

ADDENDUM TO RAVIS CONTRACT

S.N O	Clause No/Annexure Number	Existing Clause	Modified Clause
1	GCC 30.5	The invoice shall be submitted along with work completion certificate duly certified by CMRL competent authority on each KD completion stage, the payment will be effected based on invoice from successful bidder, after due deduction of any taxes, penalties, any other dues applicable as per contract.	The invoice shall be submitted along with work completion certificate duly certified by CMRL competent authority on each KD completion, the payment will be effected based on invoice from successful bidder, after due deduction of any penalties, any other dues applicable as per contract and shall be paid within Sixty (60) days from the certification of work completion from CMRL competent authority.
2	Annexure 23	Existing Annexure 23	Filled Annexure 23 shall be attached with Price Bid only . It shall not be attached/uploaded in Technical Bid documents. Updated Annexure 23 is put as addendum to price bid
3	6.4 (v)	v. New Input output HMI (Human Machine Interface) console shall be mounted inside both driver cabs which will be accessed by Train operator for various functionalities such as playing pre-recorded audio announcements, recording and playback voice input and text to speech conversion for playback.	New Input output HMI (Human Machine Interface) console shall be mounted inside both driver cabs which will be accessed by Train operator for various functionalities such as playing pre-recorded audio announcements (Special and Emergency announcements), testing of speakers and displays function, verification of failure logs of RAVIS system. It shall support for addition of new pre-recorded announcements in future.
4	6.9.1 (i) c	i) c) Text to speech conversion for new announcements for storage and further usage of message broadcasting.	Removed.
5	6.7.2 (v)	v. Text on the displays shall be legible for 180 degree viewing angle.	v. Text on the displays shall be legible for 178 degree viewing angle.
6	6.10.1 (i-f)	i) f. Passenger Emergency Ingress voice communication between Driver and Passenger in a localized area.	Successful Bidder shall not interfere with the working of the existing PEI communication. However, Successful bidder shall ensure the Priority for PEI audio shall be according to annexure 17 of Tender document.
7	6.10.1 (i-g)	i) g. Cab to Cab communication.	Successful Bidder shall not interfere with the working of the existing Cab to Cab communication. However, Successful bidder shall ensure the Priority for Cab-Cab communication according to annexure 17 of Tender document.

8	6.11 (xiii)	Not available	<p>It was not mandated to use RS 485 in tender document - clause 6.4.</p> <p>Bidder is free to propose any suitable network for operation of all the requirements of RAVIS tender. However, this new network shall not disturb the functionalities or performance of the existing equipment/network in trains.</p> <p>Existing Car to Car Jumper cable conduits and their connector terminals shall not be opened and shall not be utilized for laying new network or for laying new cables.</p> <p>Successful bidder could lay network cables and audio cables between cars by means of additional Jumper cables with appropriate cleats and mounting brackets.</p> <p>However, bidder may test and could utilize the existing Ethernet network and audio network in the coach without affecting any functionalities of the train.</p>
9	6.8.1 (ii)	<p>ii. Frontal displays are also used in case of activation of —Silent Alarm push button from inside active driver cabin. During this time, the active cabin’s Frontal display shows “Train out of order” message.</p>	<p>ii. Frontal displays are also used in case of activation of —Silent Alarm push button from inside active driver cabin. During this time, the active cabin’s Frontal display shows “Train out of order” message. When Silent Alarm Button is pressed, a warning message is communicated to OCC with the help of existing PACIS controller and Tetra Radio. This function shall not be disturbed by the successful bidder.</p>
10	6.8.2 (iii)	<p>iii. In case of activation of —Silent Alarm push button from the cabin, train passenger warning message need to be displayed in Frontal display (FD) as it is in the existing trains. (The message to be displayed on Frontal Display is —TRAIN OUT OF ORDER). This message shall be disappeared after train is restarted.</p>	<p>iii. In case of activation of —Silent Alarm push button from the active cabin, train passenger warning message need to be displayed in Frontal display (FD) as it is in the existing trains. (The message to be displayed on Frontal Display is —TRAIN OUT OF ORDER). This message shall be disappeared after train is restarted. When Silent Alarm Button is pressed, a warning message is communicated to OCC with the help of existing PACIS controller and Tetra Radio. This function shall not be disturbed by the successful bidder.</p>

11	6.17 (i)	Not available	<p>Standards for RAVIS proposal: 6.17 (i)</p> <p>a. All the electronic equipment of RAVIS contract shall be compatible to EN 50155:2007 with respect to all the topics specified in EN 50155:2007 which includes Ambient Temperature, Shock & Vibration, Relative Humidity, Electrical Service conditions, Reliability, Maintainability, etc.</p> <p>b. Electro Magnetic Compatibility: The equipment shall be protected so as not to be affected by conducted or radiated interference as required in EN 50121-3-2 and shall not emit radio frequency interference (RFI) in excess of the level defined in EN 50121-3-2.</p> <p>c. All displays shall be rated for at-least IP 64 according to EN 60529 standard.</p> <p>d. Memory and functioning of the MVB controller/server shall be designed for railway applications.</p>
12	6.5 (vi)	vi. Stage 7: Handing over phase – After completion of specified duration of stage 5, successful bidder shall hand over the entire system to CMRL. Successful bidder shall hand over any software/hardware tools to manage the announcements and advertisements.	Stage 6: Handing over phase – After completion of specified duration of stage 5 with CMRL approval, Successful bidder shall hand over all software/hardware tools to manage the operation and modification of route related announcements and advertisements.
13	6.7.2 (xiv)	xiv. Among 52 trains, 42 trains have existing steel brackets for mounting of Dynamic Route Maps and Static Route Maps. For the last 10 trains (i.e., 43 to 52), steel brackets are fitted to FRP panel. These could be utilized for fixing of new displays and new Static Route Map. Pictures of both SRM and DRM mounting are attached in annexure 19. Bidders could verify the actual panels during the pre-bid meeting date in trains.	xiv. Among 52 trains, 42 trains have existing steel brackets for mounting of Dynamic Route Maps. For the last 10 trains (i.e., 43 to 52), steel brackets are fitted to FRP panel. These could be utilized for fixing of new displays. Pictures of DRM mounting are attached in annexure 19. Bidders could verify the actual panels during visit in trains. SRM (Static Route Maps) shall be left as it is. Replacement of SRM maps is not required in scope of RAVIS tender.
14	6.16 (viii)	viii. During the proposed activities, Successful bidder shall remove the existing DRM & SRM in phase 1 trains and same shall be handed over to CMRL. Annexure 19 has existing DRM & SRM mounting brackets pictures for reference.	viii. During the proposed activities, Successful bidder shall remove the existing DRM in phase 1 trains and same shall be handed over to CMRL. Annexure 19 has existing DRM mounting brackets pictures for reference. SRM (Static Route Maps) shall be left as it is. Replacement of SRM maps is not required in scope of RAVIS tender.

15	6.9.2 (vii)	Not available	New input/output console/Tab shall be sized in-between 9 Inch to 11 Inch diagonal.
16	6.4 (viii)	viii. Successful bidder shall utilize existing free terminals of the CAR to CAR jumper cable for audio communication lines.	<p>Bidder is free to propose any suitable network for operation of all the requirements of RAVIS tender. However, this new network shall not disturb the functionalities or performance of the existing equipment/network in trains.</p> <p>Existing Car to Car Jumper cable conduits and their connector terminals shall not be opened and shall not be utilized for laying new network or for laying new cables.</p> <p>Successful bidder could lay network cables and audio cables between cars by means of additional Jumper cables with appropriate cleats and mounting brackets.</p> <p>However, bidder may test and could utilize the existing Ethernet network and audio network in the coach without affecting any functionalities of the train.</p>
17	6.11 (v)	v. Existing Car to Car jumper cables free terminals and free space in conduits can be utilized for this purpose upon detailed study.	<p>Bidder is free to propose any suitable network for operation of all the requirements of RAVIS tender. However, this new network shall not disturb the functionalities or performance of the existing equipment/network in trains.</p> <p>Existing Car to Car Jumper cable conduits and their connector terminals shall not be opened and shall not be utilized for laying new network or for laying new cables.</p> <p>Successful bidder could lay network cables and audio cables between cars by means of additional Jumper cables with appropriate cleats and mounting brackets.</p> <p>However, bidder may test and could utilize the existing Ethernet network and audio network in the coach without affecting any functionalities of the train.</p>
18	6.16 (xxx)	xxx. Physical visualization of train schematic, jumper cable terminals, connectors can be done during pre-bid meeting with prior approval from CMRL.	xxx. Physical visualization of train schematic, connectors can be done in train with prior approval from CMRL.

19	6.16 (xxxvii)	Not available	All 52 trains are similar with respect to the train schematic, existing equipment, performance, software, wiring, ambient conditions, etc., except that trains 1-42 has existing DRM but trains 43-52 does not have existing DRM.
20	GCC 6.2	<p>Criteria: Work Experience for contract of RAVIS:- Work Experience of having completed similar works during last 7 years, either in India or outside India or both, ending last day of the previous month to which the tender is published. Similar work means —Design, supply, installation, testing & commissioning and warranty support for information system and advertisements using LED/ IPS-LCD/EPD/ TFT screen displays in a network within buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations / in any commercial location and</p> <p>i. Three similar completed works completed in total for 6.24 Cr INR worth LED/IPS-LCD/EPD/TFT displays in buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations / in any commercial location (or)</p> <p>ii. Two similar works completed in total for 7.8 Cr INR LED/IPS-LCD/EPD/TFT displays in buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations / in any commercial location (or)</p> <p>iii. One similar work completed in total for 12.48 Cr INR LED/IPS-LCD/EPD/TFT displays in buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations/ in any commercial location</p>	<p>Criteria: Work Experience for contract of RAVIS:- Work Experience of having completed similar works during last 7 years, either in India or outside India or both, ending last day of the previous month to which the tender is published. Similar work means —Design, supply, installation, testing & commissioning and warranty support for information system and advertisements using LED/ IPS-LCD/EPD/ TFT screen displays in a network within buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations / in any commercial location. and</p> <p>i. Three similar completed works completed in total for 6.24 Cr INR worth LED/IPS-LCD/EPD/TFT displays in buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations / in any commercial location (or)</p> <p>ii. Two similar works completed in total for 7.8 Cr INR LED/IPS-LCD/EPD/TFT displays in buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations / in any commercial location (or)</p> <p>iii. One similar work completed in total for 12.48 Cr INR LED/IPS-LCD/EPD/TFT displays in buses/trains/ aircrafts/ hotels/ airports/ railway stations/ bus stations/ in any commercial location</p>
21	GCC 12.3	12.3) In the case of delay/default in payment of contribution under ESI Scheme and EPF Scheme, besides the recovery of the amounts due by the Successful bidder towards their contribution, penal interest and / or damages as may be levied by the ESI or PF	In the case of delay/default in payment of contribution under ESI Scheme and EPF Scheme, besides the recovery of the amounts due by the Successful bidder towards their contribution, penal interest and / or damages as may be levied by the ESI or PF Authorities, a penalty of 20% of the above amount would also be levied and

		Authorities, a penalty of 20% of the above amount would also be levied and recovered from their security deposit. In the event of cessation of the contract due to any reason whatsoever, the security deposit shall be refunded only after due satisfaction as regards the above payments.	recovered from their performance security bank guarantee. In the event of cessation of the contract due to any reason whatsoever, the performance security bank guarantee shall be refunded only after due satisfaction as regards the above payments. The penalty imposed by CMRL under this clause shall not exceed five (5) percent of the total Contract Price.
22	GCC 26.2	In all above such cases the liability of the Successful bidder shall not exceed 100 percentage of the value of Bank Guarantee.	In all above such cases the liability of the Successful bidder shall not exceed 100 percentage of the value of Performance security Bank Guarantee.
23	SCC 8.4	8.4) If the Successful bidder is in default as per SCC 8.2, the performance guarantee of the Successful bidder shall be forfeited.	If the Successful bidder is in default as per SCC 8.2, the performance security bank guarantee of the Successful bidder shall be forfeited by CMRL.
24	Annexure 21 (iii-a)	iii -a. The Bidder, in case his bid is accepted by the Employer, executes a formal agreement after furnishing the Performance Guarantee issued by an Indian Public sector bank (excluding Cooperative Banks) or from a schedule Foreign Bank as defined in Section 2(e) of RBI Act 1934 read with Second Schedule.	iii -a. The Bidder, in case his bid is accepted by the Employer, executes a formal agreement after furnishing the Performance security bank Guarantee issued by any Indian Public sector bank.
25	TS 6.6	TS 6.6.	RAVIS/DOC 03 of Table-5 of TS 6.6 is more elaborated in page 15, 16 & 17 of this document. Remaining details of TS 6.6 in original tender is unchanged.
26	6.10.2 (vi)	Audio recording for all the route related information and any special information in CMRL phase 1 and Phase 1 extension sections need to be conducted by the successful bidder. Messages shall be recorded using a professional recording studio, or alternative method, subject to CMRL approval.	Audio recording for all the route related information and any special information in CMRL phase 1 and Phase 1 extension sections need to be conducted by the successful bidder. Messages shall be recorded using a professional recording studio and shall be done with female voice, subject to CMRL approval.
27	TS 6.16 (xxxx)	Not available	Except the passive speakers, Internal Displays and Frontal Displays of the train, no other existing equipment of the train shall be used for the RAVIS solution. Input from any equipment of the train could be taken which are connected with the network proposed by bidders.

28	TS 6.4 (vi)	Existing RS485 based communication lines within each CAR could be utilized for new DRMs	Existing RS485 based communication lines within each CAR could be utilized for new DRMs but need to fulfill all the requirements of RAVIS tender and addendums
29	6.11 (iii)	iii. Successful bidder shall use existing RS485 based network inside each cars for new DRM display connectivity. Necessary interfacing with RAVIS shall be configured by the successful bidder.	iii. Successful bidder could use existing RS485 based network inside each cars but need to fulfill all the requirements of RAVIS tender and addendums. Necessary interfacing with existing train and signaling system shall be conducted by the successful bidder.
30	TS 6.11 xiv	Not available	a. Connectors OEM Inotech make shall be utilized for MVB connectors with coding pins for effective locking. b. Reliable and mutually agreed make of connectors shall be utilized for Ethernet Connectors, etc. All the connectors of RAVIS proposal shall be effectively locked and shall withstand dynamic vibrations of train.
31	GCC 18.4	Conditional bids will be summarily rejected.	Bids with any deviations from the RAVIS tender requirements and of its addendums shall be considered as conditional bids. Bids shall not have any proposal of deviations.
32	TS 6.4 (xvi)	Not available	In future, there would be a possibility of further extension of CMRL Phase 1 and Phase 1 Extension sections which could involve procurement of new trains of similar design or further addition of cars from 4 car to 6 car in view of future increase in passenger patronage or further increase in number of digital displays for advertisement or other reasons. With this point in idea, the design, proposal, equipment, terminals and software of RAVIS system shall be configurable for any future extension projects or for additional cars or for additional displays as specified above. These future activities may be conducted by any other firm in future for the specific activities.
33	6.7.2 (xv)	Not available	The proposed DRM digital displays shall be colour displays so that the route display system and advertisements in future shall be effectively shown to passengers.
34	TS 6.16 (xxxviii)	Not available	The successful bidder shall be capable of independently analyzing the root cause of the issues/failures related to RAVIS system during its design stage, commissioning stage maintenance stage and in the complete contract period.

35	SCC 11	Not available	<p>Liquidity Damages For delivery of individual Key Date 1 through Key Date 6:</p> <ul style="list-style-type: none"> • 0.1 % of the total value of the amounts apportioned to the Milestones relevant to the Key date for each Calendar day of delay for first 30 Calendar days. • 0.1% of the total value of the amounts apportioned to the Milestones relevant to the Key date for each Calendar day of delay for delays beyond 30 Calendar days. <p>There is no maximum limit in levy of LD for delays in individual Key Dates. However, maximum limit for cumulative LD for complete Contract shall not exceed 10% of the total Contract Price.</p>
36	GCC 30.2	GCC 30.2 as per initial tender document	Updated GCC 30.2 attached in the page 18 of this document
37	TS 6.5.(vii)	TS 6.5.(vii) as per initial tender document	Updated TS 6.5 (vii) attached in the page 19 of this document
38	Annexure 13	Annexure 13 as per initial tender document	Updated Annexure 13 attached in page 20 of this document
39	TS 6.5 (i)	<p>i. Stage 1: Design approval phase: Initial draft concept of proposal shall be submitted by all the bidders with Annexure 18 and Annexure 20 during this tender document submission. Annexure 20 shall be reviewed by CMRL during the Techno-commercial bid evaluation of the bidders. Complete Concept of proposal shall be submitted by the successful bidder to CMRL within 01 week from the date of award of contract (CAD - contract agreement date). Successful bidder shall include all the details required for execution of the contract in their proposal. CMRL will review the concepts & details of proposal submitted by successful bidder and provide comments which need to be incorporated. Based on the CMRL comments, successful bidder shall re-submit the final design document satisfying all the contractual requirements. The entire process of stage 1 shall be completed within 03 weeks from the date of award of contract (CAD - contract agreement date).</p>	<p>i. Stage 1: Design approval phase: Initial draft concept of proposal shall be submitted by all the bidders with Annexure 18 and Annexure 20 during this tender document submission. Annexure 20 shall be reviewed by CMRL during the Techno-commercial bid evaluation of the bidders. Complete Concept of proposal by analyzing the complete train shall be submitted by the successful bidder to CMRL within 04 weeks from the date of award of contract (CAD - contract agreement date). Successful bidder shall include all the details required for execution of the contract in their proposal. CMRL will review the concepts & details of proposal submitted by successful bidder and provide comments which need to be incorporated. Based on the CMRL comments, successful bidder shall re-submit the final design document satisfying all the contractual requirements. The entire process of stage 1 shall be completed within 12 weeks from the date of CAD - contract agreement date. Complete concept of proposal shall include documents such as Detailed working proposal, software algorithms/flowcharts, Reliability details, OEM equipment manuals, maintenance manuals, software installation details, troubleshooting</p>

			manuals, Parts Catalogue to equipment, any other details necessary for complete understanding of the RAVIS proposal to CMRL in the Stage 1 itself.
40	TS 6.5 (ii)	ii. Stage 2: Demonstration phase: After approval of the final design document by CMRL, Successful bidder shall demonstrate the complete working system of the approved proposal in one train. CMRL will validate the system functionality and provide comments for further incorporation in the system. This entire activity is to be completed in 11 weeks from the date of award of contract (CAD - contract agreement date). Successful bidder shall get the approval from CMRL after demonstration of proposal.	ii. Stage 2: Demonstration phase: After approval of the final design document by CMRL, Successful bidder shall demonstrate the complete working system of the approved proposal in one train. CMRL will validate the system functionality and provide comments for further incorporation in the system. This entire activity is to be completed in 20 weeks from the date of CAD - contract agreement date. Successful bidder shall get the approval from CMRL after demonstration of proposal.
41	TS 6.16 (i)	The Successful bidder shall manage with adequate spares for replacement of equipment in case of failure of equipment until completion of Warranty stage of the contract per train basis.	The Successful bidder shall manage with adequate spares for replacement of equipment in case of failure of equipment until completion of Warranty stage of the contract per train basis. Successful bidder shall procure spares only after successful demonstration of the proposal in the prototype train to CMRL. Successful bidder shall always have adequate spares in contractor's stores for all the equipment proposed in the RAVIS proposal. No train shall be held in depot for want of spares for rectification of the failure during entire contract period. Details of OEM shall be provided by the successful bidder to the CMRL. Procurement of spares shall be done by CMRL independently after completion of Warranty period.
42	TS 6.16 (xxxix)	Not available	TS 6.16 (xxxix) The software used shall not involve payment of any licensing charges or any other charges whatsoever, throughout the life cycle of the system. The software user licenses shall not be restricted on the number of participants or users of the solution. The software used for RAVIS system can be open source or proprietary software but the algorithms/flowcharts of the functioning shall be shared to CMRL during Stage 1.

43	TS 6.16 (xix)	xix. Train control voltage is 110 V DC (min. 77 V to max.137.5 V) during train ON condition and when operating with battery alone. All the equipment in the proposal shall adhere to this voltage requirement.	xix. Train control voltage is 110 V DC (min. 77 V to max.137.5 V) during train ON condition and when operating with battery alone. All the equipment in the RAVIS proposal shall adhere to this voltage requirement and function according to EN 50155:2007. There shall not be any step down voltage available in train.
44	SCC 7.5	Not available	<p>SCC 7.5:</p> <p>Up Time requirements for the RAVIS system:</p> <p>a) In case of a service disruption for a period > 2 minutes & < 5 minutes is caused due to malfunction or issue in RAVIS system, it is considered as A1 type of failure. In case there are more than 15 (Fifteen) A1 issues per train/ calendar month, then 1 month of warranty extension shall be applied on the specific train.</p> <p>b) In case of a service disruption for a period >= 5 minutes is caused due to malfunction or issue in RAVIS system, it is considered as A2 type of failure. In case there are more than 5 (Five) A2 issues per train/ calendar month, then 1 month of warranty extension shall be applied on the specific train.</p> <p>c) The basis for time shall be taken from the recorded logs of the RAVIS system or from the Train Operator communication to OCC or passenger complaints to CMRL.</p> <p>d) Service disruption failure means any kind of failure in RAVIS system which disrupts the route information system to the passengers and causes delay to the operation of passenger services.</p>
45	SCC 9.2	9.2 CMRL will provide space for spares and maintenance personnel in CMRL Koyambedu depot at free of cost as required by the Successful bidder. The size and location of such space will be at the discretion of CMRL.	CMRL will provide space for spares and maintenance personnel in CMRL Koyambedu depot at free of cost as required by the Successful bidder. The size and location of such space will be at the discretion of CMRL. Successful bidder shall arrange all office utilities, furniture and equipment required for functioning of their personnel during the contract period in the space provided by CMRL. Electricity shall be charged to contractor for the office premises. No rental to be charged by CMRL for this office space or stores space.
46	TS 6.13 (xi)	Not available	Sufficient manpower shall be deployed by successful bidder in depot during the entire warranty period for rectification of failures.
47	TS 6.7.3 (xii)	Not available	Clause TS 6.7.3 (xii) on MVB variables is explained in detail in page 21 of this document.

48	6.13 (vi)	Any design related changes or additional requirement from CMRL in software perspective during prototype implementation and monitoring stages shall be implemented within 15 days from the time of request.	Any software design related changes or requirement from CMRL which are within the scope of the RAVIS contract during prototype implementation, monitoring stages and warranty stage shall be implemented within 15 days from the time of request.
49	TS 6.16 (xxxvi)	Post warranty period, The Successful bidder shall provide on-call support to CMRL for any issues with Hardware and Software tools for free of cost.	Removed.
50	TS 6.7.2 (iv)	iv. Successful bidder shall ensure all Displays to have proper passenger viewing in all conditions of interior lighting and during all times of the day and night. Displays shall be equipped with Automatic brightness adjustments by means of ambient light sensors. The display information shall be visible in a clear view in various conditions of exterior light brightness and interior light conditions.	iv. Successful bidder shall ensure all Displays to have proper passenger viewing in all conditions of interior lighting and during all times of the day and night. As the trains operate in open elevated section, displays shall be capable of displaying the content in a clear manner in sun light also. Displays shall be equipped with Automatic brightness adjustments by means of ambient light sensors. The display information shall be visible in a clear view in various conditions of exterior sunlight light brightness and interior light conditions.
51	TS 6.12.(iv)	iv. User interface shall be provided to CMRL for enabling/disabling advertisement and adding new advertisements with upload content option which needs to be done at a single point per train basis by connecting to the main controller in train through wired/wireless means in Depot.	User interface shall be provided to CMRL for enabling/disabling advertisement and adding new advertisements with upload content option which needs to be done at a single point per train basis by connecting to the main controller in train through wired means in Depot or in mainline parked state.
52	GCC 6.3 (iv)	Not available	In case the activity of display system is an integral part of a bigger contract of rolling stock, the eligibility criteria as specified in the GCC 6.2 has to be met with the actual cost of display system among the complete Rolling stock project cost. In this case, Annexure 5 of the RAVIS contract bid shall specify the project cost incurred specific to display system for the specific project.
53	GCC 31.1	Security arrangements for the work shall be in accordance with general requirements and the Successful bidder shall conform to such requirements and shall be held responsible for the action or inaction on the part of his staff/employees. A fine of Rs.5000/- (Indian Rupees Five thousand) on each event shall be imposed on the Successful	Security arrangements for the work shall be in accordance with general requirements and the Successful bidder shall conform to such requirements and shall be held responsible for the action or inaction on the part of his staff/employees. A fine of Rs.5000/- (Indian Rupees Five thousand) on each event shall be imposed on the Successful bidder plus recovery of cost of material in addition to the police action against the

		bidder plus recovery of cost of material in addition to the police action against the Successful bidder staff if any employee of Successful bidder is caught stealing or damaging CMRL property, The decision of CMRL shall be final.	Successful bidders' staff if any employee of Successful bidder is caught stealing or damaging CMRL property. Any activity done intentionally or un-intentionally which includes theft, damage to CMRL property in any CMRL premises, damages to the Rolling stock & any of the train's equipment during implementation or operation of the proposal shall be considered under this clause GCC 31.1. The decision of CMRL shall be final.
54	TS 6.16 (xiv)	The modification should not impact the normal working of the PACIS software in trains during and after the modification.	The modification should not impact the normal working of the PACIS software in trains during and after the implementation of the RAVIS proposal. Careful measures has to be taken by the successful bidder while connecting any external devices on the train so that these installation and their working shall not impact the existing train functionalities or the equipment or network or software.
55	GCC 7.2	The bidder should have been a profit making entity for the preceding three financial years in which the annual turnover is calculated (Copy of statement of Profit and Loss Account certified by Chartered Accountant for each of the three financial years to be enclosed (Annexure-6 – Format-1).	The bidder should produce a Copy of statement of Profit and Loss Account certified by Chartered Accountant for each of the three financial years to be enclosed (Annexure-6 – Format-1).
56	TS 6.9.2 (viii)	Not available	The date and time details of RAVIS system shall be always synchronous with the train date and time provided by signaling system. HMI shall display date and time also. Failure logs and events of RAVIS system shall synchronously match with the timing of the train.
57	TS 6.7.3.(v)	The system shall also be capable of displaying ambient information such as the external and internal temperature, humidity, train speed, etc., which are available in MVB bus& any other information useful for passengers. The external and internal temperature, humidity and train speed information need to be captured from the train MVB information of the train. The details of these variables shall be informed by CMRL during project commissioning stage.	The system shall also be capable of displaying ambient information such as the external and internal temperature, humidity, train speed, etc., which are available in MVB bus& any other information useful for passengers. The external and internal temperature, humidity and train speed information need to be captured from the train MVB information of the train. Ambient train data shall be captured by the successful bidder from the MVB which is connected to all the equipment of the train such as ATC, PACIS, HVAC, PCE, ACE etc.

58	SCC 7.2	In case of with-hold of train in depot/mainline due to equipment failure or RAVIS system issue or non-availability of equipment for replacement for more than 3 continuous days, the warranty for the specific train shall be extended by one month.	In case of with-hold of train in depot/mainline due to equipment failure or RAVIS system issue or non-availability of equipment for replacement for more than 3 continuous days, the warranty for the specific train shall be extended by one month. Issues related with wiring/MVB controller/displays/connectors/software/any other hardware related to RAVIS system which make part/complete train not functional or not suitable to be capable of operating in passenger service shall be considered in this category.
59	TS 6.16 (xiii)	In case of with-hold of train in depot/mainline due to equipment failure or RAVIS system issue or non-availability of equipment for replacement for more than 3 days in a specific month, the warranty for the specific train shall be extended by one month.	In case of with-hold of train in depot/mainline due to equipment failure or RAVIS system issue or non-availability of equipment for replacement for more than 3 continuous days, the warranty for the specific train shall be extended by one month. Issues related with wiring/MVB controller/displays/connectors/software/any other hardware related to RAVIS system which make part/complete train not functional or not suitable to be capable of operating in passenger service shall be considered in this category.
60	TS 6.7.2 (i)	Successful bidder shall propose new DRM display technology such as LED, IPS-LCD, EPD, TFT or other suitable monitor design, which comprises below mentioned requirements from CMRL.	Successful bidder shall propose new DRM digital display technology such as LED or IPS-LCD or EPD or TFT monitors which comprises below mentioned requirements from CMRL.
61	TS 6.16 (xxix)	All new equipment inside train including new DRM display, Media controllers, servers, train operator console shall withstand any voltage induction during pantograph rising and lowering action.	All new equipment inside train including new DRM display, Media controllers, servers, train operator console shall withstand any voltage induction during pantograph rising and lowering action. a. All the electronic equipment of RAVIS contract shall be compatible to EN 50155:2007 with respect to all the topics specified in EN 50155:2007 which includes Ambient Temperature, Shock & Vibration, Relative Humidity, Electrical Service conditions, Reliability, Maintainability, etc. b. Electro Magnetic Compatibility: The equipment shall be protected so as not to be affected

			<p>by conducted or radiated interference as required in EN 50121-3-2 and shall not emit radio frequency interference (RFI) in excess of the level defined in EN 50121-3-2.</p> <p>c. All displays shall be rated for atleast IP 64 according to EN 60529 standard.</p> <p>d. Memory and functioning of the MVB controller/server shall be designed for railway applications.</p>
62	TS 6.15 (i)	During warranty period, Successful bidder shall be reachable via Phone call and Email 24X7 for any issues, failures or mishaps in RAVIS. Upon fault intimation, Successful bidder shall be available in CMRL premises for corrective action. For reporting such faults, successful bidder shall share the Support Phone number and Email ID.	During warranty period, Successful bidder shall deploy sufficient man power for rectification of failures. They shall be available for attending any issues, failures or mishaps in RAVIS system during revenue service and non-revenue service duration during warranty period. Successful bidder shall share the Support Phone number and Email ID.
63	GCC 42 Further Extension requirements	Not available	In case of further extension of CMRL Phase 1, Phase 1 Extension routes or for requirement of additional cars or for additional displays in the trains, CMRL shall provide repeat order with the same design to the successful bidder for same per unit costs and shall be within the approved limits of 30% to the Total Contract Value.
64	Definitions	Not available	Advertisements: Digital pictographic or video-graphic content showcasing CMRL project, passenger amenities, information to passengers. These details shall be provided by CMRL.

Note: all the bidders shall review and consider all the CMRL comments of Pre-Bid queries sheet along with this addendum.

BASIC TESTING CHECKSHEET FOR VERIFICATION OF RAVIS SYSTEM Rev.00

S.No	Test Type	Test System / Hardware	Test Description
1	Static	DRM Display	DRM display working status shall be ensured by powering ON the individual display unit.
			Display unit shall be free from physical damages.
2	Static	HMI Console	HMI Console device shall be tested by powering ON the individual unit.
			HMI Console unit shall be free from physical damages.
3	Static	Gateway/Server/Controller	Devices such as Interface Gateways/Servers/Controller shall be free from Physical damages.
4	Static	CAR Interior network	Wiring continuity shall be ensured for the network within CAR with necessary connectors intact.
			Agreed specification for Wire/cable shall be verified
5	Static	CAR to CAR new Jumper network	Wiring continuity shall be ensured for the CAR to CAR new jumper network with necessary connectors intact.
			Agreed specification for Wire/cable shall be verified.
6	Static	Grounding	Proper Grounding of all individual equipment shall be verified.
7	Static	RAVIS System	After installation of complete system package in a train, following items shall be verified.
			Ensure all displays are switched ON.

			Ensure both HMI Consoles are powered ON.
			Ensure the working of HMI Consoles by giving input to Displays and speakers
			Ensure all displays are working by pushing test animation from HMI console.
			Ensure all Interior and exterior speakers are working with new system by pushing Test audio message from HMI console
			Ensure MVB interface device is powered ON and its working shall be verified by connecting Laptop computer that shows the MVB variables of the train.
			Ensure Gateways/Servers/Controllers are powered ON and working
8	Static	Software	Approved software version shall be ensured for following devices from HMI
			All DRM displays
			Both HMI Consoles
			MVB Interface device
9	Static	Date and time	Shall verify the date and time synchronization with the Rolling stock time.
10	Static	Fitting of all equipment	Torque marks for the fitments shall be verified for all new equipment inside the train
11	Static	Audio System	Speaker volume level shall be verified by simulating the load conditions of train
12	Dynamic	RAVIS System	Route related information on displays and route related audio announcement on speakers shall be verified during

			mainline service trails in corridors including neutral section regions
13	Dynamic	Fitting of all equipment	During and after mainline service trail, all equipment fitments shall be verified according to the standards.
14	Dynamic	RAVIS System - HMI	HMI controls shall be verified during mainline service trails
15	Static/Dynamic	5S	Industrial workplace standards such as 5S shall be carried out for every installation and testing in the train / depot / mainline
<p><u>Note:</u> Successful bidder shall submit the checklist containing all the above items during design stage. Successful bidder shall also include any additional testing requirements.</p>			

GCC 30.2:

Key Date	Stage No.	Activity	Duration	End of the Stage. Time line from CAD (Contract Agreement Date)	Payment for the Stage
KD 1	STAGE 1	Design approval phase	12 weeks	12 weeks + CAD	20% of Total Contract Value, After completion of KD 1
	STAGE 2	Demonstration phase – Demonstration of Prototype in one train	08 weeks	20 weeks + CAD	
	STAGE 3	Monitoring Phase	01 Weeks	21 Weeks + CAD	
KD 2	STAGE 4	Implementation phase in First Set of 10 train-sets	08 Weeks	29 Weeks + CAD	10% of Total Contact value, After completion of KD 2
KD 3		Implementation phase in Second Set of 10 train--sets	06 Weeks	35 Weeks + CAD	10% of Total Contact value, After completion of KD 3
KD 4		Implementation phase in Third Set of 10 train-sets	06 Weeks	41 Weeks + CAD	10% of Total Contact value, After completion of KD 4
KD 5		Implementation phase in Forth Set of 10 train-sets	06 Weeks	47 Weeks + CAD	10% of Total Contact value, After completion of KD 5
KD 6		Implementation phase in Fifth Set of 11 train-sets	06 Weeks	53 Weeks + CAD	30% of Total Contact value, After completion of KD 6
KD 7	STAGE 5	Warranty Phase	104 Weeks	104 Weeks per train after successful implementation by successful bidder and after CMRL's acceptance as per Technical Specification clause 6.6 per train basis.	10% of Total Contract Value, After completion of KD 7

Table 01

*CAD – Contract Agreement Date

Note:

1. Successful Bidder shall submit bills to CMRL for a specific KD at a time after completion of complete activity in that KD.
2. Total contract value includes taxes, duties and any other charges, etc. related to the RAVIS contract. Above table shall be considered by the bidders while quoting the total contract value during the tender submission. **Prices shall be filled in Price bid schedule only.** The values shall not be filled in Techno-commercial bid.

The Total Contract value mentioned by the bidder in price bid shall only be utilized for evaluation of the Lowest bidder (**L1**).

6.5. STAGES OF IMPLEMENTATION OF WORKING PROPOSAL:

vii. PROJECT TIME LINE:

Key Date	Stage No.	Activity	Duration	End of the Stage. Time line from CAD (Contract Agreement Date)	Payment for the Stage
KD 1	STAGE 1	Design approval phase	12 weeks	12 weeks + CAD	20% of Total Contract Value, After completion of KD 1
	STAGE 2	Demonstration phase – Demonstration of Prototype in one train	08 weeks	20 weeks + CAD	
	STAGE 3	Monitoring Phase	01 Weeks	21 Weeks + CAD	
KD 2	STAGE 4	Implementation phase in First Set of 10 train-sets	08 Weeks	29 Weeks + CAD	10% of Total Contact value, After completion of KD 2
KD 3		Implementation phase in Second Set of 10 train--sets	06 Weeks	35 Weeks + CAD	10% of Total Contact value, After completion of KD 3
KD 4		Implementation phase in Third Set of 10 train-sets	06 Weeks	41 Weeks + CAD	10% of Total Contact value, After completion of KD 4
KD 5		Implementation phase in Forth Set of 10 train-sets	06 Weeks	47 Weeks + CAD	10% of Total Contact value, After completion of KD 5
KD 6		Implementation phase in Fifth Set of 11 train-sets	06 Weeks	53 Weeks + CAD	30% of Total Contact value, After completion of KD 6
KD 7		STAGE 5	Warranty Phase	104 Weeks	104 Weeks per train after successful implementation by successful bidder and after CMRL's acceptance as per Technical Specification clause 6.6 per train basis.

6.5.vii Table 04

*CAD – Contract Agreement Date

Note:

1. Successful Bidder shall submit bills to CMRL for a specific KD at a time after completion of complete activity in that KD.
2. Total contract value includes taxes, duties and any other charges, etc. related to the RAVIS contract. Above table shall be considered by the bidders while quoting the total contract value during the tender submission. **Prices shall be filled in Price bid schedule only.** The values shall not be filled in Techno-commercial bid.

The Total Contract value mentioned by the bidder in price bid shall only be utilized for evaluation of the Lowest bidder **(L1)**.

ANNEXURE 13

IMPLEMENTATION SCHEDULE: Technical specification 6.5.vii - Project Time line:

Key Date	Stage No.	Activity	Duration	End of the Stage. Time line from CAD (Contract Agreement Date)	Payment for the Stage
KD 1	STAGE 1	Design approval phase	12 weeks	12 weeks + CAD	20% of <u>Total</u> Contract Value, After completion of KD 1
	STAGE 2	Demonstration phase – Demonstration of Prototype in one train	08 weeks	20 weeks + CAD	
	STAGE 3	Monitoring Phase	01 Weeks	21 Weeks + CAD	
KD 2	STAGE 4	Implementation phase in First Set of 10 train-sets	08 Weeks	29 Weeks + CAD	10% of <u>Total</u> Contact value, After completion of KD 2
KD 3		Implementation phase in Second Set of 10 train--sets	06 Weeks	35 Weeks + CAD	10% of <u>Total</u> Contact value, After completion of KD 3
KD 4		Implementation phase in Third Set of 10 train-sets	06 Weeks	41 Weeks + CAD	10% of <u>Total</u> Contact value, After completion of KD 4
KD 5		Implementation phase in Forth Set of 10 train-sets	06 Weeks	47 Weeks + CAD	10% of <u>Total</u> Contact value, After completion of KD 5
KD 6		Implementation phase in Fifth Set of 11 train-sets	06 Weeks	53 Weeks + CAD	30% of <u>Total</u> Contact value, After completion of KD 6
KD 7		STAGE 5	Warranty Phase	104 Weeks	104 Weeks per train after successful implementation by successful bidder and after CMRL's acceptance as per Technical Specification clause 6.6 per train basis.

*CAD – Contract Agreement Date

Note:

1. Successful Bidder shall submit bills to CMRL for a specific KD at a time after completion of complete activity in that KD.
2. Total contract value includes taxes, duties and any other charges, etc. related to the RAVIS contract. Above table shall be considered by the bidders while quoting the total contract value during the tender submission. **Prices shall be filled in Price bid schedule only.** The values shall not be filled in Techno-commercial bid.

The Total Contract value mentioned by the bidder in price bid shall only be utilized for evaluation of the Lowest bidder **(L1)**.

TS 6.7.3 (xii)

Details related to MVB

List of MVB Variables which shall be useful for implementing RAVIS proposal are as follows. There shall be various other variables out of the below list which could be utilized for usage in RAVIS proposal and shall be studied by the bidders.

TrainNumber	DistPrevOk	Distance between the train and the next station	NxtStatOpnRgt
Line number	DistNextOk	Train information from ATO	NeutralSection
Mission number	VhcInTracCirc	ShutDownInP	DrsOpnLftTL
Destination number	VhcStandstill	TCMSAlive	DrsOpnRgtTL
StartStatNum	DrsOpnLftRly	MPU1Master	DestinationNo
Next station number	DrsOpnRgtRly	MPU2Master	KmCnt – mileage
Current station number	VhcMode	DateTimeSec	ServiceNum
Time from ATC	VhcInStat	TrainNumber	SerialNum
Date from ATC	NxtStatSkip	NetwVersion0	TCCU_CMisc, TCCU_CData3 – for silent alarm information and activation
Distance between the train and the previous station	NxtStatOpnLft	VhcWeight	DestNumOk
TripNumOk	DateTimeOk	RefAbsSpeed	StartStatNumOk
ExtTemp	NextStatNumOk	Active cabin	Etc.,

- Types of MVB variables shall be of UNSIGNED8, UNSIGNED16, UNSIGNED32, BOOLEAN1, CHARACTER8, INTEGER16, etc.
- The variables will be either transmitted by MPU to all other equipment on MVB or there shall be variables transmitted between specific equipment on MVB
- CMRL shall share variable name, variable address and type of variable to successful bidder during the design stage.
- Decoding of the MVB variables need to be done by the successful bidder for providing the software and design solution of RAVIS proposal. Any variable on MVB shall be able to be utilized by the successful bidder for achieving the purpose of the RAVIS tender specifications.
- Necessary Interface required for RAVIS proposal between various equipment of train and with signaling equipment of train shall be done by successful bidder itself.

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