



RAILTEL CORPORATION OF INDIA LIMITED
(A Govt. of India Undertaking, Ministry of Railways)
1-10-39 to 44, 6A, 6th Floor,
Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET,
HYDERABAD- 500 016, Telangana.

RailTel Website: www.railtelindia.com

TENDER DOCUMENT FOR

**“Smart Class work for- Upgradation of Audio and Video Systems at IRISSET,
Improvements to Transmission Lab and Train Traffic Control Lab at IRISSET”**

Limited Tender No: RCIL/23-24/SR/SC/LT/LTE-Smart Class dated 14-10-2023.

Due date for opening: 20-10-2023

Signature and stamp of the tenderer



RailTel Corporation of India Limited

A Government of India (Ministry of Railways) Undertaking

1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road, Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016, Telangana.

Tender No: **RCIL/Tender/23-24/SR/SC/LT/LTE-Smart Class dated 14-10-2023.**

Subject: Smart Class work for- Upgradation of Audio and Video Systems at IRISSET, Improvements to Transmission Lab and Train Traffic Control Lab at IRISSET.

RailTel Corporation of India Ltd., Secunderabad invites Limited tender through email ID iriset.lte.smartclass@railtelindia.com for "Smart Class work for- Upgradation of Audio and Video Systems at IRISSET, Improvements to Transmission Lab and Train Traffic Control Lab at IRISSET" as per schedule of requirement (SOR) and specification enclosed to the tender document.

रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड, सिकंदराबाद ने निविदा दस्तावेज के साथ संलग्न आवश्यकता की अनुसूची (एसओआर) और विनिर्देश के अनुसार " आईआरआईएसईटी में ऑडियो और वीडियो सिस्टम के उन्नयन, प्रेषण प्रयोगशाला और प्रशिक्षण यातायात नियंत्रण प्रयोगशाला के सुधार के लिए स्मार्ट क्लास काम " के लिए निविदा मेल आईडी iriset.lte.smartclass@railtelindia.com मेल आईडी के माध्यम से आमंत्रित की है।

a)	Bid Submission Start date बोली सबमिशन प्रारंभ दिनांक	14-10-2023
b)	Last date for Submission of Tender निविदा प्रस्तुत करने की अंतिम तिथि	20-10-2023 at 15.00 hrs.
c)	Date of opening of E-Bids ई-बोलियों के खुलने की तिथि	20-10-2023 at 15.30 hrs.
d)	Estimated Cost of the Work काम की अनुमानित लागत	Rs 89,85,822-
e)	Earnest Money Deposit (EMD) बयाना धन जमा (ईएमडी)	Rs 1,79,800/-
f)	Validity of offer ऑफर की वैलिडिटी	60 days from the date of opening of tender.
g)	Delivery Period डिलीवरी की अवधि	Within 30 days from the date of issue of LOA/PO
h)	Web address for availability of Tender document निविदा दस्तावेज की उपलब्धता के लिए वेब पता	Detailed tender notice and tender document are available at website www.railtelindia.com .

Note:

Eligible MSEs are exempted from EMD only. No other exemption will be given.

पात्र एमएसई को केवल ईएमडी से छूट दी गई है। अन्य कोई छूट नहीं दी जाएगी।

Tender Notice and Tender Document are available on RailTel's website and can be downloaded from www.railtelindia.com. All future Information viz. corrigendum /addendum/ amendments etc. for this Tender shall be posted on www.railtelindia.com. Printed copy of Tender document will not be sold from

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RailTel office.

निविदा सूचना और निविदा दस्तावेज रेलटेल की वेबसाइट पर उपलब्ध हैं और www.railtelindia.com से डाउनलोड किए जा सकते हैं। इस निविदा के लिए भविष्य की सभी सूचनाएं अर्थात् शुद्धिपत्र/परिशिष्ट/संशोधन आदि केवल ई-टेंडरिंग पोर्टल पर पोस्ट की जाएंगी। निविदा दस्तावेज की मुद्रित प्रति रेलटेल कार्यालय से नहीं बेची जाएगी।

The bidder shall bear all costs associated with the preparation, submission/participation in the bid. RailTel in no way will be responsible or liable for these costs regardless of the conduct or outcome.

बोलीदाता बोली में तैयारी, प्रस्तुतीकरण/भागीदारी से जुड़ी सभी लागतों को वहन करेगा। रेलटेल किसी भी तरह से आचरण या परिणाम की परवाह किए बिना इन लागतों के लिए जिम्मेदार या उत्तरदायी नहीं होगा।

Sd/-
शैलेंद्र दुसा
(Shailendra Dusa)
DGM/TECH-MKTG/SC

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Signature and stamp of the tenderer

CHAPTER-1

OFFER LETTER

RAILTEL CORPORATION OF INDIA LIMITED

1-10-39 to 44, 6A, 6th Floor,
Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET,
HYDERABAD- 500 016, Telangana.

Ref: Tender No: RCIL/Tender/23-24/SR/SC/LT/LTE-Smart Class dated 14-10-2023.

1. I/We _____ have read the various conditions detailed in tender documents attached here to and hereby agree to ABIDE BY THE SAID CONDITIONS. I/We also agree to keep this offer open for acceptance for a period of **60 days** from the date of submission and in default thereof. I/We will be liable for forfeiture of my/our Earnest Money. I/We offer to supply various equipment at the rates quoted in the attached schedules and hereby bind myself/ourselves to complete the work within **30 days** from the date of issue of Purchase Order/LOA. I/We also hereby agree to abide by the Various Conditions of Contract and to carry out the supplies according to the Specifications for materials and works laid down by the RailTel.

2. A sum of Rs. 1,79,800/- as an **Account Payee Demand Draft in favor of RailTel Corporation India Ltd. No. _____ dated _____ issued by _____** is herewith forwarded as "Earnest Money". The full value of Earnest Money shall stand forfeited without prejudice to any other rights or remedies if, I/We withdraw or modify the offer within validity period or do not deposit the security deposit (Performance Bank Guarantee) within **specified days as per tender** after issue of Purchase Order/LOA.

SIGNATURE OF SUPPLIER (S)

Date:

CONTRACTOR (S) ADDRESS

SIGNATURE OF WITNESS:

1.

2.

(End of Chapter-1)

Signature and stamp of the tenderer

CHAPTER- 2

SCHEDULE OF REQUIREMENT

SOR: Smart Class work for- Upgradation of Audio and Video Systems at IRISSET, Improvements to Transmission Lab and Train Traffic Control Lab at IRISSET.

S NO	Item Code	Qty	UoM	Unit Rate incl GST (INR)	Total incl GST
	Schedule A-Telecom Works				
1	Description:- Supply and installation of 6 kVA online UPS with 2 hrs backup along with external battery bank. Detailed Technical Specifications are attached at Chapter 3B (inspection by consignee)	2	No	₹ 1,39,500.00	279000.00
2	Description:- Supply and installation of standard 19 inch rack mountable Layer-2, manageable switch with 24 Nos. of 10/100/1000 ports with POE+ support, 4x1 GE SFP ports, including 4 Nos. of 1GE BX SM SFP modules, as per RDSO Specification No. RDSO/SPN/TC/65/2021 or latest. Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	5	No	₹ 87,970.50	₹ 4,39,852.50
3	Description:- Supply, installation and commissioning of Ring Earth (consisting of minimum 3 electrodes with maintenance free unit earths). Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	2	No	₹ 40,008.60	₹ 80,017.20
4	Description:- Supply of Digital Podium System comprising of Multimedia Controller, 21.5" Interactive Monitor, PC with intel i5 processor, 512 GB SSD with windows 10 OS or better. Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	1	Lot	₹ 3,49,245.00	₹ 3,49,245.00
5	Description:- Supply of UHD 4K Interactive LED 86" Board Cum Display. Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	1	No	₹ 2,54,880.00	₹ 2,54,880.00
6	Description:- Supply of 10" Pen Display, 4K OPS i5 / 8GB / 256GB / Win 10, Wall Mount for IFP for Interactive LED Board cum Display of reputed make. Detailed Technical Specifications are attached at Chapter 3B (inspection by consignee)	1	Lot	₹ 90,270.00	₹ 90,270.00
7	Description:- Supply of 8 Nos x 30W Ceiling Mount Speakers similar to QSC and 240W Power Amplifier similar to Biamp. Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	1	Lot	₹ 2,90,452.50	₹ 2,90,452.50

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8	Description:- Supply of Wireless Lapel Microphone: 01 No., Wireless handheld microphone and Gooseneck microphone: 01 No. of reputed make similar to Sennheiser. Detailed Technical Specifications are attached at Chapter 3B. (inspection by consignee)	1	Lot	₹ 1,33,702.61	₹ 1,33,702.61
9	Description:- Supply of 15U Equipment Rack, Cable, Connectors & Other accessories required for Interactive Display and Audio System. Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	1	Lot	₹ 16,100.10	₹ 16,100.10
10	Description:- Forwarding, Installation, Integration, Testing and commissioning of Digital Podium, Interactive Display Board, PA system supplied vide Schedule No.28 to 33. Detailed scope of work under this schedule item is attached at Chapter 3B	1	Lot	₹ 43,992.00	₹ 43,992.00
11	Description:- Supply of PVC Casing and Capping (2"x2") with cover, fixing/laying materials and with all accessories as per the requirement. (Including all the materials required for fixing like, bends, couplers, screws etc.). Detailed Technical Specifications are attached at Chapter 3B.(inspection by consignee)	100	Metre	₹ 1,115.10	₹ 1,11,510.00
12	Description:- Fixing of PVC Casing and Capping (2"x2") with cover using the materials supplied in the above schedule item. Detailed Technical Specifications are attached Chapter 3B	100	Metre	₹ 31.86	₹ 3,186.00
13	Description:- Supply of compact Aluminium Step Ladder of 12 Feet as per the specifications attached Chapter 3B (inspection by consignee)	1	No	₹ 20,600.99	₹ 20,601.00
14	Description:- Supply, installation, testing and commissioning of Surge Protection Device Class B (10/350µs) and Class C (8/20µs) type metal and spark gap for fire safe and fire proof operation based and single phase coordinated type. It shall have mechanical failure indication on L-N and N-E, pluggable devices as per IEC61643 test standard or latest. Supply of surge protection and all other miscellaneous materials required for fixing the SPD shall be supplied by the contractor. Detailed Technical Specifications are attached at Chapter 3B (inspection by consignee)	2	No	₹ 39,910.50	₹ 79,821.00
15	Description:- Blowing / Drawing of OFC / Power / CAT-6 Cables through PVC Conduit / Casing. Detailed Technical Specifications are attached Chapter 3B.	2500	Metre	₹ 26.55	₹ 66,375.00

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16	Description:- Breaking of Pucca / Concrete Road, Wall cutting, Laying of OFC / UTP / Power cable through the PVC / GI pipes for protection as the case may be. This includes the restoration of surface / Road. Detailed Technical Specifications are attached at Chapter 3B	100	Metre	₹ 690.30	₹ 69,030.00
17	Description:- Supply of Factory crimped CAT-6 UTP patch cords 2 M as defined in the inspection. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by consignee)	120	No	₹ 117.00	₹ 14,040.00
18	Description:- Supply of PVC insulated armoured 3 Core, 2.5 sq.mm, 14 AWG, 1.1 kV grade outdoor copper cable for UPS distribution as per BIS / ISI standards. Detailed Technical Specifications are attached at Chapter 3B. (inspection by consignee)	220	Metre	₹ 153.00	₹ 33,660.00
19	Description:- Supply of RJ45 connectors suitable for STP / UTP Cable as per the specifications attached at Chapter 3B (inspection by consignee)	200	No	₹ 49.50	₹ 9,900.00
20	Description:- Supply of metal strengthened out door unarmoured 12 F Optic Fibre Cable (ITUTG-652-D) as per the latest TEC / BSNL Specifications as attached at Chapter 3B. (inspection by consignee)	100	Metre	₹ 69.03	₹ 6,903.00
21	Description:- Supply and termination of 12 Fibre SC type Rack mountable FDMS loaded with SC 0dB and adaptor SC-SM pigtail 1.5m. with all accessories required for installation as per the specifications attached at Chapter 3B (inspection by consignee)	2	No	₹ 7,965.00	₹ 15,930.00
22	Description:- Supply and installation/fixing of PVC conduit pipe with min 35 mm Dia., ISI mark with all the required materials like clamps, bends and screws etc. required for installation. Detailed Technical Specifications are attached at Chapter 3B (inspection by consignee)	250	Metre	₹ 116.82	₹ 29,205.00
23	Description:- Supply and installation, testing and commissioning of Servers (Hardware only) for Network Management System of LTE, Kavach Application Server (KAS) Application and LES (Loco Exchange Server) Application for integration with Kavach. The server should be provided with Ubuntu Server LTS 22.04. KAS Application and LES Application is not part of this schedule. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	3	No	₹ 4,80,600.01	₹ 14,41,800.00

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24	Description:- Supply and installation of All-in-one PC for Network Analysis with the following configuration or better: Intel Core i5, 16 GB RAM, 256 GB SSD, 1000 GB HDD, Windows 11 Professional OS. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	62	No	₹ 73,190.33	₹ 45,37,800.00
25	Description:- Supply and installation of 65" LED TV with 4K UHD similar to LG 65UT761H or better. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	4	No	₹ 82,305.00	₹ 3,29,220.00
26	Description:- Supply and installation of Inkjet Colour Computer Printers for A3 size Paper. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	3	No	₹ 39,870.01	₹ 1,19,610.00
27	Description:- Supply of CAT-6 UTP Cable for indoor use nominal 6.11 mm 23 AWG solid bare copper as per the specifications, reputed make similar to Schneider, Finolex, Dlink etc. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	1830	No	₹ 28.30	₹ 51,781.50
28	Description:- Supply, fixing and installation of Modular Plate 6 Module, Frame Plate with Matching Cover Plate. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	60	No	₹ 144.00	₹ 8,640.00
29	Description:- Supply, fixing and installation of Modular electrical switches and accessories with ISI Marked, 6 A, 1 Way Switch to IS:3854/1997 with latest amendments similar to Legrand Mylinc. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	60	No	₹ 51.29	₹ 3,078.00
30	Description:- Supply, fixing and installation of Modular 3 Pin Socket, 240V, 6A as per IS:1293/2005 with latest amendments similar to Legrand Mylinc. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	60	No	₹ 126.00	₹ 7,560.00
31	Description:- Supply, fixing and installation of modular RJ45 socket of robust quality similar to Legrand. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	62	No	₹ 502.20	₹ 31,136.40
32	Description:- Supply, fixing, installation and testing of CAT-6 UTP Cable patch panel. Detailed Technical Specifications are attached at Chapter 3B. (Inspection by Consignee)	3	No	₹ 5,841.00	₹ 17,523.00
Total					₹ 89,85,821.81
bidder's quoted percentage in figures & words) Below/At Par/Above					
(Including GST @18%)					

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Note-I	
I	<p>a) Rate quoted against SOR above should be CIP destination inclusive of all duties, taxes, insurance and freight etc. (with break-up as per Performa attached as Annexure- A). The materials as per SOR are required to be delivered within the delivery period as indicated in Bid Data Sheet (BDS, Chapter 5). If there is any discrepancy in the Total amount and the Unit Rate, the value shown in the Unit Rate shall be considered final for the evaluation.</p> <p>b) It shall be the responsibility of Tenderer to transport the material to Railway stores in Secunderabad as mentioned in this tender document.</p> <p>c) Material against SOR will be Installed & Commissioned by Tenderer itself under Supervision of RailTel/Railways/ OEM.</p>
II	Tenderers should submit the detailed configuration / technical details. Bill of Material supplied under the contract shall be submitted along with the bid.
III	Any license fee required to be paid for hardware & software during the life cycle of the Supplies shall be included in the rate quoted by the tenderer. There shall be no post contractual liability of license fee on RailTel for hardware & software supplied by tenderer
IV	It is mandatory for Tenderer to quote for all items of the schedule. Any bid not having quote for all the items of the schedule may not be considered.

(End of Chapter 2)

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CHAPTER-3(A)

SCOPE OF WORK, TECHNICAL REQUIREMENTS

1.1 Introduction

RailTel Corporation of India Limited (RailTel), an ISO-9001:2000 organization is a Government of India r the Ministry of Railways. The Corporation was formed in Sept 2000 with the objectives to create nationwide Broadband Telecom and Multimedia Network in all parts of the country, to modernize Train Control Operation and Safety System of Indian Railways and to contribute to realization of goals and objective of national telecom policy 1999.

South Central Railway is building LTE Test set up lab at IRISSET, Secunderabad. RailTel is MSI of the project and procuring LTE equipment, Test instruments, Smart Class room setup and other associated equipment. The current LT requirement is for Set up of Smart Class room as per the Technical specification at Chapter 3B.

1.2 OVERVIEW OF THE SCOPE OF WORK

This work involves setting for Set up of Smart Class room as per the Technical specification at Chapter 3(B) at IRISSET.

- a. The work shall be carried out in accordance with the technical specifications specified at Chapter 3(B)
- b. Quantities mentioned in the schedules are approximate and likely to vary according to the actual requirements depending upon the site conditions and may be taken as a guide for the Tenderer.

1.2.1 TENDERER's Responsibility

The tenderer will be responsible for supply of complete material for this tender including the Installation and commissioning wherever required. It shall be the responsibility of Bidder to transport the material to site as mentioned in this tender document.

- a. The contractor has to make all supplies as per SOR Chapter 2 of the tender document.
- b. The contractor shall be responsible for employing qualified engineers / personnel for supervision and execution of work.
- c. The contractor shall be responsible for proper execution of work in line with the Technical Specification as per Chapter 3(B). Floor Plans and any other relevant plans/ drawings approved by authorised representatives of IRISSET and Bill(s) of Quantities of the tender document.
- d. The contractor shall be responsible for supply of technical literature for the installations carried out by him / her including the equipment installation, maintenance manuals etc. from Original Equipment Manuals (OEMs).
- e. The contractor shall be responsible for supply of warranty for installations carried out by him/ her including those from Original Equipment Manuals (OEMs) in line with the Technical Specification as per Chapter 3(B).

1.2.2 INSTALLATION, INTEGRATION, TESTING, TRIAL RUN AND COMMISSIONING OF WORK

The Tenderer shall be fully responsible for Quality Assurance of Material and I&C shall be done by bidder, where ever required,

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1.2.3 FINAL COMMISSIONING

Completion of Works

- a. Certificate of Acceptance of Installations
 - i. As soon as in the opinion of the contractor and the OEMs, the contractor shall submit an installation certificate for the acceptance by the Engineer.
 - ii. The installation shall be deemed to be commissioned on the issue of certificate to that extent by the Engineer.
- b. Certificate of Completion of Works
 - i. As soon as in the opinion of the Engineer, the work has been completed and has satisfactorily passed any final test or tests that may be prescribed, the Engineer shall issue a certificate of completion duly indicating the date of completion in respect of the work and the period of maintenance of the work shall commence from the date of completion mentioned in such certificate. The certificate, inter alia, should mention that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the contractor and that there is no due from the contractor to Railways against the contract concerned.
 - ii. The Engineer may also issue such a certificate indicating date of completion with respect to any part of the work (before the completion of the whole of work), which has been both completed to the satisfaction of the Engineer and occupied or used by the Railway. When any such certificate is given in respect of part of a work, such part shall be considered as completed and the period of maintenance of such part shall commence from the date of completion mentioned in the completion certificate issued for that part of the work.
- c. Contractor not Absolved by Completion Certificate:
 The Certificate of Completion in respect of the works referred to in Sub Clause (a) of this Clause shall not absolve the contractor from his liability to make good any defects imperfections, shrinkages or faults which may appear during the period of maintenance specified in the tender arising in the opinion of the Engineer from materials or workmanship not in accordance with the drawings or specifications or instruction of the Engineer, which defects, imperfections, shrinkages or faults shall upon the direction in writing of the Engineer be amended and made good by the contractor at his own cost; and in case of default on the part of contractor, the Engineer may employ labour and materials or appoint another contractor to amend and make good such defects, imperfections, shrinkages and faults and all expenses consequent thereon and incidental thereto shall be borne by the Contractor and shall be recoverable from any moneys due to him under the contract.

1.3 TECHNICAL RESPONSE

The technical response shall be fully comprehensive and detailed and it will include detailed guaranteed specifications of the supplied material.

1.3.1 FEATURES AND CAPABILITIES OF EQUIPMENT

The succeeding specifications contain the necessary requirements of RailTel with regard to the features and capabilities of the material/equipment to be offered by the Tenderers. These will be carefully studied and commented upon by the Tenderer. These should not be treated as maximum specifications.

1.3.2 COMPLIANCE TO TECHNICAL REQUIREMENTS

1.3.2.1 CLAUSE BY CLAUSE COMPLIANCE

In the offer, the Tenderer shall include statement of clause by clause compliance of the tender

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document and sufficient documentation such that RailTel can validate the compliance statements

1.3.2.2 VARIANCE FROM SPECIFIED REQUIREMENTS

In case of variance of the offered equipment from the specified Technical requirements, the decision of RailTel on whether the equipment offered is responsive to the bid requirements shall be final and binding upon the Tenderer.

1.3.2.3 DETAILED TECHNICAL INFORMATION

The Tenderer shall include in his proposal the detailed Technical information, drawings and functional descriptions of the offered material to support the Compliance to RailTel's Technical requirements.

(End of Chapter 3A)

Signature and stamp of the tenderer

CHAPTER-3(B)

TECHNICAL SPECIFICATIONS

1. Supply and installation of 6 kVA online UPS with 2 hrs backup along with external battery bank

On-line UPS shall have the following minimum specifications:

1. Rating in KVA : 6.0 KVA
2. Switching Technology : IGBT-PWM
3. Input Voltage : AC Single phase 160V - 260V 50Hz
4. Output Voltage : AC Single phase 230V +/-1% 50 Hz
5. Output Voltage Regulation : $\pm 1\%$ (Static) ; $\pm 5\%$ (Dynamic)
6. Output Frequency : 50 Hz
7. Frequency Stability : $\pm 0,1\%$ (operation by battery) ; $\pm 1\%$ (on mains)
8. Voltage Wave : Sinusoidal
9. Total Harmonic Distortion : $< 3\%$ (linear load) ; $< 5\%$ (non- linear load)
10. Cold Start : No
11. Total Efficiency : $> 90\%$
12. Crest Factor : 3 : 1
13. Transfer Time : 0 m sec
14. Type of Battery : SMF-VRLA conforming to JISC: 8702 (Pt.I,II&III), Stationary Lead Acid Batteries (with tubular positive plates) in monobloc container conforming to IS:13369:1992 latest
15. Backup time (Minutes) : 120 Minutes
16. Overload limit : 50% Overload for minimum 3 seconds
17. Accessories : Rack for Batteries
18. Type of Design / Construction : Floor Standing

MIMIC & CONTROL PANEL

1. Type : LCD Alphanumeric mini panel
2. LCD Display : Input Voltage , Output Voltage , Battery Voltage, Battery Current, Output Frequency, Battery Charge Level, UPS Power, Load %
3. LED Display : Load on Bypass, Load on UPS, Alarms and operation by battery leads.

PROTECTION

1. Overload Capacity : 100% ~ 125%
Load 10 minutes; 125% ~ 150%
Load 1 minute; $> 150\%$ load on the bypass
2. Short Circuit : a) Inverter mode: UPS is shut- down itself
b) Bypass mode: AC protection fuse is blown
3. Over Heat
a) If main normal: UPS is cross to by-pass mode
b) If the main voltage is not normal: UPS is cut output, Alarm on the LCD Display.
4. Battery Low Level : Battery low alarm occurs on the LCD. Sound alarm is given after 15 second
5. Visual and Auditory alarms : Bypass alarm, mains fault, load on bypass, overload, mains failure, output voltage high / low, over temperature, battery volt- age high/low, short circuit, faulty inverter, Battery test etc.

COMPUTER INTERFACE

Management : Dry contact info, RS232 Serial Port, TMON Software, remote control panel (option), SNMP and Megatec

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Dry Contact In-formation : Load on inverter / Bypass, Operation battery / mains, Battery low/ normal, emergency button

GENERAL

Noise Level : < 65 dB (1 Meter)

Technology : High frequency IGBT technology, PWM, True Online System, 2

Micro Pro. and high protection by driver

Operation Temperature / Humidity: -10 °C to +70 °C (Min/Max) /90%

Cooling : Fan

Scope of Supply and Installation VRLA batteries as per the backup requirements with proper stacking arrangement is also included in this schedule.

Scope of Installation and Commissioning

Floor mount Battery stand, all the cables, lugs etc as per site requirements for satisfactory commissioning of UPS and batteries referred shall have to be supplied by the Vendor under the scope of this schedule. Supplied UPS shall be of reputed make viz., Eaton, Vertiv or APC. SMF Batteries shall be of reputed make viz., APC, Amaron or Exide.

- 2 **Supply and installation of standard 19 inch rack mountable Layer-2, manageable switch with 24 Nos. of 10/100/1000 ports with POE+ support, 4x1 GE SFP ports, including 4 Nos. of 1GE BX SM SFP modules, as per RDSO Specification No. RDSO/SPN/TC/65/2021 or latest**

Supplied Layer 2 switch shall meet the requirements as per Clause No. 14.0(II) of RDSO Specification of IP Based Video Surveillance System Specification No. RDSO/SPN/TC/65/2021 Revision 6.0 or latest with all amendments.

It should have PoE 24 x 10/100/1000BASE-T ports and 4 x10 G (Minimum) OEM BX SFP+ ports loaded. It should include the required OEM BX SM Modules loaded, Mounting Kit and all the accessories required for installation.

Supplied Layer-2 Manageable Switch shall be of reputed make viz., Cisco, Juniper or Alcatel

- 3 **Supply, installation and commissioning of Ring Earth (consisting of minimum 3 electrodes with maintenance free unit earths).**

Supply, Installation and commissioning of Ring Earth (consisting of minimum 3 electrodes with maintenance free unit earths)

Ring earthing arrangement shall be provided as described below:

1. By providing highly corrosion resistant 3 nos. of Earthing Electrodes to be made as tripod to form a ring earth.
2. All the 3 nos. of such unit earths installed to make Ring Earth are to be connected using 25x3mm pure solid copper strip with exothermic welding
3. By providing uniform non corrosive, low soil resistivity material around the electrode

Components:

Following are the components of earthing and bonding system:

- Earth Electrode
- Earth enhancement material
- Earth pit
- Equipotential earth bus bar
- Tape/strip and associated accessories

Earth Electrode:

Earth electrode is made up of high tensile low carbon steel circular rods bonded with copper on the outer surface. The earth electrode shall be of minimum 17.0 mm diameter and 3 meter length.

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Earth enhancement material:

Earth enhancement material is a superior conductive material that improves earthing effectiveness by improving conductivity of the earth electrode and ground contact area. It mainly consists of Graphite and Portland cement. It is supplied in sealed moisture proof bags.

It shall have the following characteristics:

- Highly conductive, improves earth's absorbing power and humidity retention capability.
- Non-corrosive in nature having low water solubility but highly hygroscopic.
- Resistivity of less than 0.2 Ohms-metre.
- Suitable for installation in dry form or in a slurry form.
- Does not depend on the continuous presence of water to maintain its continuity.
- Permanent and maintenance free and in its "set form", maintains constant earth resistance with time.
- Does not dissolve, decompose or leach out with time.
- Does not require periodic charging treatment nor replacement and maintenance.
- Suitable for any kind of electrode and all kinds of soils of different resistivity.
- Does not pollute the soil or local water table and meets environmental friendly requirements for landfill.

Backfill material

- The excavated soil is suitable as a backfill but should be sieved (screened) to remove large stones and placed around the electrode taking care to ensure that it is wet and compact.
- Material like sand, salt, coke breeze, cinders and ash shall not be used because of its acidic and corrosive nature.

Earth pit Construction of unit earth pit:

(Ref: Typical installation drawing no. SDO/RDSO/E&B/001)

- Prepare a hole of 100 mm to 125 mm dia. manually or with the help of 'Earth auger' to a depth of about 2.8 metres.
- Place the earth electrode into the centre of this hole.
- Gently drive on the top of the rod to penetrate it into the soil so that minimum 150 mm of the electrode shall be inserted in the natural soil.
- Now fill the Earth enhancement material (min. approx. 30-35 kg) into the augured/dug hole in slurry form and allow it to set. After setting, the diameter of composite structure (earth electrode + earth enhancement material) shall be of minimum 100 mm dia. covering the entire length of the hole.
- Cover the remaining portion of the hole by backfill soil, which is taken out during auguring /digging.
- A copper strip of 150 mm X 25 mm X 6mm shall be exothermically welded to the main earth electrode for taking the connection to the main equipotential earth bus bar in the equipment room and to other earth pits, if any.
- The main earth pit shall be located as near to the main equipotential earth busbar in the equipment room as possible.
- Given below Figure shows the installation of maintenance free earth for S&T installations with reference to typical installation drawing no. SDO/RDSO/E&B/ 001 dated 19.09.2008.

Construction of Ring/ loop Earth

In order to ensure & to achieve earth resistance of < 1 Ohms, three such maintenance free unit earths are to be installed to form Ring Earth. The procedure mentioned above for one earth pit shall be repeated exactly similar for other earth pits as well.

The distance between two successive earth electrodes shall be minimum 3 mtrs. and maximum up to twice the length of the earth electrode i.e. 6 m. approximately.

Interlinking of earth pits using copper tape:

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These earth pits shall then be inter-linked using 25X3 mm. copper tapes to form a loop using exothermic welding technique.

The interconnecting tape shall be buried at depth not less than 500 mm below the ground level as shown in the diagram below. This interconnecting tape shall also be covered with earth enhancing compound.

Inspection Chamber:

- The inspection chamber shall be a concrete box of 300mmX300mmX300 mm (inside dimension) with smooth cement plaster finish provided on top of the pit.
- A concrete lid, painted black, approx. 50 mm. thick with pulling hooks, shall be provided to cover the earth pit.
- Care shall be taken regarding the level of the floor surrounding the earth so that the connector is not too deep in the masonry or projecting out of it.
- On the back side of the cover, date of the testing and average resistance value shall be written with yellow paint on black background.

Equipotential earth busbars

- LTE equipment room is to be provided with one equipotential earth bus bar. Such bus bars are termed as Sub equipotential busbars (SEEB).
- The equipotential earth busbar provided in the LTE equipment room and directly connected to Class 'B' SPDs and the main earth pit is termed as Main equipotential earth busbar (MEEB).
- The EEBs should have pre-drilled holes of suitable size for termination of bonding conductors.
- The EEBs shall be insulated from the building walls by providing low voltage insulator spacers of height 60 mm between EEB and the wall.
- For ease of inspection and maintenance, EEBs shall be installed at the height of 0.5 m from the room floor surface.
- Copper lugs with spring washers are used for all terminations on EEBs.

Bonding Connections

To minimise the effect of circulating earth loops and to provide equi-potential bonding, "star type" bonding connection is required.

Each of the SEEBs installed in the rooms shall be directly connected to MEEB using bonding conductors. Also, equipment/racks in the room shall be directly connected to its SEEB.

Star type bonding connection

- The bonding conductors shall be bonded to their respective lugs by exothermic welding.
- All connections i.e. routing of bonding conductors from equipment to SEEB and from SEEBs to MEEB shall be as short and as direct as possible with minimum bends and separated from other wiring. However, connection from SPD to MEEB shall be as short as possible and preferably without any bend.

Component /Bonding	Material [as per IS:694]	Size
Main equi-potential earth busbar (MEEB)	Copper	300X25X6 mm (min.)
Sub equipotential earth busbar (SEEB)	Copper	150X25X6 mm (min.)

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Individual equipments to SEEB using copper lugs with stainless steel nut and bolts	Multi-strand single core PVC insulated copper cable	10 Sq.mm.
SEEB to MEEB using copper lugs with stainless steel nuts and bolts.	Multi-strand single core PVC insulated copper cable	16 Sq.mm.
Surge protection devices (SPDs) to MEEB using copper lugs with stainless steel nut and bolts.	Multi-strand single core PVC insulated copper cable	16 Sq.mm.
MEEB to main earth electrode	Multi-strand single core PVC insulated copper cable	35 Sq.mm.
Main earth pit to other earth pit in case of loop earth.	Copper tape	25X2 mm.

Sufficient quantity of Multi-strand single core PVC insulated copper cables of 16 Sq.mm and 35Sq.mm and Copper tape of 25x2 mm shall be supplied by the Vendor as per the site requirements and as per the instructions of Railway Engineer-in-charge.

Precautions to be taken:

- Pour sufficient water so that mixture is in paste / mud form.
- Allow the pit to absorb the water and become compact.
- Test the earth pit before connecting to the electrical circuit.
- Avoid excess watering.
- Do not hammer the earth electrode.
- The surroundings of the earth electrode should be kept moist by periodically pouring water through the pipe in order to keep the resistance below specified value.
- Coke-treated electrodes shall not be situated within 6 meters of other metal structures.
- The protective earth of the Telecom system shall not be connected to the earth of mains power supply system. A minimum distance of 10 Meters is desirable.

The Vendor has to ensure that the Installation personnel are experienced and highly skilled in carrying out such Ring earths. The acceptable Earth resistance should be less than 1 Ohm.

4 Supply of Digital Podium System comprising of Multimedia Controller, 21.5" Interactive Monitor, PC with intel i5 processor, 512 GB SSD with windows 10 OS or better

Digital Podium System shall consist of Main cabinet system: 01 No., HDMI Multimedia Controller: 01 No., 21.5" Interactive display: 01 No. and PC/ CPU: 01 No. as per the specification mentioned below

Main Cabinet System:

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Metallic structure customised to house hardware/software with powder coated fitted with cooling fans & caster wheels with brakes.

Podium Dimensions: - Height- Presenter side 1060mm, Audience Side 1190mm front width 670mm, side width 730 mm

Provision to fit in 21.5" Interactive Monitor with motorised tilt mechanism

External connectivity options: 2xUSB, 2x XLR on Top and at right bottom – HDMI In/Out, VGA In/Out, Audio In/Out, Gigabit LAN, Power socket with On/Off switch.

Drawer for document camera with dimensions – Depth 560mm, width 440mm, height 150mm

Metallic top tray for placing documents, laptop etc. dimensions 630mm x 655mm

Drawer for keyboard and mouse

Security- All drawers, sliding trays, and doors should be lockable.

Minimum 8 x 5 Amp modular universal metallic spike buster for devices connectivity with miniature circuit breaker and central power control.

Provision to fix Logo at the front side with the flexibility to change the logo. Size– 560 mmx410mm

Provision of 19" Rack inside podium to fit in international standard equipment with minimum adjustable shelves.

Provision for upgrades to cater for future changes in technology

Provision for installing Speech Prompter on the podium itself

Access doors for servicing both from front and back sides of the podium

Wire managers on left, right sides and at bottom for flexibility of managing additional wires/wiring

Minimum three full HD (HDMI) input devices and four full HD (HDMI) output devices connectivity with three numbers for VGA connectivity should be available.

21.5" Interactive Display - (Qty-1):

Interactive display shall be with the following minimum specifications
Size 21.5" with multi touch, up to 60 deg motorised tilt
Resolution 1920 X 1080-pixel
HDMI/DVI, VGA and USB input Ports
Brightness 250 cd/m2

Computer System – (Qty-1)

It shall consists of a CPU with the following specifications, wireless keyboard and mouse; Intel i5 processor, 8GB RAM/512GB SSD, USB 3.0 ports, Ethernet: with Win 10 OS or latest HDMI Multimedia Controller

Integrated multimedia controller on top panel with keypad to control Projector Screen, audio

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system volume control, switch on/off the PC & Projector, IR device control, RS232, LAN connector, USB etc. Switching among PC, Laptop and Document Camera with auto splitting between podium monitor & projection system, switching DVD & TV etc. A minimum of three full HD (HDMI) input devices and four full HD (HDMI) output devices should be available.

5 Supply of UHD 4K Interactive LED 86" Board Cum Display

Active screen size ("inch) - 86"

Display backlight - DLED

Display area - 1893*1069mm

Display ratio - 16:9 Resolution - 3840*2160

Display colours - 10 bit

LCD BRIGHTNESS - 400cd/m2

Contrast ratio (typical) - 15000:1

Response time (typical) - 4ms

Display orientation - landscape

Reference frequency – 120 Hz

Android/IOS Smart System

RAM -3GB and ROM - 16GB built in expandable to 64GB

WiFi Dongle - Yes

Device mirroring BYOD Devices -4 Users.

Touch Surface Material - Toughened Tempered Anti Glare Glass

Touch Sensor - Infrared Touch

Touch Points - 20 Points with Windows and 10 Points with Android

Touch Screen Writing Tools - Nano Pen or Finger

Positioning Accuracy - +-1mm

Communication Interface - USB

Speaker Max Power Output – 15W x 2

Installation Method (Optional) - Wall-Mounted/Floor Stand

VESA Pattern - 800*400

OPS PC – Available

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Front Interface Inputs - HDMI 1.4 1, USB(Touch) X 1, USB(Public) X 2, Micx1

Rear Av Inputs - HDMI 2.0(4k@60hz*2) X 2, Dp1.2 (4k@60hz) X 1, VGA (1920x1080@60hz)X1 & Pc Audiox1, USB (Touch) X 4

Av Outputs - HDMI out (Support 4k@60hz, 1920x1080@60hz) X 1

Other – USB 2.0(Public) X 1, USB 3.0(Public) X 1, USB 2.0 Embedded X 1, Rs232 X 1, Rj45 X2, Ops Slots(4k@60hz) X 1, Dc 5v-2a Out, Line Out X1, SPDIF Out X1

6 Supply of 10" Pen Display, 4K OPS i5 / 8GB / 256GB / Win 10, Wall Mount for IFP for Interactive LED Board cum Display of reputed make

10" Pen Display: It shall be with 10" Full HD display hardened surface for durability with Battery, stylus/pen and with minimum four Customisable Shortcut Keys. It should be compatible with Windows 10 (or later), Mac OS X 10.10 (or later), Android (USB3.1 DP1.2), Chrome OS 88 (or later), and Linux.

OPS

Open Pluggable Specification (OPS) is the industry standard for connecting computer devices to large flat panel/interactive displays via a single universal internal slot. Offered Interactive LEDdisplay shall have a built in OPS with the following specifications:

OPS: 4K OPS Intel i5/8GB/256GB/Win 10 or latest

Wall Mount for IFP 86" LED Display

Necessary Wall mount for installing the 86" LED display shall be supplied under the scope of this schedule.

7 Supply of 8 Nos x 30W Ceiling Mount Speakers similar to QSC and 240W Power Amplifier similar to Biamp

Audio System with the following accessories shall be integrated with the digital podium and Interactive LED Display

30W Ceiling Mount Speaker

1. Configuration - 2-Way
2. LF Transducer - 6.5-inch
3. HF Transducer - .86-inch
4. Effective frequency range - 65 Hz to 20 kHz
5. Rated noise power - 30 Watts
6. Sensitivity - 89 dB SPL
7. Coverage angle - 110°
8. Maximum peak SPL - 110 dB
9. Rated impedance - 8 ohms
10. Transformer (70V/100V) - 30, 15, 7.5, 3.7
11. Input connector type – Euro block
12. Baffle material - Painted ABS polymer
13. Ceiling Mounting Accessories - Included
14. Make similar to QSC/Bose/Biamp

240W Mixer Amplifier

1. Mixer Amplifier should include an output transformer with a high impedance dynamic

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output power of at least 240 watts

2. It should have low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms
3. It should be convection cooled and use class-D amplifier technology Frequency response: at least 60 - 20 kHz
4. It should include at least 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input
5. It should include a paging input with chime and a 24vdc priority output to override local volume controls and will also include 4 levels of priority
6. It should have a simple and intuitive front panel for the end user and include clear led indications of the mi selection, music source, music volume, an
7. input labelling section and recessed mic volume controls
8. It should include a REC line level output
9. There shall be an optional paging mic and local input panel shall be available for the mixing amplifier
10. Make similar to Biamp/QSC/Yamaha

8 Supply of Wireless Lapel Microphone: 01 No., Wireless handheld microphone and Gooseneck microphone: 01 No. of reputed make similar to Sennheiser

Wireless Lapel Microphone system shall have the following minimum specifications:

1. Bluetooth® Low Energy (BLE) frequency range: 2402 - 2480 MHz Audio frequency response: 20 Hz - 20 kHz (-3 dB) @ 3 dBfs
2. Audio THD: \leq -60 dB for 1 kHz, @ -3 dBfs input level
3. Dynamic range: 134 dB
4. System latency: 1.9 ms

Rack Receiver

1. Input voltage: 11 - 13 V
2. Input current: \leq 300 mA
3. Transmit power (radiated): BLE: max. 10 mW EIRP
4. Audio output power: 18 dBu max

Handheld Transmitter

1. Input voltage: 2.0 - 4.35 V Input current: $<$ 300 mA
2. Occupied bandwidth: 200 kHz
3. Transmit power (radiated):
4. Audio link: 10 mW ERP; (Range Y1-3: 12 mW ERP);
5. BLE: max. 10 mW EIRP
6. Regulatory Compliance: ISO 9001, Radio Equipment directive, EMC, ErP Directive and RoHS Directive
7. Make similar to Sennheiser/Shure/Revolabs

Wireless Handheld Microphone

1. Wireless Handheld Microphone shall have the following minimum specifications:
- Bluetooth® Low Energy (BLE) frequency range: 2402 - 2480 MHz
2. Audio frequency response: 20 Hz - 20 kHz (-3 dB) @ 3 dBfs
3. Audio THD: \leq -60 dB for 1 kHz, @ -3 dBfs input level
4. Dynamic range: 134 dB
5. System latency: 1.9 ms

Rack Receiver

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1. The Rack Receiver shall have the following minimum specifications
2. Input voltage: 11 - 13 V
3. Input current: ≤ 300 mA
4. Transmit power (radiated): BLE: max. 10 mW EIRP Audio output power: 18 dBu max

Handheld Transmitter

1. Handheld Transmitter shall have the following minimum specifications
2. Input voltage: 2.0 - 4.35 V
3. Input current: < 300 mA
4. Occupied bandwidth: 200 kHz
5. Transmit power (radiated): Audio link: 10 mW ERP; (Range Y1-3: 12 mW ERP);
6. BLE: max. 10 mW EIRP
7. Regulatory Compliance: ISO 9001, Radio Equipment directive, EMC, ErP Directive and RoHS Directive
8. Make similar to Sennheiser/Shure/Revolabs

Gooseneck Microphone

1. Gooseneck Microphone shall have the following specifications
2. Microphone type: pre-polarized condenser microphone
3. Gooseneck Flexibility - 40 cm gooseneck to ensure precise alignment of the microphone.
4. Pickup pattern: Cardioid
5. RF shielding against intermodulation from wireless devices Frequency Response: 50Hz–20KHz
6. Impedance: $< 100 \Omega$
7. Sound Pressure Level: 130 dB
8. Signal to noise ratio: 26dBA
9. Connectivity: XLR
10. Power required: 12-48 Phantom power
11. Shielding System Facility
12. Make similar to Sennheiser/Shure/Revolabs

9 Supply of 15U Equipment Rack, Cable, Connectors & Other accessories required for Interactive Display and Audio System

18 U Equipment Rack.

SN	Specification	Description
1	Type	Closed Telecom Rack/Wall/Pole mounted
2	Dimension	15 U 600mm (Width)X 600 mm (Depth)
3	Mounting	Rack should have Wall/Channel/Beam mounting with heavy brackets and fasteners of required shape and size as per site condition. It shall be insulated from the wall/ channel/beam/ shelterthrough insulators.
4	Front Door	Rack should have front door tough and transparent glass fitted on MS/CRCA sheet on sides with Lock and key.
5	Rear door	MS/CRCA Door Plain having ventilation holes bottom side with dust filters.
6	Top & Bottom	Rack top and bottom should be MS/CRCA steel made with cable entry provision with glands at both sides.

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7	Fan module	Compact Fan Module of 90 CFM working on 230VAC 2 Nos. with each Rack properly fitted at top of rack.
8	Earthing Provision	Rack Should have earthing provisions. All the required materials for earthing is to be supplied with Rack.
9	Cable manager	1 No. horizontal and 1No.vertical cable manager with cable loops to be provided with each rack and Patch panel.
10	Power Distribution Unit (PDU)	PDU is of 6 Sockets of branded make such as Havells or equivalent with 6 Amp MCB.
11	Materials used	CRCAMS with Thickness varying from 1.6 Mm to 2.0 mm
12	The rack should be fitted with one or more trays of 19". Back side of the rack should be closed with a removable panel.	
13	The good quality powder coating light grey in colour shall be used for painting of the rack.	
14	"INDIAN RAILWAYS LOGO along with Year" in bold and easily recognizable fonts should be written at the front top of the rack preferably in black or blue colour.	
15	OEM should have a valid ISO 9001 certification on the date of opening of bid.	
16	Rack should have 2 no's of removable side panel with slam latch. With key & lock arrangement. With key & lock arrangement.	
17	Rack should have provision to mount racks on Floor	
18	Rack should be minimum IP54 certified. Rack should also comply with EIA 310/DIN 41494 standards.	

High Speed True 4K HDMI Cable with Ethernet

HDMI Cable shall have the following minimum specifications:

1. Max. Video Resolution: 4096 x 2160 @60Hz Physical Properties
2. Cable Length :2m
3. Cable Colour : Black
4. Cable Outer Dimension: 2L-7D01H: 6.0 ± 0.15mm;
5. 2L-7D02H-1,2L-7D03H: 6.0 ± 0.20mm;
6. 2L- 7D05H-1: 8.0 ± 0.20mm
7. Conductor Gauge :2L-7D01H, 2L-7D02H-1;
8. 2L-7D03H: 30AWG;
9. 2L-7D05H-1: 26AWG
10. Conductor Material: Tinned Copper
11. Connector Plating: Gold
12. Connector Type: HDMI (19pin) Male to Male
13. Cable Shield Type: Aluminium Foil
14. Cable Jacket Type: PVC
15. Make shall be similar to Extron/Aten/NT

High Speed HDMI Cable with Ethernet:

High speed HDMI Cable shall have the following minimum specifications:

1. Max. Video Resolution :4096 x 2160 @ 30Hz
2. Physical Properties
3. Cable Length: 10m
4. Cable Colour: Black
5. Cable Outer Dimension: 2L-7D05H: 6.0 ± 0.2mm; 2L-7D10H: 8.0 ± 0.2mm; 2L-7D15H, 2L- 7D20H: 10.0 ± 0.2mm
6. Conductor Gauge :2L-7D05H: 30AWG; 2L-7D10H: 26AWG; 2L-7D15H: 24AWG; 2L7D20H: 26AWG Conductor Material: Tinned Copper
7. Connector Plating: Gold

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- 8. Connector Type: HDMI (19pin) Male to Male
 - 9. Cable Shield Type: Aluminium Foil
 - 10. Cable Jacket Type: PVC
- Make shall be similar to Extron/Aten/NT

Cat 6 Extension Cable

The cable shall have the following minimum specifications

- 1. Cable Length: 10 m
- 2. Cable Outer Dimension: 6.3 + - 0.2 mm
- 3. Conductor Gauge: 24 AWG
- 4. Conductor Material: Copper Clad Aluminum
- 5. Connector Plating: Copper Alloy Plated with Gold
- 6. Connector Type: RJ-45 Male to Male
- 7. Cable Jacket Type: PVC
- 8. Similar to AMP/NT/Extron

USB Cables

USB Cables are to be supplied as below:

- 1) 1.5m A-A USB Cable (Qty-1)
- 2) 10 m USB Cable (Qty-2)
- 3) 10 m Power Cable (Qty-1)
- 33.5 Speaker and Microphone Cable
- 200 m 2 Core 1.5mm Sq. Speaker Cable (Qty-1)
- 50 m Microphone Cable (Qty-1)

10 Forwarding, Installation, Integration, Testing and commissioning of Digital Podium, Interactive Display Board, PA system supplied vide Schedule No.28 to 33

The Vendor shall arrange for the installation, integration, testing and commissioning of all the subsystems of Digital Podium, Interactive LED Display Board and the PA system supplied as part of schedule No. 28 to 33. Apart from the above, Vendor shall arrange for the integration of additional LED displays with the Interactive LED Display as per the site requirements. All the necessary cables (including HDMI), connectors, flexible conduits, wiring materials, Power supply cabling, Cable Managers etc., which may not be part of the scheduled items but necessarily required for the integration and commissioning of the entire system shall be supplied by the Vendor under the scope of this scheduled item.

11 Supply of PVC Casing and Capping (2"x2") with cover, fixing/laying materials and with all accessories as per the requirement. (Including all the materials required for fixing like, bends, couplers, screws etc.)

PVC Casing and Capping (2"x2") with cover shall be of reputed make similar to Modi, AKG or Panduit, bearing ISI certification. All the accessories viz., bends, couplers, flexible pipe, plugs, screws etc., for laying and fixing the Casing and Capping shall be supplied as per the requirements at site condition.

12 Fixing of PVC Casing and Capping (2"x2") with cover using the materials supplied in the above schedule item

Fixing of casing and capping shall be carried out as per the instructions of the Railway representative at site duly using all the necessary accessories in an aesthetic manner as per the site conditions.

13 Supply of compact Aluminium Step Ladder of 12 Feet.

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The 12 feet ladder supplied shall be made from high tensile aluminium alloy C section and step flat corrugated aluminium section. Distance between two steps 12" center to center or higher Platform size 16" X 8" or better Steps are made from anti slip aluminium 62 MM wide steps or better Size of section- 2.5/8" X 1.1/4" X 1/8" (10 gauge) (66mm X 32 mm X 15mm) or better.

- 14 Supply, Installation, testing and commissioning of Surge Protection Device Class B (10/350 μ s) and Class C (8/20 μ s) type metal and spark gap for fire safe and fireproof operation based and single phase coordinated type. It shall have mechanical failure indication on L-N and NE, pluggable devices as per IEC61643 test standard or latest. Supply of surge protection and all other miscellaneous materials required for fixing the SPD shall be supplied by the Vendor.**

Stage 1 Protection (at the entry point of input 230V AC supply in the power/ equipment room)

(a) The Stage 1 protection shall consist of coordinated Class I/ B & II/ C type SPDs at the entry point of input 230V AC supply in Power /Equipment room in TT configuration in a separate wall mountable box. The Class I/B SPD shall be provided between Line to Neutral & Neutral to Earth. They shall be spark gap type voltage switching devices and tested as per IEC 61643 with the following characteristics and features. Make Havells or Legrand or OBO or Phoenix or better. All the units of SPD shall be fixed in a proper enclosure as per the instructions of the Railway Engineer.

	Parameters	Limits	
		Between Line & Neutral	Between Line & Earth
1	Nominal Voltage(U0)	230V	230V
2	Maximum continuous operating voltage (Uc)	$\geq 255V$	$\geq 255V$
3	Lightning Impulse current 10/350ms (Imp)	$\geq 25KA$	$\geq 25KA$
4	Response Time (Tr)	≤ 100 ns	≤ 100 ns
5	Voltage protection level (Up)	$\leq 2.5KV$	$\leq 2.5KV$
6	Short circuit withstand and follow up current extinguishing capacity without	≥ 10 KA	≥ 10 KA
7	Temporary Over Voltage (UT)	334V min. for 05 secs.	200V min. for 200ms
8	Operating temperature / RH	- 25oC to +80oC/ 95%	- 25oC to +80oC/ 95%
9	Mounted on din rail	din rail	din rail
10	Indication	Mandatory	Optional
11	Pluggability	Optional	Optional
12	Potential free contact for remote monitoring	Optional	Optional
13	Encapsulation	Encapsulated	Encapsulated
14	Degree of protection	IP20	IP20
15	Housing	Fire retardant as per UL 94	Fire retardant as per UL 94

Length of all cables connecting from SPDs to earth equi-potential busbar shall be kept less

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than 0.5mtrs. For this, a sub earth equi-potential busbar shall be installed at approx. 20 cm from the SPD box. The details of connection of SPDs for Stage 1, & 2 of a typical installation Batch test report of OEM should be submitted by the manufacturer/supplier of Lightning & Surge protection devices at the time of supply of these devices.

15 Blowing/Drawing of OFC/Power/Cat-6 Cables through PVC Conduit/Casing

The scope of this schedule item covers blowing & drawing of OFC, Copper Telecom Cable, CAT-6 and Power Cable (including crimping and termination of copper cables) through PVC Conduit/GI/DWC/HDPE Pipe already installed. Cables shall be laid/drawn carefully without causing over bending or abrasion to the insulation. It includes termination of CAT-6 cables or power cables in the appropriate sockets as per the instruction of the Railway representative at site.

16 Breaking of Pucca/Concrete Road, Wall cutting, laying of OFC/UTP/Power cable through the PVC/GI pipes for protection as the case may be. This includes the restoration of surface/Road

The scope of this schedule item covers breaking of Pucca/Concrete Road, Wall, Flooring or Platform (15 Cms. depth) Cutting and laying of OFC/Telecom/Power/STP cables etc in Trenches and through all types of pipes like HDPE/GI/RCC/DWC Pipes as the case may be. This includes refilling of trench and restoration of surface and stone paved or as per site requirement.

17 Supply of Factory crimped CAT-6 UTP patch cords 2 M

Patch cord should be of UTP CAT 6 Cable, cable jacket shall be of low Smoke zero halogen (LSZH). The conductor dia. shall be 24 AWG, confirming to ANSI/TIA/EIA- 568-C.2 or latest. It shall be factory crimped and should be of a reputed Brand similar to Finolex, Digisol, D-Link or better.

18 Supply of PVC insulated armoured 3 Core, 2.5 sq,mm, 14 AWG, 1.1 kV grade outdoor copper cable for UPS distribution as per BIS / ISI standards.

PVC insulated armoured 3 core cable should be an Outdoor Strengthened Copper confirming to IS: 1554 Part-11.1 KV Grade used for UPS Power Supply distribution. It should be BIS/ISI Standard (Make: Finolex, Polycab, Fincabe or better)

19 Supply of RJ45 connectors suitable for STP/UTP Cable.

RJ 45 Connector shall be Cat6, Shielded RJ45 Nickel Plated 8P8C Ethernet Modular LAN Crimp Module Plug suitable for UTP/STP Cable. It should be of high quality and a reputed brand Fedus, D-Link or better.

20 Supply of metal strengthened outdoor unarmoured 12 F Optic Fiber Cable (ITU-T G652-D) as per the latest TEC/BSNL Specifications.

1. No. of fibres : 12f
2. Type of fibre : SM G.652 D
3. Loose tube diameter : 2.00 mm nominal
4. Strength member : metal or glass yarn & FRP 2 Nos.
5. Colour of fibre : blue, orange, green, brown, grey, white, red, black, yellow, violet, pink & aqua
6. Outer sheath material : HDPE – black
7. Outer sheath thickness : 1.80 mm nominal or higher
8. Outer cable diameter : 6.0 + 0.50 mm

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9. Cable weight : 34 + 10% kg/km
10. Printing on cable : as per customer requirements
11. Standard length : 2 + 10% Kms
12. Max. operating tension : 500 n
13. Max installation tension : 1000 n / 10 cm
14. They should be compliant with the latest ITU-TG-652-D Standard.
15. All the accessories required for installation should be provided along with the cable.
16. It should be of reputed make similar to KEC, Sterlite or Paramount

21 Supply and termination of 12 Fiber SC type Rack mountable FDMS loaded with SC 0 dB and adaptor SC-SM pigtail 1.5 Mtr. with all accessories required for installation

The FMS should be conforming to RDSO specification No. RDSO/SPN/TC/37/2020. However, the FMS should have the following:

1. It should be mountable in standard 19" rack and of slider type.
2. There should be an arrangement of termination of 48/24/12/6 Nos. of fibres
3. It should be supplied with 48/24/12/6 Nos. of pigtails of respective type of connector of minimum 3 metre length.
4. Colour coded pigtails shall be provided for easy identification.
5. The FMS should be supplied with arrangement of required Nos. of adapters (as per SOR).
6. The adapters shall be fixed in such a way that these shall be easily accessible protecting the eye from direct exposure to laser.
7. There should be a nos. of trays or as per site requirement for the provision of termination of the fibres & sufficient space for routing of the fibres in the trays.
8. Trays shall be numbered bottom to top (tray no. 1 is lower most).
9. Pigtails shall follow tray numbering.
10. Pigtails shall be labelled through colour coding/ferruling.
11. Adapters shall be numbered Bottom to Top or Left to Right in ascending order.
12. All adapters shall be provided with dust protection caps.
13. Important Do's and Don'ts about the operation of the FMS shall be clearly indicated at a convenient place on the FMS.
14. Insertion Loss: ≤ 0.3 dB or less
15. Return Loss: ≤ 45 dB or less
16. The FMS shall be manufactured as per latest state of art technology.
17. The FMS shall be protected against the entry of dust and insects, rodents etc.
18. Body should be of MS steel; powder coating painting (min. 70 micrometer thickness) shall be provided with rust resistance paint.
19. Marking: The marking on the system shall be indelible and following minimum information shall be provided by way of engraving or Laser printing method:
20. Manufacturer's name & date/ year of production
21. Model No./Batch No./ Serial No.
22. Capacity i.e. No. of cables and the fibres.
23. Identification details/ cables/ Fiber/ labelling facility. u. Preferred type of connector is SC/APC for all connectors.

22 Supply and installation/fixing of PVC conduit pipe with min 35 mm Dia., ISI mark with all the required materials like clamps, bends and screws etc. required for installation.

Supply and fixing of 35 mm High Mechanical Stress PVC Conduit Pipe of white/ivory/grey colour of reputed brand with ISI Mark. It shall be Clamped on wall/shall be fixed in the groove, duct etc. All the required clamps, bends, couplers, flexible pipes and all other installation material as required at site shall be supplied by the Vendor under the scope of this schedule item.

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- 23 Supply and Installation, Testing and Commissioning of Servers (Hardware only) for Network Management System of LTE, Kavach Application Server (KAS) Application and LES (Loco Exchange Server) Application for integration with Kavach. The server should be provided with Ubuntu Server LTS 22.04. KAS Application and LES Application are not part of this schedule.**

The server should be provided with Windows Server/Ubuntu Server LTS 22.04 as per the application requirement.

1. Processor Make : Intel
2. Number of Cores per Processor : 8
3. Processor Base Frequency (GHz) : 2.1
4. Total Cache (L1+L2+L3) (MB) : 11
5. Maximum number of Sockets available on Server : 2
6. Maximum number of Sockets populated with
7. Processors available on Server : 1
8. Type of RAM : DDR4 SDRAM with ECC
9. DDR SDRAM Size (GB) : 64
10. Type of Interface for SSD : SATA
11. Total Capacity Offered with SATA SSD (GB) : 1920
12. No of RAID Controller Ports : 8
13. Speed of RAID Controller Ports (Gbps) : 6
14. Number of Networking Interface Cards (LAN) : 1
15. Total No. of Ethernet Ports required in Server : 1x1G
16. Certifications/Compliance (OS) : Windows/Linux

Management Features

The Server shall support the following management features:

Remoter power On/ Shutdown of server, Remote Management of Server over LAN & WAN with SSL encryption through gigabit management port, Should have virtual Media support with all required licences, Remote KVM, Server Health Logging, Out of Band Management. It should support Management of multiple Servers from single console with single source of truth for multiple sites., Automated infrastructure management for patch upgrades, version upgrades etc., Simplified management with analytics driven actionable intelligence., System tagging giving admin flexibility to provide metadata tags to each System to enable users to filter and sort systems based on user-assigned attributes, Hardware Profile based deployment to multiple Servers simultaneously, Policy template for deployment of single policy to multiple Servers simultaneously, Platform inventory and health status,

Security Features

It shall support secure Boot (Firmware and Bios Level Security), Provision to lock the system on breach, Hardware root of trust/Dual Root of Trust, Server should provide policy based security, Server should provide server intrusion detection, "Malicious Code Free design" (to be Certified by OEM)

- 24 Supply & installation of All-in-one PC for Network Analysis with the following configuration or better: Intel Core i5, 16 GB RAM 256 GB SSD, 1000 GB HDD, Windows 11 Professional OS**

- Processor Make : Intel
 Processor Generation : 12
 Number of Cores per Processor : 4
 Processor Description : Intel Core i5

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Operating System (Factory Pre-Loaded) : Windows 11 Pro.
 Motherboard
 Chipset Series : Intel Q Series
 Type of RAM : DDR4
 RAM Size (GB) LP : 16
 Type of Drives used to populate the Internal Bays : SSD, HDD
 Capacity of each HDD (GB) : 1000@5400 rpm
 Total HDD Capacity (GB) : 1000
 Number of Internal Bays populated L with SSD : 1
 Capacity of each SSD (GB) : 256
 Total SSD Capacity (GB) : 256 or higher
 Display Size (INCHES) : 23.8 or higher
 Display Type : Non-touch
 Panel Technology : WVA
 Display Resolution (PIXELS) : 1920x1080
 Availability of Webcam integrated with Display : Yes
 If yes, Resolution of Webcam : Full HD
 Availability of Speakers integrated with Display : Yes
 If Yes, Number of Speakers available : 2
 Wireless Connectivity : Yes
 Type of Wireless Connectivity : Wi-Fi 6 AX200
 Number of Ethernet Ports : 1
 Type of Ethernet Ports : 10/100/1000 on board Integrated Gigabit Port
 Number of USB Version 3. 0/3.1, Gen 1 : 3 ports
 Number of USB Version 3 point 1, Gen 2 : 1 port
 Number of USB Type C Ports : 1

25 Supply and Installation of 65" LED TV with 4K UHD similar to LG 65UT761H or Better.

1. Type : LED Backlit LCD
2. Screen Size (Inches) : 65
3. Resolution (Pixels) : (3840x2160) UHD
4. Category : Smart
5. Operating System in case of Smart TV : Web OS
6. Static contrast Ratio : 1400: 1
7. Typical Brightness : 400 - 500
8. Screen Mirroring : Yes
9. Mount Type : Both table and wall mounts
10. Inbuilt Speakers : Yes
11. Wattage of Speakers : 10W x 2
12. Power Consumption (Watts) : 169
13. Number of HDMI Ports : 2
14. Number of USB Ports : 2
15. Number of Ethernet Ports : 1
16. Built-in Wi-fi : Yes
17. Wi-fi Direct : Yes
18. Input
19. Composite Input : Yes
20. Component Input : Yes
21. RF Input : Yes

26 Supply and Installation of Inkjet Colour Computer Printers for A3 size Paper Ink Tank printer shall be supplied with the following specifications

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1. Print Method : On-demand ink jet
2. Nozzle Configuration : 360 nozzles Black, 59 nozzles each colour (Cyan, Magenta, Yellow)
Print Direction : Bi-directional printing, Uni-directional printing
3. Maximum Resolution : 5760 x 1440 dpi (with Variable-Sized Droplet Technology)
4. Minimum Ink Droplet Volume : 3 pl
5. Print Speed *1
6. Max Black Draft Text - Memo A4 : Approx. 30#1/17#2 ppm (Bk/Cl)
7. ISO 24734, A4 : Approx. 15/5.5ipm (Bk/Cl)
8. Max Photo Draft -10x15cm/4x6" *2 #3 : Approx. 31 sec per photo (W/Border)
9. Photo Default - 10x15cm/4x6" *2 #3 : Approx. 58 sec per photo (W/Border)
10. Type of Printing : Colour
11. Paper Size : A3
12. Number of Main Paper Trays : 1
13. USB Port : Yes, High speed
14. Number of Main Paper Trays : 1
15. Each Main Paper Tray Capacity : 100 Page
16. Yield per Ink bottle
Black (2 Bottles) : 7000 (approx)
Cyan : 5700 (approx)
Magenta : 5700 (approx)
Yellow : 5700 (approx)

27 Supply of Cat-6 UTP Cable for indoor use nominal 6.11 mm 23 AWG solid bare Copper

Cat-6 UTP Ethernet cable for indoor use shall be supplied along with the below specifications:

Conductor : 23 AWG Solid bare Copper

1. No. of pairs (in Nos.) : 4
2. Insulation : Polyethylene
3. Pairs : 2 insulated conductors twisted together
4. Sheath : FR-PVC insulation thickness 0.2 mm nominal
5. Cable Diameter : 6.1 mm nominal
6. Standard length : Reels of guaranteed 305 m length
7. Cable weight per box : 13.6 Kgs. Nominal (Including spool)
8. Printing : At each meter printed with sequential length Electrical Properties
 1. Characteristic Impedance : 100 +/- 15 ohms
 2. Conductor resistance : <=9.38 ohm/100m
 3. Insulation resistance (in M ohms) : >=100
 4. Mutual capacitance : <5.6nF/100m
 5. Delays skew : <45nS
 6. Operating voltage : 72V
 7. Dielectric strength : 1.0 KV dc or 0.75 KV ac for 1 minute

28 Supply, fixing and installation of Modular Plate 6 Module, Frame Plate with Matching Cover Plate

Modular plate of reputed make with ISI mark shall be supplied as per specifications:

1. Switchboard boxes for installation of Modular Type of electrical accessories with Frame Plate:
2. Material of switch board boxes : Galvanised Iron Sheet

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3. Number of modules which can be accommodated
4. and configuration defined as (A x B x C) : Six Module (1 x 3 x 2M)
5. Matching Cover Plate : With
6. Matching Frame Plate : With
7. Type of installation : Indoor
8. Provision of earthing : Yes
9. Holes with knook out for the
10. entry of cable on all sides : Yes

29 Supply, fixing and installation of Modular electrical switches and accessories with ISI marked, 6 A, 1 Way Switch to IS: 3854/1997 with latest amendments similar to Legrand Mylinc

Modular Electrical switches shall be as per the below specifications:

It should be of ISI mark, 6 A, 1 Way Switch to IS: 3854/1997 with latest amendments

1. Size Designation : 1 M Product
 2. ISI Marked : Yes
 3. Colour as seen from front side (Matching with cover plate) : White
 4. Type of Accessories : Modular
 5. Body material : Polycarbonate Electrical Grade
 6. Rated Voltage (Volt) : 230 Volt
- Current carrying part must be of Brass, Copper or any other superior material and there shall be marking of manufacturer name/trademark on the accessories

30 Supply, fixing and installation of Modular 3 Pin Socket, 240V, 6A as per IS: 1293/2005 with latest amendments similar to Legrand Mylinc

6A, 3 Pin Socket shall be as per IS: 1293/2005 with latest amendments

1. Size Designation : 2 M
 2. Product ISI Marked : Yes
 3. Colour as seen from front side (Matching with cover plate) : White
 4. cover plate) : White
 5. Type of Accessories : Modular
 6. Body material : Polycarbonate Electrical Grade
 7. Rated Voltage (Volt) : 250 Volt
- Current carrying part must be of Brass, Copper, or any other superior material and there shall be marking of manufacturer name/trademark on the accessories

31 Supply, fixing and installation of modular RJ 45 socket of robust quality similar to Legrand

1. Electrical Accessory : LAN Port RJ _45
2. Size Designation : 1 M
3. Colour as seen from front side (Matching with cover plate) : White
4. with cover plate) : White
5. Shutter with socket : With
6. Type of Accessories : Modular
7. Body material : Polycarbonate Electrical Grade
8. Marking of manufacturer name/trade mark : Yes

32 Supply, fixing, installation and testing of Cat-6 UTP Cable patch panel

1. Material of patch panel : Cold Rolled Steel

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2. Modular plug fitting (RJ 45) : Individual ports for loaded
3. Dust protection for information Outlet : Yes
4. Patch panel suitability for (Category 6 Unshielded/
5. Unshielded twisted pair or Category 6 Foiled/ Unshielded twisted pair) : CAT 6 U/UTP
6. POE, POE+, 4 PPOE) : Yes
7. Cat 6 patch panel confirming to ANSI/TIA/EIA-568
- C.2 latest or ISO/IEC: 11801 latest : Yes
8. Height of patch panel : 1U
9. No. of ports (RJ45) : 24
10. Cable management (rare side) : Should be available

(End of Chapter 3B)

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CHAPTER-3(C)

INSPECTION AND INSTALLATION, TESTING & COMMISSIONING

5.1 TESTS AND MEASUREMENTS

All Equipment/Material shall be tested by tenderer/consignee as per technical specification and requirement specified in this tender document and test report if any shall be submitted.

5.2 TEST CATEGORIES

5.2.1 These tests shall be carried out on all Equipment's/Cards/Modules supplied by tenderer, if any. Tenderer shall arrange all necessary test instruments, manpower, test-gear, accessories etc.

5.2.2 All technical personnel assigned by Tenderer shall be fully conversant with the system specifications and requirements. They shall have the specific capability to make the system operative quickly and efficiently and shall not interfere or be interfered by other concurrent testing, construction and commissioning activities in progress. They shall also have the capability to incorporate any minor modifications/suggestions put forward by Purchaser/Engineer.

5.2.3 Test Plan: The Contractor shall submit to Purchaser 'Test Plans' well in advance of commencement of actual testing for the above mentioned tests.

The plans shall include:

- i) Supplies functional and performance description (in short) and Tests to be conducted and purpose of test.
- ii) Test procedures (including time schedule for the tests) and identification of test inputs details and desired/expected test results.

5.2.4 Test Report: The observations and test results obtained during various tests conducted shall be compiled and documented to produce Test Reports by Tenderer. The Test Reports shall be given for each Equipment's/Cards/Modules/item. The report shall contain the following information to a minimum:

- i) Test results.
- ii) Comparison of test results and anticipated/expected (as per specifications) test result as given in test plans and reasons for deviations, if any.
- iii) The data furnished shall prove convincingly that:
 - a. The system meets the Guaranteed Performance objectives
 - b. Mechanical and Electrical limits were not exceeded.
 - c. Failure profile of the Cards/Modules during the tests are well within the specified limits.

5.2.5 Failure of Cards/Components:

If the malfunction and/or failures of a unit/module/sub-system/ Cards/ Modules repeat during the test, the test shall be terminated and tenderer shall replace the necessary component or module to correct the deficiency. Thereafter, the tests shall commence all over again from the start. Repair/modification done at any point of time at one site shall be carried out by Tenderer. Detailed documentation for the same shall be submitted to Purchaser for future reference.

(End of Chapter 3C)

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CHAPTER 3(D)

COMMERCIAL TERMS & CONDITIONS

1. Offer letter and Validity of offer

- 1.1 The bidder shall complete the offer letter (Chapter 1) and the Price Schedule (Chapter 2) furnished in the tender documents, indicating the goods to be supplied, description of the goods, associated technical literature, quantity and prices etc.
- 1.2 The offer should remain valid for a minimum period of 60 days from the date of opening of tender including the date of opening as indicated in Bid Data Sheet (BDS) Chapter 5.

2. EARNEST MONEY:

- 2.1 The tenderer shall submit EMD Amount as per details given in Tender Notice.
- 2.2 MSE firms registered with NSIC/MSME Dept. are exempted from submission of EMD, on producing the valid registration certificate (UDYAM Certificate).
- 2.3 Offers without EMD shall be summarily rejected.

3. Evaluation Criteria:

The total all Inclusive prices given in Schedule of Requirement, will be criteria for deciding the inter-se-position and consideration of offers against the Schedule of Requirements.

4. Warranty

The warranty would be valid for a period as indicated in Bid Data Sheet (BDS) Chapter 5. The supplier shall warrant that stores to be supplied shall be new and free from all defects and faults in material, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards of materials of the type ordered and shall perform in full conformity with the specifications and drawings. The supplier shall be responsible for any defects that may develop under the conditions provided by the contract and under proper use, arising from faulty materials, design or workmanship such as corrosion, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in design and/ or otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty.

If it becomes necessary for the contractor to replace or renew any defective portion/portions of the supplies under this clause, the provisions of the clause shall apply to the portion/portions of the equipment so replaced or renewed or until the end of the above-mentioned period or twelve months, whichever may be later. If any defect is not remedied within a reasonable time of 30 days, the Purchaser may proceed to do the work at the contractor's cost, but without prejudice to any other rights which the Purchaser may have against the contractor in respect of such defects.

Replacement under warranty clause shall be made by the contractor free of all charges at site including freight, insurance and other incidental charges.

4.1 Warranty Support

Material for repair during Warranty Period shall be handed over /taken over to contractors engineer at IRISSET location.

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During the warranty period, the contractor shall remain responsible to arrange replacement within 30 days and for setting right at his own cost any equipment installed by him which is of defective manufacture or design or becomes unworkable due to any cause whatsoever. The decision of the RailTel's representative in this regard to direct the contractor to attend to any damage or defect in work shall be final and binding on the Contractor. In case contractor fails to replace any faulty part within 30 days period, penalties will be imposed as per clause 5.2 of Annexure-II.

During the warranty period, the contractor shall be responsible to the extent expressed in this clause for any defects that may develop under the conditions provided for by the contract and under proper use, arising from faulty materials, design or workmanship in the plant, or from faulty execution of the plant by the contractor but not otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser Engineer who shall state in writing in what respect the portion is faulty.

During the free warranty maintenance period, contractor should stabilize the working of the system. Purchaser has the right to extend the period of supervision of the maintenance free of cost till the system stabilizes and works satisfactorily for a reasonable period of time. If during the time any equipment etc. is to be added or deficiencies are to be rectified to make the system work trouble free, the same also will have to be done by the contractor at no cost to RailTel as to make good all the deficiencies.

4.2 The total period of warranty will be as per BDS in Chapter-5.

5. Delivery Period

The materials as per SOR are required to be delivered within 30 days as indicated in Bid Data Sheet (BDS, Chapter 5) to the site(s) mentioned in this tender document.

Consignee Details /Delivery Location:

Material shall be delivered to Railway stores. The quantity for packing list shall be issued along with Purchase Order. The supplier shall ship the material to respective consignee without any additional cost to RailTel.

SN	Zone	Head Office	Address
1	South Central Railways	Secunderabad	Dy.CSTE/Tele/Projects Behind Railway Printing Press, Besides Rail Nilyam Complex, Secunderabad

6. Payment Terms

- a. The contractor will be entitled to be paid from time to time by way of "back-to-back payment" for completion of various milestones. Invoices for the same should be submitted accordingly.
- b. "On Account Payment" shall be made as per the following schedule.

S No	Milestone	Payment Percentage
1	Supply	60%
2	Installation, Testing and Commissioning of LTE Test Bed	40%

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- 6.1** Payment of the value of the supply items of the PO would be made on receipt of material by the consignee duly inspected and on submission of the following documents subject to any deductions or recovery which RailTel may be entitled to make under the contract:
- Tax Invoice in original.
 - Delivery Challan
 - Packing list.
 - Purchaser's Inspection certificate in original.
 - Consignee receipt for receipt of material in good condition.
 - Warranty certificate of OEM
 - Certificates duly signed by the firm certifying that Cards/Modules/ materials being delivered are new and conform to technical specification.
 - E-Way Bill
- 6.2** EMD of the successful bidder will be retained towards initial Security Money for due and faithful fulfillment of the contract, and the balance Security Money will be recovered from the progressive bills @ 6 % of the bill amount till it reaches 5 % of the contract value.
- 6.3** Accounting/Bill passing unit for SOR for items is RailTel Southern Region Office. All Bills shall be submitted to the office of Executive Director/Southern Region for certifying and verification and onwards submission to Finance Department of RailTel Southern Region for releasing the payment.
- 6.4** Deleted
- 6.5** The breakup of taxes has to be furnished and same should be reflected in the bills so that any input credit can be availed by RailTel.
- 6.6** **Payment of Services Items: Not Used**
- 7. Performance Bank Guarantee (Security Deposit)**
- 7.1** The tenderer is required to submit a Performance (PBG) from a scheduled bank within 30 days of the issue of LOA/Purchase order @ 5% of the value of the LOA/PO (Incl. GST) for the satisfactory performance of materials covered in SOR given in Chapter 2 valid for a period of 3 months beyond warranty period, failing which a penal interest of 15% per annum shall be charged for the delay period i.e. beyond 30 (thirty) days from the date of issue of LOA/Purchase Order till submission of PBG. The Performa for PBG is given in Chapter 6 Form No. 1. If the delivery period gets extended, the PBG should also be extended appropriately.
- 7.2** A separate advice of the BG will invariably be sent by the BG issuing bank to the RailTel's bank through SFMS and only after this the BG will become acceptable to RailTel. It is therefore in own interest of bidder to obtain RailTel's bank IFSC code, its branch and address and advise these particulars to the BG issuing bank and request them to send advice of BG through SFMS to the RailTel's Bank.
- 7.3** The Security Deposit / Performance Bank guarantee will bear no interest.
- 7.4** Wherever the contracts are rescinded, the security deposit/PBG should be forfeited and the SD/Performance Bank Guarantee shall be en-cashed by RailTel.
- 7.5** The balance work shall be got done independently without risk and cost to the original contractor.
- 7.6** This PBG would be released after satisfactory completion of contract including warranty period.

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8. Taxes & Duties

The price quoted in the offer should be firm, fixed indicating the breakup and inclusive of all taxes & duties like import, custom, Anti-Dumping, CGST, SGST, IGST, UTGST etc. The offer should be inclusive of packing, forwarding, freight up to destination, insurance charges.

- 8.1 Not Used.
- 8.2 Anti-Dumping duty if applicable on the equipment proposed to be supplied by OEM/Tenderer as per extant instructions of Ministry of Commerce/Finance Government of India, has to be borne by the tenderer and shall be deducted from the amount payable to the contractor at the time of making payment to the firm, if this duty amount is paid to Custom Authority by RailTel.
- 8.3 The imposition of any new and/or increase in the aforesaid taxes, duties levies is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the bidder thereupon necessarily and properly pays such taxes/levies/cess, the bidder shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of bidder attributable to delay in execution of work within the control of bidder. The bidder shall, within a period of 30 days of the imposition of any such further tax or levy or cess, give a written notice thereof to RailTel that the same is given pursuant to this condition, together with all necessary information relating thereto. In the event of non-payment/default in payment of any of the above taxes, RailTel reserves the right to withhold the dues/payments of bidder and make payment to local/state/Central Government authorities or to labourers as may be applicable.
- 8.4 After imposition of GST, bidder shall issue Tax invoice to RailTel for availing proper credit of CGST / SGST / IGST/ UTGST. GST will not be reimbursed in the absence of Tax Invoice.
- 8.5 In the event of decrease / relaxation and / or waiver of any of the existing / prevailing taxes), duties, levies, cess by Central / State Govt. Or any other statutory body(ies), after the last stipulated date for the receipt of tender including extension (if any), and the bidder thereupon has been paid or has raised claims of such taxes, duties, levies, cess; such sums shall be recovered / deducted (from claims raised but which has not been paid) effective from the date as reckoned in the relevant statutory order / law / ordinance etc. The bidder, shall, within a period of 30 days of any such waiver/relaxation/decrease in taxes), duties, levies, cess, give a written notice thereof to RailTel stating the statutory change with documentary proof thereto. Provided always that RailTel shall have full powers to effect recovery/deduction on account of any such statutory change even if bidder has not intimated in the event when any such statutory action comes to his notice.

9. Insurance

- 9.1 The Contractor shall take out and keep in force a policy or policies of insurance from the date, the delivery of material starts (including the transit portion) against all liabilities of the Contractor or the Purchaser. The contractor shall take out and keep in force a Policy or policies of Insurance for all materials covered in schedule of requirement irrespective of whether used up in the portion of work already done or kept for the use in the balance portion of the work until such material are provisionally handed over to RailTel. The goods will be issued by purchaser to supplier and risk of goods shall remain with supplier until the delivery at RailTel's site. Insurance policy has to be kept valid by the contractor till the delivery date.
- 9.2 The Contractor should insure the stores brought to site, against risks as required under the Emergency Risk (Goods) Insurance Act in force from time to time up to contract value.
- 9.3 It may be noted that the beneficiary of the insurance policy should be RailTel or the policies should be pledged in favor of RailTel. The contractor shall keep the policy/policies current till the Cards/Modules are handed over to the purchaser. It may also be noted that in the event of contractor's failure to keep the policy current and alive, renewal of policy will be done by purchaser for which the cost of the premium plus 20% of premium shall be

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recovered from the contractor.

10. Liquidated Damages

The timely delivery is the essence of this tender. Liquidated damages will be applicable at the rate of half percent per week or part thereof for undelivered portion of SOR subject to a maximum of 10% of the cost of LOA/Purchase order for any reason whatsoever attributed to failure of tenderer. RailTel will have the right to cancel the order, place order on alternative source besides levying the liquidated damages as above.

11 Transportation

The rates quoted should be CIP destination. The destination shall be defined POP / nominated office of RailTel / Railways which shall be indicated by RailTel's representative.

11.1 Statutory Deduction

These will be made at source as per the rules prevalent in the area of work.

- 11.2** Indian Subsidiary or the authorized partner of OEM is allowed to participate with specific authorization for doing so from the OEM. The specific authorization from OEM, addressed to RailTel should be submitted by the tenderer

12.3 Payment shall be made in INR only.

12. System Performance Guarantee

- 12.1.** The tenderer shall give unqualified and unconditional guarantee that when the equipment / material supplied by him is installed and commissioned at site, it shall achieve the desired objective and that in the event of performance of the system when installed not complying with the end objective or with the specifications, he shall provide further inputs to enable the RailTel to realize the end objectives with full compliance of the specifications contained in these documents. No additional payment will be made to the contractor for supply of any additional goods and service required in this regard.
- 12.2.** This certificate in the Proforma given in Chapter 6 Form No. 2, shall accompany the final offer. Absence of this certificate which will form part of the agreement shall disqualify the tenderer automatically.

13. Evaluation of Offer

- 13.1.** For the purpose of relative ranking of offer, all-inclusive value for entire supply shall be taken into consideration.
- 13.2.** Additional features offered by the bidder, over and above the ones asked for in the tender documents, shall not be considered for evaluation of bids.
- 13.3.** The tenderer should make available the offered products, if desired during technical evaluation of offered equipment for testing and benchmarking at any testing facility approved by RailTel.
- 13.4.** The bidders should quote for all items & the offer will be evaluated in totality. The bidders should indicate brand name, type/model number of the products offered. Optional items will not be considered for evaluation of offers. The equipment should be supplied as per Technical Specifications given in Chapter-3.

Signature and stamp of the tenderer

14. Purchaser's Right to Vary Quantities

- 14.1 The purchaser shall be at liberty to enhance or reduce the quantity mentioned in the LOA/Sub PO/PO as indicated in Bid Data Sheet (BDS) Chapter 5 without assigning any reasons. The bidder shall comply with such modifications unconditionally provided these are made before completion of the deliveries under the purchase order/LOA. Any such change in quantity shall have no impact on the rates mentioned in the purchase order/LOA for any such item.

15. Purchaser's Right to accept any offer / Bid and to reject any or all offer/ Bid

- 15.1 The Purchaser reserves the right to accept or reject any offer / bid, and to annul the bidding process and reject all offers / bids, at any time prior to award of order without assigning any reason whatsoever and without thereby incurring any liability to the affected bidder or bidders on the grounds for the Purchaser's action.

16. Execution of Purchase Order /LOA

- 16.1 The quantities of items indicated in the schedule of Requirements, are indicative. Purchaser will issue an LOA/Purchase Order to the successful bidder for the quantities indicated in Schedule of Requirements. The supplier will have to honour all the SPOs/POs issued and complete the supplies within the contracted delivery period.
- 16.2 The issue of LOA/Purchase Order in favour of the successful bidder shall constitute the intention of the purchaser to enter into contract with the bidder.
- 16.3 The successful bidder has to submit the signed copy of the LOA/Purchase order within 15 days from the date of issue duly signed on each page including Annexures as a token of acceptance & will submit the Performance Bank Guarantee as per Clause no. 7 for due fulfillment of the LOA/PO.
- 16.4 If the successful bidder fails to submit the accepted copy of LOA/PO and required PG within 30 days from the date of issue, it shall constitute a breach of the agreement affected by the acceptance of the tender.
- 16.5 In the event of any tenderer whose tender is accepted and refuses to execute the LOA/PO as herein before provided, RailTel may determine that such tenderer has abandoned the Purchase Order and thereupon his tender and acceptance thereof shall be treated as cancelled.

17. Annulment of Award

Failure of the successful bidder to comply with the requirement of various clauses of tender document shall constitute sufficient ground for the annulment of the award and forfeiture of EMD in which event the Purchaser may make the award to any other bidder at the discretion of the Purchaser or call for new offers/ bids.

18. Offer/ Bid Prices

- 18.1 The bidder shall give the prices indicating all levies and taxes, packing forwarding, freight and insurance etc. The basic unit price and all other components of the price need to be individually indicated against the goods it proposes to supply under the tender document as per schedule given in Chapter 2. The price shall be quoted in Indian Rupees.

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18.2 The breakup of price of each item of SOR in terms of basic Unit price, Custom duty, CGST/SGST/IGST/GST and other taxes and any other Levies/charges already paid or payable by the tenderer shall be quoted in the SOR Chapter 2. Any changes in statutory duties/taxes after opening of technical bid will be to RailTel's account within the contracted delivery period.

18.3 All prices and other information like discounts etc. having a bearing on the price shall be written both in figures and in words in the prescribed offer form (SOR). In case of difference in words and figures, the amount written in words will be taken into consideration. In the event of any discrepancy between total unit cost and total cost, the value shown in total unit cost will be taken for evaluation purpose.

18.4 Fall Clause: -

The tenderer shall undertake that in case the tenderer offers same type of material at a lower price to any other purchaser including Central/State/ Government Organization or Public Sector Undertaking, during the validity of LOA/ Purchase Order, the equal benefit of lower prices will be passed on to RailTel. The tenderer will submit an undertaking to this effect while claiming the payment.

19. Clause wise Compliance

Clause wise compliance statement of all the terms & conditions of tender document, including addenda/corrigenda, if any shall be enclosed with the offer along with the technical literature of the material and other documents in support of relevant clauses.

20 Inspection

- 20.1 Inspection shall be carried out by RailTel/ Railway authorized representative. Charges for 3rd party inspection if any shall be borne by bidder, free of cost.
- 20.2 Along with inspection call, the tenderer/manufacturer shall submit details of test procedures, test programme, test parameters together with permitted values, etc., and their Quality Assurance Plan.
- 20.3 In case material fails during inspection, the fresh lot of material shall be offered without any extra cost, by the manufacturer/tenderer. In such a case, total cost of re-inspection including travel, lodging & boarding of the inspecting officials shall be borne by bidder

21 Force Majeure

21.1 If during the Agreement, the performance in whole or in part, by either party, of any obligation under this is prevented or delayed, by reason beyond the control of the parties including war, hostility, acts of the public enemy, civic commotion, sabotage, Act of State or direction from Statutory Authority, explosion, epidemic, quarantine restriction, strikes and lockouts (as are not limited to the establishments and facilities of the parties), fire, floods, earthquakes, natural calamities or any act of GOD (hereinafter referred to as EVENTS), provided notice of happenings of any such EVENT is given by the affected party to the other, within twenty one (21) days from date of occurrence thereof, neither party shall have any such claims for damages against the other, in respect of such non-performance or delay in performance. Provided service under this Agreement shall be resumed as soon as practicable, after such EVENT comes to an end or ceases to exist.

21.2 In the event of a Force Majeure, the affected party will be excused from performance during the existence of the Force Majeure. When a Force Majeure occurs, the affected party after notifying the other party will attempt to mitigate the effect of the Force Majeure as much as possible. If such delaying cause shall continue for more than sixty (60) days from

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the date of the notice stated above, the party injured by the inability of the other to perform shall have the right, upon written notice of thirty (30) days to the other party, to terminate this Agreement. Neither party shall be liable for any breach, claims, damages against the other, in respect of non-performance or delay in performance as a result of Force Majeure leading to such termination.

22 Settlement of Disputes and Arbitration.

If any matter arises between the parties about this agreement then the parties shall meet to discuss the matter and shall negotiate in good faith to endeavour to resolve the matter; however if any matter arising has not been resolved by the parties within thirty (30) days after the date the party raising the matter gave notice of it to the other party then the matter shall be submitted by either party to Arbitration.

- 22.1 Arbitration shall be held in New Delhi, India. The arbitration shall be conducted as per the provisions of Indian Arbitration and Conciliation Act 1996 and any statutory modification or re-enactment thereof.
- 22.2 The arbitration shall be conducted by a sole arbitrator appointed by CMD/RailTel.
- 22.3 The arbitration proceedings shall be conducted in the English language.
- 22.4 The decision of the arbitrator thereon shall be final, conclusive and binding on both the parties to the Agreement.
- 22.5 Each party shall bear the cost of preparing and presenting its case, and the cost of arbitration, including fees and expenses of the arbitrators, shall be shared equally by the parties unless the award otherwise provides.

23 Governing Laws:

The APO/Sub PO/Purchase Order shall be interpreted in accordance with the laws of India. The courts at New Delhi shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.

24 Termination for Default

The purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the Tenderer, terminate this contract in whole or in part.

- a) If the tenderer fails to deliver any or all of the goods within the time period(s) specified in the contract.
- b) If the tenderer fails to perform any other obligation(s) under the contract; and
- c) If the tenderer, in either of the above circumstance(s) does not remedy his failure within a period of 30 days (or such longer period as the Purchaser may authorize in writing) after receipt of the default notice from the Purchaser.

25 Risk & Cost

If the contractor fails to deliver the Cards/Modules or honour the contractual commitment within the period fixed for such delivery in the contract, the Purchaser may terminate the Purchase order/contract in whole or in part, the Purchaser may proceed to purchase, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered at no risk and cost to contractor. However, the security deposit of tenderer shall be forfeited/ Performance Bank Guarantee shall be encashed. The failed tenderer shall not be permitted to take part in the tender for balance work.

25.1 Limitation of Liability

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The Maximum Liability of tenderer to any Loss/Damages to RailTel including Liquidity Damages and Performance Guarantee shall be limited to 100% of Value of contract.

26 Termination for Insolvency

The purchaser may at any time terminate the LOA/Sub PO/PO by giving written notice to the tenderer, without compensation to the tenderer, if the tenderer becomes bankrupt or otherwise insolvent as declared by the competent court provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

27. Rates During Negotiation

The tenderer/s shall not increase his/their quoted rates including payment terms in case the RailTel Administration negotiates for reduction of rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted will be binding on the tenderer/s.

28. Submission of Offers: Tendering Instructions:

For Tendering bids /information by bidders is to be submitted "To an email ID" iriset.lte.smartclass@railtelindia.com. The digital signature of the tenderer on the tender form and documents will be considered as confirmation that the tenderer has read, understood, and accepted all the documents.

ALL COLUMNS SHOULD BE FILLED AND BLANK COLUMNS, IF ANY, SHOULD BE MARKED AS NIL.

PLEASE READ CAREFULLY THE SCHEDULE OF REQUIREMENTS, TENDER CONDITION AND TECHNICAL SPECIFICATIONS OF SCHEDULE OF REQUIREMENTS BEFORE uploading THE TENDER FORM. PLEASE SIGN ON EACH PAGE.

The bid shall consist of the following: -

- 1) Offer Letter complete.
- 2) Signed Copy of Tender Document/ Corrigenda
- 3) **EMD-Bid Security to be submitted in Physical form to the office of Executive Director (SR), RailTel, Secunderabad.**
- 4) **In case bidder happens to be an eligible MSE for exemption of EMD, the documentary evidence for same shall be submitted (clause 2.2, chapter 3(D)).**
- 5) Complete technical data and particulars of the equipment offered, as specified in the Tender papers together with descriptive literature, leaflets, Drawings, if any, complete with list etc.
- 6) **System Performance Guarantee** (form no. 2, chapter 6).
- 7) Clause wise compliance to tender conditions to be submitted
- 9) Any Other information desired to be submitted by the tenderer.

29. Constitution of Firm and power of Attorney

- 29.1 Any individual(s) signing the tender or other documents connected therewith should specify whether he is signing: -

Signature and stamp of the tenderer

- (a) As sole proprietor of the concern or as attorney of the sole Proprietor.
- (b) As a partner or partners of the firm.
- (c) As a Director, Manager or Secretary in the case of Limited Company duly authorized by a resolution passed by the Board of Directors or in pursuance of the authority conferred by Memorandum of Association.

29.2. In the case of a firm not registered under the Indian Partnership Act, all the partners or the attorney duly authorized by all of them should sign the tender and all other connected documents. The original Power of Attorney or other documents empowering the individual or individuals to sign should be furnished to the Purchaser for verification, if required.

29.3. The RailTel will not be bound by Power of Attorney granted by the tenderer or by the changes in the composition of the firm made subsequent to the execution of the contract agreement.

29.4. In case where the Power of Attorney partnership deed has not been executed in English, the true and authenticated copies of the translation of the same by Advocate, authorized translators of Courts and Licensed Petition Writers should be supplied by the Contractor(s) while tendering for the work.

29.5. The duly notarized Power of Attorney shall be submitted in original or duly signed.

30. Opening of Tender

30.1. Tenderer's Bid will be opened on specified date & time as mentioned in BDS Chapter 5 of the tender

31. Non-Transferability & Non-Refundability

The tender documents are not transferable.

32. Errors, Omissions & Discrepancies

The Contractor(s) shall not take any advantage of any misinterpretation of the conditions due to typing or any other error and if in doubt, shall bring it to the notice of the purchaser without delay. In case of any contradiction only the printed rules, and books should be followed and no claim for the mis-interpretation shall be entertained.

(End of chapter 3D)

Signature and stamp of the tenderer

CHAPTER- 4**BID DATA SHEET (BDS)**

Clause	Description
Clause 1.2 Chapter – 3(D)	Validity of offer 60 days.
Clause 4 Chapter – 3(D)	Warranty 24 months from the date of Final Acceptance
Clause 5 Chapter – 3(D)	Delivery Period Delivery within 30 days from date of issue of LOA/Purchase Order.
Clause 12 Chapter – 3(D)	Performance Guarantee (Security Deposit) Performance Bank Guarantee of 5% of total value of the LOA is required to be submitted within 30 days of issue of LOA. Validity of this PG shall be 3 months beyond the warranty period and should cover Warranty Period and Delivery Period.
Clause 14 Chapter – 3(D)	Purchaser's Right to Vary Quantities RailTel may place order for additional quantity up to 125% of the order quantity if required, with the same rate terms and conditions. The variation of quantity from 125% to 140% will be with 2% rebate, the variation of quantity from above 140% to 150% will be 4% rebate and beyond 150% after negotiation by a committee
Clause 2 Chapter – 3(D)	Earnest Money Deposit (EMD)/ Bid Security Rs. 1,79,800/-
Tender Notice	Bid/Offer Submission start date: Date: 14-10-2023 Time: 15:30 hours Last date of submission of offer (Online) Date: 20-10-2023 Time: 15:00 hours Date of Opening of Tender (Online) Date: 20-10-2023 Time: 15:30 hours Venue: RAILTEL CORPORATION OF INDIA LIMITED, 1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road, Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016, Telangana.

Note: If the details given in BDS contradict with referred clause in the detailed tender document, the details in BDS will have overriding priority over the referred clause in the tender document.

(End of Chapter 4)

Signature and stamp of the tenderer

CHAPTER- 5**Form No. 1****PROFORMA FOR PERFORMANCE BANK GUARANTEE BOND**

(On Stamp Paper of Rs one hundred)

(To be used by approved Scheduled Banks)

In consideration of the RAILTEL CORPORATION OF INDIA LIMITED, 1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road, Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016, Telangana (Herein after called the RailTel) having agreed to exempt (Hereinafter called "the said Contractor(s)") from the demand, under the terms and conditions of an Agreement No/PO no. datedmade between RailTel Corporation of India Limited and for (hereinafter called "the said Agreement") of security deposit for the due fulfillment by the said Contractor(s) of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs. (Rsonly). We,..... (indicate the name of the Bank) hereinafter referred to as "the Bank") at the request of Contractor(s) do hereby undertake to pay the RailTel an amount not exceeding Rs against any loss or damage caused to or suffered or would be caused to or suffered by the RailTel by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

We, **Bank** do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on demand from the RailTel stating that the amount as claimed is due by way of loss or damage caused to or would be caused to or suffered by the RailTel by reason of breach by the said Contractor(s) of any of terms or conditions contained in the said Agreement or by reason of the Contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rsonly.

We,(name of bank) undertake to pay to the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) / Supplier(s) in any suit or proceedings pending before any court or Tribunal relating thereto our liability under this present being, absolute and unequivocal.

The payment so made by us under this Bond shall be a valid discharge of our liability for payment there under and the Contractor(s) / Supplier(s) shall have no claim against us for making such payment.

We,(name of bank) further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the RailTel under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till RailTel certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this Guarantee. Unless a demand or claim under the Guarantee is made on us in writing on or before the We shall be discharged from all liability under this Guarantee thereafter.

Signature and stamp of the tenderer

We,.....(name of bank) further agree with the RailTel that the RailTel shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the Agreement or to extend time or to postpone for any time or from time to time any of the powers exercisable by the RailTel against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension to the said Contractor(s) or for any forbearance, act or omission on the part of RailTel or any indulgence by the RailTel to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.

This Guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s)/ Supplier(s).

We the (the name of Bank) further agree that this guarantee shall be invocable of I at our place of business at/Secunderabad (indicate detailed address of the local with code no.) The branch at _____ is being advised accordingly.

(indicate the name of the bank) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the RailTel in writing.

Dated theday of 2021

for
Indicate the name of the Bank)

Witness:

Signature :
Name :

Signature :
Name :

Signature and stamp of the tenderer

Form No. 2**PROFORMA FOR THE SYSTEM PERFORMANCE GUARANTEE**

(On Stamp Paper of Rs. one hundred)

To the ED/SR,
RailTel Corporation of India Limited.

I / We hereby guarantee that the design on the basis of which we have submitted our tender no. has been carefully made to conform to the end objectives in the tender documents and to technical specification therein. We further guarantee that in the event of the performance of the system, when installed, not complying with the end objectives or with the specifications contained in the tender documents, we shall provide further inputs to enable the RailTel to realize the end objectives contained in these documents without any additional payment for any additional equipment which may be required in this regard. We further guarantee that all the expenses for providing the additional inputs under the System Guarantee will be borne by us. We further guarantee that these additional inputs will be provided by us to make the system workable within 1 month from the date on which this guarantee is invoked by the Purchaser. The guarantee is valid for a period of one year from the date of commissioning of the system.

(Signature of Firm's Authorized Officer)
Seal

Signature of witness:

1.

2.

Signature and stamp of the tenderer

Form No. 3**CHECKLIST OF ESSENTIAL DOCUMENTATION/ACTIVITY**

Note: Tenderer is required to submit offer as per following check list by giving page no. of submitted documents

SN	Item/Clause of Tender Document	Details/Remarks
1	Earnest money amounting Rs 1,79,800/- as per bid data sheet-clause no. 2 Chapter 3(D). MSE firms registered with NSIC/MSME Dept. are exempted from submission of EMD, on producing the valid registration certificate (UDYAM Certificate).	
2	Duly Stamped and Signed/ digitally signed Tender Document / Corrigenda / Addenda (Clause 28.2 of Chapter-3(D) of Tender Document)	
3	Offer Letter duly signed by authorized signatory (Chapter -1 of Tender Document)	
4	Clause wise compliance	
5	Schedule of Requirements (with Price)	
6	Any other document asked in the tender but not listed above	
7	Additional Documents enclosed with offer if any	

Signature and stamp of the tenderer

Annexure-1**Circular relating to bidders from countries sharing a land border with India**

1.3.2.1.1.1 Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority [The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)].

1.3.2.1.1.2 "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

1.3.2.1.1.3 "Bidder from a country which shares a land border with India" for the purpose of this Order means: -

- a. An entity incorporated, established or registered in such a country; or
- b. A subsidiary of an entity incorporated, established or registered in such a country; or
- c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
- d. An entity whose beneficial owner is situated in such a country; or
- e. An Indian (or other) agent of such an entity; or
- f. A natural person who is a citizen of such a country; or
- g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

1.3.2.1.1.4 The beneficial owner for the purpose of (III) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means. Explanation-
 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;
 - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or share holders agreements or voting agreements;
2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

Signature and stamp of the tenderer

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

1.3.2.1.1.5 An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

1.3.2.1.1.6 The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Certificate to be given by the Tenderer:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that I am not from such a country or, if from such a country, I have been registered with the Competent Authority. I hereby certify that I fulfill all requirements in this regard, and I am eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Certificate to be given by Tenderer for Works involving possibility of sub- contracting:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that I am not from such a country or, if from such a country, I have been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that I fulfill all requirements in this regard, and I am eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Signature and stamp of the tenderer