Employer is requiring one HMI Terminal for each recorder dedicated to Corridor-3, 4 & 5 as per Clause- 5.12. So, three HMI terminal in OCC & three HMI terminal in BCC. Please confirm if this understanding is correct.	Refer addendum
163	Part 2	VI-B Particular Specifications	5.23	The audio recorder shall automatically and continuously record both analogue and digital speech channels providing high voice quality on playback of recordings.	Since TETRA is a Digital radio system therefore voice recorder will be recording "digital speech" only not "analogue speech" for TETRA Radio System in "Chennai Metro Rail Project – Phase II" having Corridor- 3, 4 & 5. Please confirm if this understanding is correct.	Refer addendum
164	Part 2	VI-B Particular Specifications	5.24.7	The recordings and call logs for each of the two railway corridors (Corridor 1 and Corridor 2) shall be separate and contained within their own dedicated databases.	Based on our understanding, it is a standard and operationally feasible practice to provide logical databases with respect to access of corridor 3 personnel to corridor 3, corridor 4 personnel to corridor 4 recordings, and corridor 5 personnel to corridor 5 recording shall be provisioned so that the other personnel cannot access recordings for another corridor. This creates separate logical databases in effect. Please confirm if our understanding is correct. We also request you to correct the reference of the corridor to 3,4 and 5 instead of 1, 2.	Refer addendum
165	Part 2	VI-B Particular Specifications	5.26	Multiple options shall be provided for activation of recordings, which shall include, as a minimum, the following functions which shall be operator selectable: 5.26.1. Recording of all channels, or selected channels, on a continuous basis or for a variable, pre-set time; 5.26.2. Voice activated recording on detection of specific words or phrases (This facility shall be offered as an optional item).	Our understanding is that continuous and pre-set time activation of recording and voice activated recording is not relevant to this tender as the requirement is to record digital Tetra radio calls. Further the tender is only to record TETRA calls, which most of the radio systems now a days provide via the IP network. Please confirm that these requirements are not applicable to the TETRA recording required."	Refer addendum
166	Part 2	VI-B Particular Specifications	5.31.2	The voice recorder of each corridor shall also display the operational state of the HMR and that of the other two Corridor voice recorders	The HMR abbreviation is not defined in the Part 2 document. The requirement can be achieved with two voice recorders. One as Primary Recorder (at OCC) for Corridor 3, 4 and 5, and one as Redundant Recorder (at BCC) for Corridor 3, 4 and 5. Both recorders will record identical traffic in parallel, providing full redundancy.	Refer addendum
167	Part 2	VI-B Particular Specifications	5.31.5	Detailed alarms shall be interfaced to the Telecommunications Management Work Station.	Please clear "Telecommunications Management Work Station" is FRS/TSCADA ?.	Refer addendum
168	Part 2	VI-B Particular Specifications	5.32.10	Facility to print-out all reports associated with system faults, recording, archiving and playback.	We are understanding from Clause- 5.32.10 is that only "Print Out" facility is required in playback station. Please confirm if this understanding is correct.	Facility to print the file to pdf or to a printer. Printer is not in the scope of supply.

169	Part 2	VI-B Particular Specifications	5.33	Performance Requirements 5.33.1. The performance of the voice recording equipment shall meet the following requirements: a) Analogue input channel, in the range 300Hz to 3400Hz. b) Signal to Noise ratio >= 50dB. c) Crosstalk between channels >= 50dB. d) Distortion of Recorded channels <= 2% at 800 Hz.	The requirement mentioned in this clause is referring to Analogue standards. However, the tetra call are digital technologies. Hence request you to remove this clause.	Refer addendum
170	Part 2	VI-B Particular Specifications	6.4.3.1	IP 67 for external train borne equipment	IP 67 is an extremely stringent Dust and Water Protection standards. It Protects against the effects of immersion between of the equipment in water at 15cm and 1m. Duration of test is approximate 30 minutes. This will not be practically feasible for external equipment such as Antenna to be IP67. Request you to please change IP67 to IP65.	Refer addendum
171	Part 2	VI-B Particular Specifications	6.4.3.4	IP 54 for internal train borne equipment.	The trainborne equipments are housed under temperature controlled AC environment. Thus the IP54 requirement for the same would not be practical. Hence request you to please change the same to IP20 as per technical specifications, as same is followed in most of the metro tenders Including DMRC.	Refer addendum
172	Part 2	VI-B Particular Specifications	6.4.3.5	IP 52 for enclosures to be installed in equipment rooms.	Equipments are equipped with Temperature controlled AC environment. Thus the IP52 requirement for the same would not be practical and would attract additional cost. Hence request you to please change the same to IP20 as per technical specifications, as same is followed in most of the metro tenders Including DMRC.	Refer addendum
173	Part 2	VI-B Particular Specifications	6.4.4.1.1	Train borne equipment: 0°C to 70°C;	The trainborne equipments are housed under temperature controlled AC environment. Also, considering the local weather conditions in area of deployment, 70°C shall be an overkill. Hence request to amend the maximum temperature to 55°C	Refer addendum
174	Part 2	VI-B Particular Specifications	6.4.4.1.2	Trackside/Outdoor equipment: 0°C to 70°C;	Considering the local weather conditions in area of deployment, 70°C shall not be practical. Hence request to amend the maximum temperature to 55°C	Refer addendum
175	Part 2	VI-B Particular Specifications	6.4.4.2.1	Train borne equipment: 0 to 99 % relative (condensing)	The trainborne equipments are housed under temperature controlled AC environment. Also, considering the local weather conditions in area of deployment, 99% shall not be practical. Hence request to amend the humidity to 90%.	Refer addendum
176	Part 2	VI-B Particular Specifications	6.4.4.2.2	Trackside equipment: 0 to 99% relative (condensing)	Considering the local weather conditions in area of deployment, 99% shall not be practical. Hence request to amend the humidity to 90%.	Refer addendum
177	Part 2	VI-B Particular Specifications	13.4.5.1	Contractor On-site Support Service shall provide On-site field engineer at customer designated central site to provide the customer support. On-site Support Service shall be made available for 24X7 during the term of the contract.	1. Please specify the team size and number of manpower required for the O&M 2. Please specify whether CMRL shall provide the working space and spare storage space for P&M engineer 3. Minimum duration of O&M contracts	1. Bidder can decide the team size and number based on the SLA requirement. 2. CMRL will provide working and storage space as part of CAMC. 3. Before issuance of taking over certificate of each stage, maintenance contract will be entered into for 5 years ahead based on the quantity of field assets commissioned and the unit rates quoted as part of the bid. This will be followed for each stage of commissioning. Beyond the initial period of 5 years also, CMRL reserves the right to renew the CAMC on same terms & conditions, with price escalation as per main Contract conditions. This procedure will be followed for the full design life (15 years) of the system with applicable price adjustment as per conditions of contract. Refer addendum.

178	Part 2	VI-B Particular Specifications	13.8	<p>Support during DLP and Comprehensive Maintenance Period</p> <p>13.8.1. General</p> <p>13.8.1.1. A comprehensive maintenance plan is proposed wherein, the maintenance will be the total responsibility of the contractor including supply of spares, equipments and attending to software defects, compliance to cyber security Audits etc. The comprehensive maintenance will start from the day of taking over certificate and will run concurrently with the maintenance responsibility during Defects Liability Period (DLP). During DLP, the maintenance shall be the responsibility of the Radio Contractor including supply of stores, spares, test equipments etc. Cost arising out of the saving in DLP maintenance should be taken into consideration in the comprehensive maintenance cost.. The Comprehensive Maintenance shall be initially for five years beyond which it will be applicable with price variation clause till end of system life.</p>	<p>CAMC and DLP both cannot start from the day of taking over certificate. We recommend that DLP shall start from the day of ROD/TOC, whichever is earlier and will continue for each stage and shall continue for 730 days as per clause 1.1.3.7 of Part 3 tender document which is 2 years from TOC. After DLP completion for each stage CAMC shall start for further 5 years for each stage. We understand only 5 years of CAMC will be part of evaluation criteria for current proposal and next 10 years of CAMC for each stage as per clause 4.25 of Part 3 and BoQ shall be consider separately as per Employer's requirement and based on continuous maintenance agreement.</p> <p>Please clarify if understanding is correct & elaborate more on below clause</p> <p>"Cost arising out of the saving in DLP maintenance should be taken into consideration in the comprehensive maintenance cost"</p>	Refer Addendum
179	Part 2	VI-B Particular Specifications	13.8.2.5	<p>The Contractor's staff shall be available on Site for maintenance support within one hour upon receiving the call-out request from the Employer and shall proceed to perform corrective actions to restore the System to normal full operation.</p>	<p>Tender document has definition based on severity levels Level 0,1,2,3 & 4. Response time and restoration time mentioned for different severity levels . We understand contractor to follow the severity levels for reporting during DLP and AMC Period.</p> <p>Please confirm if understanding is correct.</p>	Response & Resolution Time are based on the definitions of Severity level as per clause 13.4.12.1.
180	Part 2	VI-B Particular Specifications	14.2.1	<p>The Contractor shall provide his own test equipment and tools during the installation, commissioning periods, Defects Liability Period and Comprehensive Maintenance Period.</p>	<p>Please clarify, If we need to include the any special tools (indoor design , testing & measurement tools) as part of the supply BOM.</p>	During CAMC Bidder can maintain the required Tools based on the design and to meet the SLA requirements which shall be submitted to the Engineer with suitable justification for obtaining NoNO.
181	Part 2	VI-B Particular Specifications	16.1.2.7	<p>The Telecommunications TETRA Contractor shall provide necessary support and modifications in their system as part of the contract, to resolve all pending or interface related issues arising during the operation of the trains which are under the scope of the contract till completion of RS Contractor's defect notification period. The cost of these support and modifications shall be part of the actual cost of the Telecommunications TETRA contract. RS Contractor shall provide necessary support and modifications in their system as part of the contract, to resolve all pending or interface related issues arising during the operation of trains which are under the scope of the contract till completion of Telecommunications TETRA Contractor's defect liability period/defect notification period for the respective corridors and inter-corridors of the CMRL Phase 2. The cost of these support and modifications shall be part of the actual cost of the RS contract.</p>	<p>Based on the outcome of Interface meeting with the Rolling stock, Interface design is finalized which is then implemented as a part of agreed scope of work within the technical specifications. The changes which is not within the agreed scope of work with the Rolling Stock will have to be taken up separately.</p>	The scope of work/responsibility , as defined in the Specifications, shall be the responsibility of the Contractor.
182	Part 2	VI-B Particular Specifications	16.1.5.11	<p>It shall also be noted that changes in the interface specifications such as key alarms, remote commands, interface signals and GUI specifications etc., are to be expected throughout the project execution stage and shall extend even after commencement of UTO operation based on operational and passenger requirements. TETRA contractor and RS contractor system design shall be capable of accommodating these changes without major modification in the systems. Necessary spare interface points, communication band widths etc shall be incorporated into the design from the beginning of the design phase itself to accommodate these future requirements (This is in addition to the provisions for 3 car to 6 car conversion).</p>	<p>Based on the outcome of Interface meeting with the Rolling stock, Interface design is finalized which is then implemented as a part of agreed scope of work within the technical specifications. The changes which is not within the agreed scope of work with the Rolling Stock will have to be taken up separately.</p>	The scope of work/responsibility , as defined in the Specifications, shall be the responsibility of the Contractor.
183	Part 2	VI-B Particular Specifications	16.1.5.26	<p>TETRA. contractor shall furnish RS Contractor with the interface required between the TETRA radio system and the on-train public address system/other suitable system of RS to allow on-board passenger emergency Intercom (PEI) call point mic of RS to be used for silent listening of saloon voice throughTETRA by OCC. The identifier of the PEI device (which call point in which car of the train) shall be communicated by the on-board TETRA system to the RS system for selecting the mic of that call point to be used for this feature. There shall not be any indication on the PEI call point or any other location on the train, visible for passengers, denoting the silent listening mode activation.</p>	<p>The ambient monitoring is a radio specific feature where the controller will turn on the microphone of the radio in order to listen. There is no interface defined to remotely switch on the microphone of the Passenger Emergency Intercom/call point. Hence, request you to limit the ambient monitoring to only the Radio. Please confirm.</p>	Passenger emergency call point is a call point from where a passenger can call OCC. Similarly , a listening functionality shall be established by enabling a silent call back to passenger Intercom. This facility shall be implemtned irrespective of ambient monitoring facility in the radio.

184	Part 2	VI-B Particular Specifications	General Query			Please share the station, depot, OCC & BCC drawing along with geo coordinates for RF Coverage analysis and IBS Solution. Please also share the route map for each corridor.	Please refer the addendum
185	Part 2	VI-B Particular Specifications	General Query		General Query	1. Please share the tender minimum BOQ and Contract spare requirement details to conclude the minimum BOQ for the project 2. We understand that emergency spares are treated as contract spares ? Do we need to include the both emergency or contract spare in the BOQ. 3. We did not find any qty for the indoor coverage solution of active and passive product details in the emergency spare list mentioned in clause 14.1.2.2.	1. Contract spares are not required as the complete package is covered under subsequent CAMC. Bidder can maintain the spares based on the design and to meet the SLA requirements which shall be submitted to the Engineer with suitable justification for obtaining NoNO. 2. Emergency spares are not contract spares. CMRL will reserve the right to purchase emergency spares to cater to any contingency on CMRL account. 3. Emergency spares are to cater to any contingency on CMRL account.
186	Part 2	VI-B Particular Specifications	General Query		General Query	1. Please share the tender minimum BOQ and Contract spare requirement details to conclude the minimum BOQ for the project 2. Is Emergency spare is treated as contract spare ? Do we need to include the both emergency or contract spare in the BOQ. 3. Did not found any qty for the indoor coverage solution of active and passive product details in the emergency spare list mentioned in clause 14.1.2.2.	1. Contract spares are not required as the complete package is covered under subsequent CAMC. Bidder can maintain the spares based on the design and to meet the SLA requirements which shall be submitted to the Engineer with suitable justification for obtaining NoNO. 2. Emergency spares are not contract spares. CMRL will reserve the right to purchase emergency spares to cater to any contingency on CMRL account. 3. Emergency spares are to cater to any contingency on CMRL account.
187	Part 3	VII, General Conditions	14.7		General Query	Please clarify the billing cycle of project during CAMC period after completion of DLP of respective stages.	Quarterly.
188	Part 3	VII, General Conditions	14.8	Unless otherwise stated in the Contract Data, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not applicable, the interbank offered rate, and shall be paid in such currency unless		Please clarify, that rate of the central bank will be considered based on which date or which financial year.	Bid condition is self explanatory.
189	Part 3	VII, General Conditions	16.2	In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work, and (ii) terminate his employment under the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.		Request you to please confirm our understanding that Equipments already manufactured & not delivered to Employer prior to such termination on account of bank suspension on the loan or credit shall be deemed as work done. The Employer will be liable to make payment for all the manufactured equipment.	Bid condition prevails.
190	Part 3	VII, General Conditions	Clause - 17.6 Limitation of Liability, Page No.- 75	The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Material], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated), the Accepted Contract Amount		Please confirm that no multiplier is stated in the Contract Data & Total liability will be limited to the Accepted Contract Amount.	Bid condition is self explanatory.
191	Part 3	VII, General Conditions	Clause - 18 - Insurance, Page No. - 76		General Query	Please clarify the total value of Insurance for all three kind of Insurance required as per RFP. Also, please confirm on the start date of such Insurance.	Bid condition is self explanatory. Refer the Clause - 18.2 - Insurance
192	Part 3	VIII, Particular Conditions of Contract, Part A, Contract Data	18	Total Advance Payment: Interest bearing mobilization advance to a maximum of 10% of the Accepted Contract Amount (Excluding Provisional Sum), Excluding Price Centre L & M, Excluding Taxes & duties, is payable in INR. The rate of Interest shall be 13.5% per annum. Mobilization advance shall be paid in two equal instalments.		Both clause contradict each other.	Refer Addendum

193	Part 3	VIII, Particular Conditions of Contract, Part B, Specific Provisions	51	The Employer shall make an interest free advance payment for mobilization when the Contractor submits a guarantee in accordance with this sub-clause. This guarantee shall be in the form of BG for an equivalent amount of the requested advance amount as per format given in the Annex to PCC from any Public sector bank (PSB) or Scheduled Commercial Bank in India. The total advance payment and the applicable currencies and proportions shall be as stated in Contract Data.	As per our Understanding- a). The contractor will have to submit ABG for amount equivalent to Advance amount. b). The advance amount will be interest free. Please confirm if our understanding is correct.									
194	Part 3	VIII, Particular Conditions of Contract, Part A, Contract Data	Table 1: Summary of Key Dates	<table border="1"> <tr> <td>RIT-S7-KD-011</td> <td>Issuance of Taking-over Certificate for Stage 7 Revenue Service</td> <td>1700</td> <td>Total of Price Centres – H.S7.4.1 to H.S7.4.5</td> </tr> <tr> <td>RIT-S7-KD-012</td> <td>Achieve Operational Acceptance for Stage 7 Revenue Service</td> <td>2240</td> <td>Total of Price Centres – H.S7.4.6</td> </tr> </table>	RIT-S7-KD-011	Issuance of Taking-over Certificate for Stage 7 Revenue Service	1700	Total of Price Centres – H.S7.4.1 to H.S7.4.5	RIT-S7-KD-012	Achieve Operational Acceptance for Stage 7 Revenue Service	2240	Total of Price Centres – H.S7.4.6	As per clause 1.1.3.7 of part 3 the DNP/DLP period for each stage shall be 730 days which is 2 years from the date of ROD of each stage. But in Key dates for each stage there is a mention of operational acceptance after issuance of TOC which we understand is the period when DLP for that stage will complete is mentioned around 540 days. Please clarify do we need to consider the DLP for 730 days from ROD or 540 days as mentioned in key dates for each stage. Other than this we understand 15 years of support mentioned in clause 4.25 of part 3 for each stage shall start from the completion of DLP of first stage. As per clause 13.8 of part 2 the CAMC shall be only for five years, which will be considered for bid price evaluation. However, further 10 years CAMC shall not be considered for price evaluation & will be considered later. Please help to provide clarification & amend the BoQ accordingly.	DNP/DLP period for each stage shall be 730 days. The conditions to fulfill for achieving the Operational acceptance should be within 540 days. Please refer Part-2 - Section VI A Employer's Requirements-Appendix 13 Clause 13.6.5 Performances checking period Refer addendum for revised CAMC requirement.
RIT-S7-KD-011	Issuance of Taking-over Certificate for Stage 7 Revenue Service	1700	Total of Price Centres – H.S7.4.1 to H.S7.4.5											
RIT-S7-KD-012	Achieve Operational Acceptance for Stage 7 Revenue Service	2240	Total of Price Centres – H.S7.4.6											
195	Part 3	VIII, Particular Conditions of Contract, Part B, Specific Provisions	2	Add a new Sub-Clause 1.1.1.11: "Comprehensive Annual Maintenance Contract" or CAMC means the Contractor shall, after the issuance of taking over certificate, carry out the regular maintenance of the Telecommunication Radio systems and other associated systems for a period of 15 years such that the whole metro system operates smoothly, efficiently and fit for the intended purpose it is designed for, by regular servicing, replacement of parts or carrying out emergency repairs 24 x 7, within the time limit specified in Part 2 – Technical Specifications and as approved by the Employer/Engineer.	As per clause 13.8 of part 2 the CAMC shall be only for five years, which will be considered for bid price evaluation. However, further 10 years CAMC shall not be considered for price evaluation & will be considered later. Please help to provide clarification & amend the BoQ accordingly.	Bid Conditions will prevail.								
196	Part 3	VIII, Particular Conditions of Contract, Part B, Specific Provisions	19	28 days before the issuance of taking over certificate, the contractor shall furnish another Performance Security in the form of a Bank guarantee from a Public Sector Bank (PSB) or Scheduled Commercial Banks of India for an amount of 10% of the total accepted value for CAMC for respective Stage. This Bank Guarantee for CAMC shall be kept valid up to 28 days beyond the scheduled expiry of the CAMC period. The Bank Guarantee submitted for CAMC shall be released on successful completion of the CAMC period and upon issuance of No Claim Certificate by the Contractor and as accepted by the Employer. Before the end of DNP of stage 7 (last stage), the contractor has to submit a separate Performance security amounting to 10% of Main Contract Price, including Price Centre L & M, valid for the full design life of the system to cover the maintenance obligations. In such a situation, the Bank Guarantees submitted for various stages of AMCs will be returned to the Contractor.	Amount of PBG asked in these clause contradicts each other. As per our understanding, before the end of DNP of stage 7 (last stage), the contractor has to submit a separate Performance security amounting to 10% of total accepted value of CAMC only instead of main contract price including Price Centre L & M.	Refer Addendum								
197	Part 2	Section VI-B Particular Specifications	3.1.1.3	Base station controllers (BSC) and base trans-receiver stations (BTS) located along the three corridors, connected to the OCC and BCC through the Communication Backbone network (CBN), optical fibre based.	CMRL has to clear for CBN (including networking equipments, dark fibre), is it under TETRA contractor scope of supply or is it under Telecom contractor scope of supply ?. As per Clause- 16.3.4, HFCL understand that CBN under Telecom contractor									
	Part 2	Section VI-B Particular Specifications	3.2.5	Base Station radio equipment, towers/antennae/leaky co-axial radiating cable and inter-facing with station CBN equipment at select sub-surface and elevated stations,										
	Part 2	Section VI-B Particular Specifications	3.5.7.1	Each base station carrier shall be connected through the Communication Backbone Network (CBN) to the switching controller at the OCC.										

	Part 2	Section VI-B Particular Specifications	11.1.2.	Interface with Communications Backbone Network (CBN) At the OCC, Depots and Base Stations, the Radio Communication System shall have interfaces with the CBN network, including the requirement for dark fibre, for the management and control of voice and data traffic. The interface shall adhere to Open Standard Interfaces (OSI). All components of the Tetra System should be IP compatible and should be able to function in an IP network without need for additional hardware/substantial software modifications or any additional cost implications.		1. Up links to OCC/BOCC will be provided in every station by the Telecom Contractor. The core switching network (RCW,CAD/MSO/Recorder/Router/Gateways/other Tetra equipment) in OCC and BOCC for Tetra equipments shall be in the scope of ASA-07. 2. 8 core of Dark fiber will be allocated for Tetra in each 144 Core FO cable and will be made available in Communication equipment room.				
	Part 2	Section VI-B Particular Specifications	16.3.4	Interface Requirement d) RADIO with Communication Backbone Network (CBN) – For transport of radio voice and data between sites using LAN bridging or equivalent method to assure seamless connectivity to CBN. The proposed base stations sites will be connected to the main switch at the OCC using CBN. The Contractor shall provide to the CBN-IP designer the quality-of-service details including minimum allowable bit rate and maximum allowable latency for transport of RADIO between sites. The CBN-IP system is not specified for synchronous connectivity between sites for systems requiring synchronous connections between sites. Systems requiring synchronous connectivity such as TETRA radio may use dark fiber. The radio contractor may need dark fiber in the underground section for transporting radio (RF) signal and connecting to leaky coaxial cable. The requirement of such fiber shall be furnished by the radio contractor to the telecom contractor.						
	Part 2	Section VI-B Particular Specifications	16.3.4	Interface-Division of Responsibility						
198	Part 2	Section VI-B Particular Specifications	16.1.5.15	TETRA Contractor shall certify the procedure of fixation of relevant connections, cables to on-board TETRA equipment after their assembling in first train at RS contractor's premises. This procedure shall be agreed between TETRA contractor and RS contractor and the same shall be followed for all the subsequent trains of the manufacturing. TETRA contractor shall conduct random inspections in RS contractor's manufacturing unit , if required, to ensure proper procedure is followed in all trains. Any change to the agreed procedure based on the subsequent supplier recommendations, or failure observed in previous trains, modification in the design, mounting arrangements shall be incorporated in complete fleet of trains.	We are understanding hereby that installation of Train Radio equipment for First train(having two cabs) to be done by RS contractor in their factory under the supervision of TETRA contractor. Rest all trains(CMRL Phase-2) installation to be done by RS contractor in their factory without supervision of TETRA contractor. Please clear understanding is correct.	Refer Addendum				
	Part 2	Section VI-B Particular Specifications	16.1.7.2	TETRA contractor shall be responsible for providing all data and training of RS Contractor staff in all aspects of TETRA installation and verification wherever applicable. Necessary training material shall be provided to CMRL and RS contractor for this purpose. The first set of TETRA equipment shall be installed by RS Contractor, under the supervision of TETRA contractor representatives, including the wiring for the interface with Rolling Stock.						
	Part 2	Section VI-B Particular Specifications	16.1.7.4	RS Contractor shall be responsible for installing wiring and equipment and TETRA contractor shall conduct the confirmation testing on each car at the factory itself .						
199	Part 2	Section VI-B Particular Specifications	11.1.6	i) The Radio system shall interface with the CCTV VMS system to initiate VMS to radio calls and vice versa without the intervention of OCC.	Clarity required from CMRL as Tetra System will provide the APIs to CCTV	Refer addendum				
200	Part 2	Section VI-B Particular Specifications	11.1.7.	Interface with Telecom Power supply At the OCC, Depots and Base Stations, the Radio Communication System shall have interfaces with the Telecom contractor for the Power supply. Telecom contractor will extent the UPS supply from the station MEP system and will provide the supply via Telecom Power distribution.	As TETRA contractor understands that UPS power supply for TETRA equipment has to be provided by CMRL power supply contractor. TETRA contractor will provide only power consumption of its equipments.	Tetra contractor shall co-ordinate with the Telecom Contractor regarding details of load and termination arrangements. Telecom contractor will extent the UPS supply from the station MEP system and will provide the supply via Telecom Power distribution. Tetra contractor to tap the power from the power distribution and required cabling is in the scope of Tetra Contractor. Shall also co-ordinate with the Telecom Contractor regarding details of load and termination arrangements				
	Part 2	Section VI-B Particular Specifications	16.4.5(6)	INTERFACE- Division of Responsibility <table border="1" data-bbox="667 1753 1389 1837"> <tr> <td>6</td> <td>Power Supply</td> <td>Shall provide the UPS power supply system accordingly.</td> <td>Shall furnish the requirements for UPS power supply.</td> </tr> </table>	6	Power Supply	Shall provide the UPS power supply system accordingly.	Shall furnish the requirements for UPS power supply.		
6	Power Supply	Shall provide the UPS power supply system accordingly.	Shall furnish the requirements for UPS power supply.							

201	Part 2	Section VI-B Particular Specifications	16.3.4(h)	Interface Requirement: RADIO with existing Tetra Radio system of (Phase I) – For inter network calls the radio contractor must study the existing radio system of Phase I and implement interconnectivity.	We understand that CMRL will provide the interface details and networking equipment for Phase-1 and Phase-2	Phase 1 and ext system is from Motorola. The details are given below. 1.DIPC 9.0.2. Trunked radio system Mobile Switching Office (MSO) 2.DIPC 9.0.2 compatible CAD Subsystem 3.Seven (7) Base station for CMRL phase 1 and three (3) Base station for phase 1 extension project
202	Part 2	Section VI-B Particular Specifications	3.5.1.1(i)	The Contractor shall provide a complete radio control system including all the interfacing software and hardware for the interface with the cab simulator computer (during acceptance tests in the factory/depot).	CMRL has to clear BOQ for cab simulator for TETRA contractor.	One set of device for simulating and testing all Tetra Interface scenarios including Signalling ,Rolling stock at Wayside,OCC and onborad.All inputs required for testing the Interface shall be simulated by the System.
203	Part 2	Section VI-B Particular Specifications	16.1.6.1	RS, STC, Telecom TETRA and PSD contractors shall jointly setup an integrated test bed at CMRL premise to arrange for the integration testing of various subsystems, as a minimum but not limited to ATS, ATO, on-board CCTV management system by signalling contractor, On-board passenger information system, on-board driver display units, TCMS, On-board NVR, RTR-DMS by RS contractors, station passenger information systems etc of the Telecom contractors. The test bed shall have provision for testing the actual softwares over the actual hardware. Necessary train running mimicking simulator shall be provided by the SIG contractor to simulate a train running. RS contractors shall provide necessary simulators to simulate various failure and operational scenarios in the TCMS pertaining to the Interface data.	CMRL has to clear BOQ for test bed for TETRA contractor.	One set of device for simulating and testing all Tetra Interface scenarios including Signalling ,Rolling stock at Wayside,OCC and onborad.All inputs required for testing the Interface shall be simulated by the System.