

Information to Bidder for the “Procurement of Electronics and other Miscellaneous items-24-25/04 through GeM”

Ref: GeM Bid No. GEM/2024/B/5644819 dated: 25.11.2024

- The item/items in this bid should be quoted as per the technical specifications. *The details of the specifications along with consignee/site details are also available on website www.railtelindia.com.*

(The technical specs which are not available on GeM portal for the required product, same will be uploaded in ATC as one time exercise. In future all the specs will be available on GeM portal.)

1. In the specification wherever support for a feature has been asked for, it will mean that the feature should be available without RailTel requiring any other hardware/software/licenses. Thus, all hardware/software/licenses required for enabling the support/feature shall be included in the offer. The technical specifications are mentioned in Annexure-I.
2. OEM or Authorized distributor/Partner of OEM should have a registered office in India to provide sales and 24x7 support in India. The certificate to this effect should be submitted. The bidder should be either OEM or his authorized dealer/distributor.
3. In case of the authorized distributor/partner certificate from the OEM to this effect should be submitted. If OEM is quoting then OEM should submit the certificate. In the tender, either the manufacturer or its authorized dealer will be considered as valid bidders. In cases where the manufacturer has submitted the bid, the bids of its authorized dealer will not be considered and EMD will be returned. And in case of violations, both infringing bids will be rejected.
4. Equipment offered shall have complete data sheets and detailed description on OEM web sites.
5. Bidder shall submit the detailed BOM of the equipment offered duly verified and certified by the respective OEM.
6. GST Registration Certificate of vendor should be provided.
7. Delivery Period, Consignee Address, Inspection and Installation:

7.1 Delivery Period: The supplier will have to supply the material within 28 days from the date of issue of confirmed LOA/PO. If material is not supplied within the approved delivery period, then penalty of 0.5% of undelivered/uninstalled quantity per week to the maximum to the 10% of the contract value will be levied.

7.2 Consignee Address:

Territory Manager, Prayagraj

2nd floor, Microwave building, Microwave tower campus, behind DRM office, Smith Road, Prayagraj- 211001.

Note: In addition to the above consignee address, bidder may also be required to send items to RailTel Northern Region Territory stores/sites, without any cost to RailTel.

7.3.1 Inspection: Inspection shall be carried out by authorized representative of RailTel.

8. Estimated cost of Tender & Earnest Money Deposit (EMD)/Bid Security:

8.1 Estimated cost of Tender: Estimated cost of the Tender is **Rs. 4,37,52,089.84 (Incl. GST)**.

8.2 Earnest Money Deposit (EMD)/ Bid Security: Earnest Money Deposit (EMD)/ Bid Security: Bid Security @ 2% amounting to **Rs. 8,75,100/-** in the form of Pay Order/ Demand Draft drawn in favor of RailTel Corporation of India Ltd. payable at New Delhi on or before 15:00 Hrs of Bid Opening Date. The Bid received without EMD will be summarily rejected.

8.3 In addition to clause 8.2 above, Tenderer has an option for online submission of EMD through NEFT/RTGS also. The EMD should be remitted in following account of RailTel Corporation of India Limited before the stipulated time and date of bid submission:

Name of bank & address	Union Bank of India, 14/15-F, Connaught Place, New Delhi- 110001.
Name of Account holder	RAILTEL CORPORATION OF INDIA LIMITED N R COLLECTION A/C (RCIL)
Account No.	307801010917906
IFSC Code	UBIN0530786
Branch/MICR Code	Connaught Place/110026006

8.4 The EMD/Bid Security shall be taken from all tenderers against advertised tenders subject to the following exemptions:

- a. Tender cases of value up to Rs. 5 (five) Lakhs.
- b. Micro and Small Enterprises (MSEs) registered under Udyam Registration.
- c. Startups as recognized by Department of Promotion of Industry and Internal Trade (DPIIT).

Note: In case the tenderer falls in these categories, the bidder should furnish a certified copy of its valid registration details and Bid Security Declaration. Except for MSEs, this exemption is valid for the trade group and monetary value of registration only. The Bid Security Declaration format is attached as Annexure-IX.

9. This bid complies with “Public Procurement (preference to make in India) Policy Order, 2017 issued by DIPP and Public Procurement Policy for Micro and Small Enterprises (MSEs) order,2012” issued by MoSME.”

The bidders claiming the preference have to submit relevant documents prescribed under relevant order.

10. Security Deposit/Performance Guarantee:

The successful tenderer shall submit security deposit in the form of DD/irrevocable BG from any scheduled bank for due fulfillment of contract as per the details given below:

- i. Security Deposit/Performance Bank Guarantee @5% of total value of Purchase Order is required to be submitted within 30 days of issue of Purchase Order with validity 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/PO.
- ii. The security deposit/PBG shall be submitted to RCIL/RO/NR, Shastri Park, Delhi.
- iii. 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. RailTel’s Bank Details for BG SFMS Report are as under:

Name of bank & address	ICICI Bank
Name of Account holder	RailTel Corporation of India Limited
BG Advising Message	IFN 760COV/IFN 767COV via SFMS
IFSC Code	ICIC0000007
Unique Reference in field 7037	RAILTEL6103

- iv. The security deposit/Performance Bank Guarantee shall be released after successful completion of Contract obligations under the contract, duly adjusting any dues recoverable from the successful tenderer. Payment of Security Deposit in the form of Pay Order/Demand Draft should be made in favor of “RailTel Corporation of India Ltd” payable at New Delhi.

Note 1: In case value of BG comes to Rs. 5 Lakhs or less, same should be submitted online through NEFT/RTGS only.

Note 2: In case of change in the value of Security Deposit/Performance Guarantee as per latest guidelines issued by GoI, bidder has to submit the revised BG accordingly.

11. Eligibility Criteria for OEM (Routers, SFPs, Wi-Fi Access Points):

- The equipment offered by the OEM or equipment of the same series/family from the same OEM should have been satisfactorily working in Government /PSUs/Telecom Service Providers network for at least 12 months as on opening of bid, in India or Abroad. The certificates from the actual users will have to be submitted online.
- The OEM should have supplied at least 35% of the tendered quantity (rounded to the nearest whole number) of the equipment offered or equipment of the same series/family during last preceding 3 financial years (i.e. current year and three previous financial years) as on opening of bid to Government/PSUs/Telecom Service Providers. OEM should submit self-certificate with proper contact detail of clients along with quantities supplied (Firm Name, Contact person, Designation, Telephone Number, Fax, Official mail id etc.). The same should be issued by authorized signatory.
- The OEM should have proven facilities for Engineering, manufacture, assembly, integration and testing of Routers, Switches and SFPs and basic facilities with respect to space, Engineering, Personnel, Test equipment, Manufacture, Training, Repair, Service Center Supports for at least past three years in the country from where the proposed equipment are planned to be supplied. In case OEM is located outside India, it should have training repair and service center facilities in India also. The certificates/Undertaking for the same will have to be submitted online.
(The bidder will have to submit the proof of establishment for the facility)

12. Eligibility Criteria:

12.1 Technical Eligibility for Bidder:

The tenderer must have successfully completed any of the following during last 03 (three) years, ending last day of month previous to the one in which tender is invited:

- Three similar works# each costing not less than the amount equal to 15% of advertised value of the tender, or
- Two similar works# each costing not less than the amount equal to 20% of advertised value of the tender, or
- One similar work # costing not less than the amount equal to 35% of advertised value of the tender.

Satisfactory Performance certificate issued by respective Buyer Organization for the above Orders should be uploaded with bid.

Similar Work# Supply / Supply and Installation of IT/Telecom equipment for any Government department or Public Sector Units or public listed companies (as per

note below).

Note 1: Work experience certificate from private individual shall not be considered. However, in addition to work experience certificates issued by any Govt. Organization, PSU or any reputed TELCO, work experience certificate issued by Public listed company having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporated/registered at least 5 years prior to the date of opening of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issue such certificates. In case tenderer submits work experience certificate issued by public listed company, the tenderer shall also submit along with work experience certificate, the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate

Note 2: The above Technical Eligibility Criteria is also applicable for Startup Bidder.

12.2 Financial Criteria for Bidder:

The tenderer must have received total contractual payments/operating turnover in the previous three financial years and the current financial year up to the date of inviting of tender, at least 150% of the advertised value of the tender. The tenderers shall submit Certificates to this effect which may be an attested Certificate from the concerned department / client or Audited Balance Sheet /Certificate from Chartered Accountant duly supported by Audited Balance Sheet. (Note: Client certificate from other than Govt. Organization should be duly supported by Form 16A/26AS generated through TRACES of Income Tax Department of India).

12.2.1 Financial Eligibility Criteria of Startup:

The tenderer must have received total contractual payments/operating turnover in the previous three financial years and the current financial year up to the date of inviting of tender, at least 50% of the advertised value of the tender. The tenderers shall submit Certificates to this effect which may be an attested Certificate from the concerned department / client or Audited Balance Sheet /Certificate from Chartered Accountant duly supported by Audited Balance Sheet. (Note: Client certificate from other than Govt. Organization should be duly supported by Form 16A/26AS generated through TRACES of Income Tax Department of India).

Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under: The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India for the relevant date. Where, relevant date shall be as on the last day of month previous to the one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date.

12.3 The Bidder should be OEM or System Integrator authorized by OEMs for Supply, Warranty Support for the following products:

- (i) Routers
- (ii) SFPs,
- (iii) Wi-Fi Access Points
- (iv) Switch
- (v) UPS

In case of System Integrator, Bidder should have authorization specific to this tender from respective OEM as per Annexure-IV.

13. Splitting of Quantity:

13.1 Deleted

13.2 In case bidder claims PMA, Government of India Guideline/Instruction regarding splitting of order to Local supplier shall be applicable. Govt. Guidelines in regard to MSME shall be followed.

14. Warranty:

14.1 The materials are to be warranted for 3 years from the date of delivery to the consignee. 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 Cards/Modules 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.

14.2 SLA:

After having been notified of the defects/service requirement during warranty period, Seller has to complete the required Service/Rectification within time limit of max. 7 days. If the Seller fails to complete service / rectification within defined time limit, a penalty of 0.5% of Unit Price of the product shall be charged as penalty for each week of delay from the seller & upto max. of 100% of Unit Price of the product. Seller can deposit the penalty with the Buyer directly else the Buyer shall have a right to recover all such penalty amount from the Performance Security (PBG) or from the running bills.

15. Purchaser's Right to Vary Quantities:

The purchaser shall be at liberty to enhance or reduce the quantity mentioned in the LOA as indicated in below para 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.

(A) Upto maximum extent of +/- 50% subject to following condition

- i. Upto +25% with no rebate.
- ii. From +25% to +40% with 2% rebate
- iii. From +40% to +50% with 4% rebate

(B) For variation beyond +50% of the quantity mentioned in the SOR may be done after proper negotiation with the selected bidder.

16. Hardware and Software offered by OEM (Routers, switches, SFP, Wi-Fi AP's) should have End of Life (EOL) not less than 08 years from the date of Supply. The bidder is required to submit compliance to this clause as per Annexure-VI.

17. Payment Terms: -**17.1 For Supply Items:**

- (i) 100% payment on full supply.
- (ii) 80% payment against part supply of the ordered quantity. In case bidder completes the supply order for one SOR, he can claim part payment of 80% against each SOR's completed supply of the said SORs. Balance payment shall be made after full supply.

The following documents are to be submitted for payment:

- Original Tax Invoice. (With separate Tax amount, containing POS, RailTel GSTN and Supplier GSTN).
- Delivery Challan.
- E-Way Bill.
- Original Consignee receipt.
- Original Inspection Certificate.
- Transit Insurance Certificate.
- Warranty Certificate of OEM.
- Proof of SD/PG submitted.
- Certificate of receipt of Goods in Good Condition.
- Declaration of non-applicability of e-invoicing, if applicable.

- Declaration regarding 206AB/206CCA of IT act.

17.2 Bill Passing Authority will be ED/Marketing/NR, and Bill Paying Authority will be Sr.DGM/Finance/NR.

Note: All the documents related to payment has to be submitted in RailTel Vendor Bill Tracking System (BTS) also.

- 18.** The tenderers shall submit a notarized affidavit on a non-judicial stamp paper stating that they are not liable to be disqualified and all their statement/documents submitted along with bid are true and factual. Standard format of the affidavit to be submitted by the bidder is enclosed as Annexure-V. Non submission of an affidavit by the bidder shall result in summarily rejection of his/their bid. And it shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self attested by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document. It will not be obligatory on the part of Tender Committee to scrutinize beyond the submitted document of tenderer as far as his qualification for the tender is concerned.

The RailTel (RCIL) reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the RailTel (RCIL), make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification by the RailTel (RCIL) shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the railway thereunder.

In case of any wrong information submitted by tenderer, the contract shall be terminated. Earnest Money Deposit (EMD), Performance Guarantee (PG) and Security Deposit (SD) of contract forfeited and agency barred for doing business on RailTel (RCIL) for 5 (five) years.

19. Power of Attorney:

Power of attorney in favor of the signatory duly authorizing the signatory shall be submitted online before the due date and time of submission of the e-Tender and Original copy is needed to be submitted by the successful bidder before issuance of PO.

20. On line Submissions:

The bidder is required to upload and submit the following documents on line before due date & time of bid. The due date & time for closing of the bid is **13:00 Hrs of 16-12-2024** and the bid will be opened at **13:30 Hrs of 16-12-2024**.

- (i) Offer letter as per Annexure-II.
- (ii) EMD Submission details.
- (iii) BOQ of offered equipment.
- (iv) Clause wise compliance along with all mentioned documents/annexures for all clauses of GeM Bid and ATC documents.
- (v) Data Sheet of offered equipment.
- (vi) Financial (Certified copies of audited balance sheets/annual reports of last three preceding financial years) and Technical Eligibility Criteria documents.
- (vii) Technical Compliance of all Specification of items as per GeM Bid and ATC documents.

- (viii) Certificate from the End user against the Eligibility criteria for OEM para 11.
- (ix) Proof of document required against Eligibility criteria of OEM and Bidder vide para 11 & 12 respectively.
- (x) OEM Declaration for **(Routers, switches, SFP, Wi-Fi AP's) should have End of Life (EOL)** as per Annexure-VI.
- (xi) MAF/OEM Authorization as per para 12.3 and Annexure-IV.
- (xii) Notarized affidavit on a non-judicial stamp paper as per Annexure-V.
- (xiii) Compliance to clause 16 as per Annexure-VI.
- (xiv) Certificate as per Annexure-VII.
- (xv) Nil Deviation as per Proforma attached in Annexure-VIII.
- (xvi) Bid Security Declaration as per Annexure-IX.
- (xvii) Power of Attorney as per clause 19.

Note: 1) The bidder is required to give acceptance of all the clauses mentioned in the "Information to the Bidders" document mandatorily. Any deviation / non-acceptance may lead to rejection of the bid.

2) Information to Bidder viz. corrigendum /addendum/ amendments etc. for this bid shall be posted on www.railtel.in only.

3) This bid is governed by the Specific Additional Terms & Conditions and General Terms & Conditions laid down by the GeM against GeM Bid No: GEM/2024/B/5644819 dated 25-11-2024.

In case, if any contradiction between GeM Additional Terms & Conditions and General Terms & Conditions, RailTel Terms & Conditions will prevail.

Annexure-I**Technical Specifications****1. All Equipment should be:**

- i. With 3 Years Warranty.
- ii. Equipped with necessary hardware/software to comply all above required/support features.
- iii. Back-to-Back warranty with respective OEMs for both Hardware and Software. The certificates/Undertaking for the same will have to be submitted along with bid from respective OEM. Hardware and Operating System for Network Devices should be from the same OEM. Disaggregated solution shall not be acceptable.
- iv. OEMs should have their spare depots in India and location & address for same need to be submitted.
- v. OEMs should have 24*7 TAC support in India. Relevant document in support of the same shall be submitted.
- vi. Bidder/OEM can offer third party grey optics, but it should be fully compatible with the offer equipment.
- vii. UL, CE and FCC Certification is not required for PMA. However, they have to produce certificate from standard lab approved/ authorized by Govt. of India that their product are equivalent to UL, CE and FCC and meets all standard and specification of UL, CE and FCC.

2. SOR wise details are as:

SOR item	SOR item description for GeM tender	UoM	Quantity
SOR-1	Supply of Router Type-I as per technical specifications of SOR-1 of Information to Bidder	NO.	11
SOR-2	Supply of Router Type-II as per technical specifications of SOR-2 of Information to Bidder	NO.	27
SOR-3	Supply of Router Type-III as per technical specifications of SOR-3 of Information to Bidder	NO.	21
SOR-4	Supply of Switch Type-I as per technical specifications of SOR-4 of Information to Bidder	No.	44
SOR-5	Supply of Switch Type-II as per technical specifications of SOR-5 of Information to Bidder	NO.	34
SOR-6	Supply of Access Point Type-I as per technical specifications of SOR-6 of Information to Bidder	No.	88
SOR-7	Supply of Access Point Type-II as per technical specifications of SOR-7 of Information to Bidder	No.	37

SOR-8	Supply of SFP Type-I as per technical specifications of SOR-8 of Information to Bidder	Nos.	88
SOR-9	Supply of SFP Type-II as per technical specifications of SOR-9 of Information to Bidder	NO.	90
SOR-10	Supply of SFP Type-III as per technical specifications of SOR-10 of Information to Bidder	Nos.	26
SOR-11	Supply of SFP Type-IV as per technical specifications of SOR-11 of Information to Bidder	NO.	190
SOR-12	Supply of SFP Type-V as per technical specifications of SOR-12 of Information to Bidder	No.	18
SOR-13	Supply of SFP Type-VI as per technical specifications of SOR-13 of Information to Bidder	NO.	26
SOR-14	Supply of SFP Type-VII as per technical specifications of SOR-14 of Information to Bidder	No.	137
SOR-15	Supply of UPS Type-I as per technical specifications of SOR-15 of Information to Bidder	NO.	16
SOR-16	Supply of UPS Type-II as per technical specifications of SOR-16 of Information to Bidder	NO.	13
SOR-17	Supply of UPS Type-III as per technical specifications of SOR-17 of Information to Bidder	NO.	2
SOR-18	Supply of Patch Chord Type-I as per technical specifications of SOR-18 of Information to Bidder	NO.	304
SOR-19	Supply of Patch Chord Type-II as per technical specifications of SOR-19 of Information to Bidder	NO.	32
SOR-20	Supply of Patch Chord Type-III as per technical specifications of SOR-20 of Information to Bidder	NO.	76
SOR-21	Supply of Patch Chord Type-IV as per technical specifications of SOR-21 of Information to Bidder	No.	128
SOR-22	Supply of CAT-6 cable type-I as per technical specifications of SOR-22 of Information to Bidder	mtr.	7875
SOR-23	Supply of CAT-6 cable type-II as per technical specifications of SOR-23 of Information to Bidder	Mtr.	150
SOR-24	Supply of CAT-6 type-III cable as per technical specifications of SOR-24 of Information to Bidder	No.	124
SOR-25	Supply of power cable type-I as per technical specifications of SOR-25 of Information to Bidder	Mtr.	7305
SOR-26	Supply of power cable type -II as per technical specifications of SOR-26 of Information to Bidder	mtr.	2000
SOR-27	Supply of optical fiber cable as per technical specifications of SOR-27 of Information to Bidder	mtr.	8000
SOR-28	Supply of PVC conduit pipe as per technical specifications of SOR-28 of Information to Bidder	mtr.	16500
SOR-29	Supply of PVC flexible pipe as per technical specifications of SOR-29 of Information to Bidder	mtr.	282
SOR-30	Supply of HDPE duct as per technical specifications of SOR-30 of Information to Bidder	mtr.	1250
SOR-31	Supply of 12F FDMS as per technical specifications of SOR-31 of Information to Bidder	No.	57

Technical Specification of SOR Items

SOR-1(Router Type-I) & SOR-2 (Router Type-II):

(i) Scalability Parameters:

Following tables mentions the minimum hardware scalability parameters for Type-I and II Routers:

SN	Parameter	Type-I	Type-II
1	Ports (Minimum)	4x100G QSFP port (excluding XFP/SFP/QSFP module) & 8x10G SFP+ Port (Including 8X10G SFP+ module) from day one	4x10G SFP+ port & 8x1G SFP Port (excluding SFP module). Additional 2x10G SFP+ port for future upgradeability in same hardware from day one.
2	Total throughput (Full duplex) (Minimum) Gbps	280	64
3	MAC Table Size	64K	64K
4	IPv4 RIB/FIB (Minimum)	1M/128K	1M/32K
5	IPv6 RIB/FIB (Minimum)	1M/32K	512K/8K
6	MPLS Labels (Minimum)	32K	12K
7	Label Stack	5	5
8	L2 / L3 VPN VRF (Minimum)	1000/256	500/128
9	Support of number of queues per system	4K	1K
10	Number of VLAN support	1000	250
11	Multicast Routes	20K	2K
12	mVRF	50	20

(ii) Features Required for Type-I and Type-II Routers

1	Router can be of either modular/fixed type and shall have modular Operating system where it shall support individual restart of critical processes without affecting other processes or rebooting the entire operating system.
2	All 10G and 100G interfaces should support LR, ER and ZR.
3	Router shall have option checking configuration before committing and option of rolling back to at least five configurations.
4	Deleted.
5	Digital Optical Monitoring (DOM) should be supported, optics information retrievable including RX/TX-power, threshold-monitoring/alarming, inventory.
6	It shall support role based privileges for the system access and radius authentication for the System admin.

7	The router should have a Console or Out-of-band Management.
8	Alerts for environmental or other hardware-based alarms should be visibly implemented on the chassis.
9	All interfaces shall support services like L2VPN, L3VPN, VPLS and multicast VPN for both IPv4 and IPv6
10	The router should have mechanism to protect itself from DDoS attack.
11	The router should be IPv6 ready from day one.
12	The router should support filtering based on different parameters like: src ip, dst ip, src port, dst port, protocol etc
13	The router should support Netflow, Jflow or equivalent
14	The router should support IP SLA or RPM (or equivalent) for performance measurements, it should also support monitoring of IP SLA/RPM (or equivalent) probes using SNMP polling (OEM has to provide SNMP MIB information)
15	Shall support QoS, option of traffic shaping per Interface based.
16	Shall support following class of service features:
	a) Classification, policing, marking, shaping, filtering
	b) Manage congestion using a weighted random early detection (WRED) algorithm
	c) RFC 2474, Definition of the Differentiated Services Field in the IPv4 and IPv6 Headers
	d) Single Rate Three Color Policer RFC 2697
	e) RFC 2698, A Two Rate Three Color Policer
	f) congestion Management through CBWFQ, Round-Robin or equivalent, WFQ or equivalent
	g) RFC 2597, Assured Forwarding PHB Group
	h) RFC 2598, An Expedited Forwarding PHB
	i) Router should be able to classify based on 802.1 ad, 802.1 p, EXP and DSCP bits
	j) The router shall support traffic interface mirroring in both ingress & egress directions for both IPv4 & IPv6
17	The router shall support provision for event based scripts that shall be capable of performing actions based on certain triggers
18	The router shall support aggregated Ethernet and it shall be possible to bundle Upto 16 links.
19	Shall support following MPLS features
	a) LDP and RSVP signalling
	b) RFC 5036, LDP Specification
	c) RFC 3212 OR Constraint-Based LSP Setup using LDP
	d) RFC 3215, LDP State Machine
	e) RFC 3478, Graceful Restart Mechanism for LDP
	f) RFC 2858, Multiprotocol Extensions for BGP-4
	g) RFC 3063, MPLS Loop Prevention Mechanism
	h) RFC 3031, Multiprotocol Label Switching Architecture
	i) RFC 3032, MPLS Label Stack Encoding
	j) The router should be able to do load-balancing over multiple equal cost MPLS LSP
20	The Router shall support MPLS Fast Reroute both link protection and Node protection.

21	MPLS Ping, MPLS Trace Route
22	Fast Reroute Extensions to RSVP-TE for LSP Tunnels
23	The router shall Support of Sync-E & PTP technology (License price to be quoted separately)
24	Shall support MPLS based VPN services
	a) L3VPN, L2VPN (Kompella BGP/ Martini LDP),
	b) Internet draft, draft-ietf-l2vpn-vpls-bgp-08.txt, Virtual Private LAN Service (VPLS) Using BGP for Auto-discovery and Signaling
	c) RFC 4762 Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling
	d) Next Generation mVPN (P2MP) based on (Draft-ietf-13vpn-2547bis-mcast-01.txt) & mVPN (draft-rosen-vpn-mcast).
25	The router shall support the following routing features
	a) BGPv4, BGP confederations and route reflector
	b) Dynamic Host Configuration Protocol (DHCP)
	c) RFC 3101, The OSPF NSSA Option
	d) RFC 2328, OSPF Version 2
	e) RFC 3623, OSPF Graceful Restart
	f) RFC 3630, Traffic Engineering (TE) Extensions to OSPF Version 2
	g) RFC 1195, Use of OSI IS-IS for Routing in TCP/IP and Dual Environments
	h) RFC 2104, HMAC: Keyed-Hashing for Message Authentication
	i) RFC 2973, IS-IS Mesh Groups
	j) RFC 3358, Optional Checksums in IS-IS or RFC 5310
	k) RFC 3359, Reserved Type, Length and Value (TLV) Code points in IS-IS
	l) RFC 3373, Three-Way Handshake for IS-IS Point-to-Point Adjacencies
	m) RFC 5305, IS-IS Extensions for Traffic Engineering
	n) RFC 3847, Restart Signalling for IS-IS
	o) RFC 3590, Source Address Selection for Multicast Listener Discovery Protocol
	p) IGMP v2 and v3 as described in RFC 2236 and RFC 3376 with IGMP Routing Policies to filter IGMP requests.
26	The router shall support Virtual Router Redundancy Protocol (VRRP) as per IETF RFC 3768
27	Router shall support SNMP v2/v3 and NTP
28	Shall support BFD for both single hop and multihop sessions
29	Shall support the following OAM features and actions such as syslog/link down should be configurable on OAM event trigger:
	a) 802.3ah
	b) 802.1ag
	c) Y.1731
30	Shall support Multi-chassis LAG or EVPN Multi-Homing
31	IPv6 Features
	a) IPv6 Ping
	b) IPv6 trace route

	c) OSPF v3
	d) IS-IS
	e) VRRPv3
	f) IPv6 CoS (classification & rewrite, scheduling based on TC)
	g) IPv6 ACL
	h) 6PE and 6VPE
32	Multicast Feature: It shall support following:
	a) It shall support IGMP snooping v2/v3
	b) The router shall support PIM Sparse Mode, RFC 4601(optional)
	c) Rendezvous Point (RP) - ability to be configured as an RP
	d) RFC 3569, Source Specific Multicast (SSM)
	e) RFC 2365, Administratively Scoped IP Multicast
	f) RFC 3446, Anycast Rendezvous Point (RP) Mechanism using Protocol Independent Multicast (PIM) and Multicast Source Discovery Protocol (MSDP).
	g) RFC 3618, Multicast Source Discovery Protocol (MSDP).
33	The proposed router should be NEBS level 3 compliant. NEBS Certification is not required for PMA. However, OEM has to produce certificate from standard lab approved or authorized by Govt. of India that the supplied Products are equivalent to NEBS and meet all standard and specification of NEBS.
34	The device should comply to the following safety standards
	a) EN 55022 Class A Emissions (Europe)
	b) FCC Class A (USA) Radiated Emissions
	c) UL 60950-1 Information Technology Equipment – Safety
	d) EN 60825-1 Safety of Laser Products
	e) EN-61000-4-11 Voltage Dips and Sags
	f) ETS-300386 Electromagnetic Compatibility Requirements
	g) The device will conform to the following EN/IEC standard:
	i. 61000-4-2 – ESD
	ii. 61000-4-3 Radiated Immunity
	iii. 61000-4-4 – EFT
	iv. 61000-4-5 – Surge
	v. 61000-4-6 – Low Frequency common immunity
35	The offered devices must support following functionalities to support 3rd party SDN (in future)
	(a) The router should support RFC 6020, YANG - A Data Modeling Language for the Network Configuration
	(b) Protocol (NETCONF)
	(c) The solution should support the network configuration protocol (NETCONF) that provides mechanisms to install, manipulate, and delete the configuration of network devices, RFC 6241
	(d) The router should be able to act as Path computation client in the PCE architecture defined in RFC 4655.
	(e) The router should support PCECP as defined in RFC5440.

	(f) The router should support BGP link-state (BGP-LS), RFC 4655
	(g) The router should support SPRING or Segment routing
36	Devices shall support following natively or through EMS for Provisioning. If it is supported through NMS, NMS should be provided without additional cost to RailTel.
	(a) Use NETCONF (RFC 6241, RFC 6242, RFC 5277)
	(b) REST/NETCONF based CRUD operations for configuration and management.
37	The offered devices must support API/NBIs for auto discovery of Services and Physical & Logical Topology
38	TELEMETRY Function: It shall support following:
	a) The router should support telemetry based on push model for monitoring network devices
	b) The router should support various software models/sensors for capturing different health parameters from the devices
	c) The router should support sending telemetry data to multiple consumers simultaneously
	d) The router shall support GPB/GRPC/KAFKA encoding for telemetry data
	e) The software model/sensors should be based on either yang, xml or open config
	f) The solution shall use either UDP or GRPC for transport of telemetry data
	g) The system should support streaming granularity of atleast 10 sec
	h) The router shall have the ability to interact with open standard based tools
	i) The system should support REST API/NETCONF for communication with third party tools and applications
	j) Enabling telemetry should not have any adverse impact on the performance of the device/router
	k) Some of the streaming models/sensors the router should support are:
	<u>System</u>
	Chassis Environment
	Line card utilization (memory , processor, QoS, Temp, Port utilization), errors counters
	Controller Card sensors (memory, CPU, Temp etc)
	Fabric statistics
	ARP table state
	Routing prefix information
	<u>Interface</u>
	Interface statistics (Physical and logical interfaces)
	Interface optical diagnostic
	Congestion and latency
	Filter statistics
	Protocol
	BGP peer information
	ISIS State, Interface, Adjacency statistics, LSDB
	ISIS SPRING / Segment Routing Statistics
	RSVP Interface Statistics
	LSP statistics

	LSP Event Export, Experimental
	IP SLA/RPM (or equivalent) reporting
	Segment Routing statistics
	DHCP statistics
39	Router should support Dual Image/Partition with USB flash drive booting option for OS recovery
40	Router should support jumbo frame.
41	Router should support port mirroring
42	Router should support security features of Broadcast/Multicast/Unicast Storm control.
43	Router should comply to following Temperature performance parameters:
	i. Operating Temperature: 0 to 40 degree C or better
	ii. Storage Temperature: -10 to 60 degree C or better
44	Routers should support following Metro Ethernet Features:
	i. ITU-T G.8032 Ethernet Ring Protection designed for loop protection or alternate mechanism to achieve ring protection in less than 50 ms.
	ii. Should support multiple Ring up to 8 ring(main and sub ring) protection failover with in 50 ms or ITU-T G.8032 v2.
45	The operating system of the Routers category/series/family should be MEF-9/14 or CE(Carrier Ethernet) Certified.
46	The Router shall be designed for continuous operations with dual fan system.
47	Router should support CFM and LFM alarms.
48	Shall support HQoS, option of traffic shaping per VLAN based.
	i. Deleted.
	ii. Per-VLAN policing.
	iii. Per-VLAN rewrite
	iv. Per-VLAN two-rate tri-color marking.
	v. Per-VLAN classification
	vi. Per-VLAN filtering
49	Support for P and PE router functionality for MPLS on the same router simultaneously and on all the interfaces.
50	Router shall support E-Line or E-LAN MEF standards.
51	Routers should be rack mountable to fit into a standard 19-inch rack
52	OEM shall ensure that use of third party optics shall not be explicitly blocked on the Router. Router must support all MSA complied Optics available in market.
53	Segment Routing
i	Router should be able to support SR standards on IPv6 on MPLS dataplane whenever it is firmed up without any cost to RCIL.
ii	The router should support SR-MPLS dataplane and protocols OSPF,IS-IS and BGP Segment routing extensions
iii	Traffic Steering of SR policies with Autoroute Include and Segment Routing TI-LFA SRLG Protection
iv	LSP ping, trace-route, Pseudo wire Ping over Segment Routing, trace route for binding-SID

v	MPLS-LDP interworking with SR-ISIS and SR-OSPF
vi	TI-LFA with IGP (Link, Node, Local SRLG, Remote SRLG protection)
vii	Controller instantiated SR Policy (PCEP, BGP) and SR policy based on On demand next hop
viii	Router should have capability to calculate Bandwidth based path using centralized controller.
ix	Shall support SR and MPLS (LDP) Interworking Mapping Server
x	The router shall support dynamic point-to-point interface latency performance measurement. The measurement must be integrated in the IGP and BGP LS for SDN Controller Analysis.
xi	Label distribution protocol and segment routing should coexist and there should support option to prefer LDP over segment routing.
54	EVPN Features
i	Router should have support of Ethernet VPN (EVPN with single homing, multi homing
ii	Router should have support of following features on EVPN: EVPN-IRB, EVPN VPWS, EVPN VPWS Preferred Path over SR-TE Policy
55	Specification Router to support GRE tunnels (RFC 2784) or equivalent for creating tunnel on IP
Note	<p>i. NEBS Certification is not required for PMA. However, they have to produce certificate from standard lab approved/ authorized by Govt. of India that their product are equivalent to NEBS and meets all standard and specification of NEBS.</p> <p>ii. The Router/Router (OS)/Series/Family should be tested and certified for EAL2/NDPP (or above) under common criteria programme for security related functions or under Indian common criteria certification scheme (IC3S) by STQC, DEIT, Government of India.</p>

(iii) **Power Supply Requirement:**

Should have power supply arrangement as given below without any external adaptors with redundant power supply:

Type-I	-48 V DC supply (with the operating range of -40 to -72 VDC).
Type-II	<p>(i) AC power supply 100 to 240 V AC with 50 to 60 Hz or ii) -48 V DC supply (with the operating range of -40 to -72 VDC)</p> <p>Note: AC or DC type bifurcation will be provided to the successful bidder at the time of placing of PO.</p>

SOR-3: Router Type-III

SN	Description
1	Architecture:
1.1	Proposed Routers should support SDWAN ready
1.2	The router should be a single box configuration for ease of management.
1.3	It shall support hardware based VPN (3DES/AES) Encryption, MD5, SHA, SHA-256
1.4	The router shall support complete Firewall features.

1.5	Router shall support minimum 100K IPv4 and 50K IPv6 routes.
1.6	The Router shall have enough "High-performance multicore processors capacity and 4 GB DRAM and 4GB Flash Memory from Day1. so as to efficiently meet all the functionalities laid down in the specifications.
1.7	It shall have integrated USB port.
1.8	It shall be supplied with necessary power cards, data cables, connectors, bracket accessories, wire managers and other appropriate accessories. Routers shall be capable of working with 110 – 240 Volts AC nominal at frequency 50 +/- 2 Hz.
2	Performance:
2.1	It shall support high performance traffic forwarding with con-current features like firewall and encryption.
2.2	Router shall support aggregate WAN throughput of 100 Mbps from Day-1 and IPSEC Throughput of 50 Mbps from Day-1
2.3	It shall support variety of Ethernet Interfaces – 1 RJ45 GigE and 1 SFP GigE port & 4 port LAN 10/100/1000 Mbps port.
2.4	It shall support other IP Services like GRE tunneling, ACLs, IPSEC VPNs, Firewalling, NAT services.
3	High Availability:
3.1	It shall support non-stop forwarding for fast re-convergence of routing protocols.
3.2	It shall support VRRP or equivalent
4	Protocol Support:
4.1	The router shall have routing protocols like IS-IS, RIP ver1 & RIP Ver.2, OSPF ver2, BGP4.
4.2	It shall support multicast routing protocols IGMPv1/ v2/v3, PIM
4.3	It shall support DHCP, IPv6 QoS and IPv6 Multicast, OSPFv3
5	Quality of Service (QoS) Features:
5.1	The router shall support the following:
5.1.1	Classification and Marking: Policy based routing, IP Precedence, DSCP.
5.1.2	Congestion Management: WRED, Priority queuing, Class based weighted fair queuing.
5.1.3	Traffic Shaping and Policing for QoS
6	Security Features:
6.1	The router shall support GRE Tunneling & NAT Services.
6.2	It shall support MD-5 route authentication
6.3	It shall support AAA support using Radius.
6.4	It shall support DoS prevention
6.5	It shall support IP Access list to limit Telnet and SNMP access to router.
6.6	It shall support multiple privilege level authentications for console and telnet access through Local database or through an external AAA Server.
6.7	It shall support IEEE 802.1x support for MAC address authentication.
7	Debug, Alarms & Diagnostics:
7.1	The router shall have display of input and output error statistics on all interfaces.
7.2	It shall have display of dynamic ARP table.
7.3	Trace-route and Ping shall be available.

8	It should support Network Time Protocol.
9	Management:
9.1	The router shall have support for CLI, Telnet and SNMPv3.
9.2	It shall support Secure Shell for secure connectivity.
9.3	It shall have to have dedicated console for Local management / login through USB port / RJ45 port / serial
9.4	Event and System logging: Event and system history logging functions shall be available. The Router shall generate system alarms on events. Facility to put selective logging of events onto a separate hardware where the analysis of log shall be available.
10	Certification Requirements:
	"Router/ Router OS should be tested and certified for EAL 2 / NDPP (Network Device Protection Profile) or above under Common Criteria Program for security related functions or under Indian Common Criteria Certification Scheme (IC3S) by STQC, DEIT, Govt. of India."

SOR-4: Switch Type-I

SN	Specification
1	Switch should support 8 10/100/1000 Base –T PoE and 2 SFP ports.
2	Switch Should Support Min. 20 Gbps Switching Capacity and Maximum 64 Byte Packet ForwardingRate is 14.88 MPPS.
3	Switch Should Support IEEE 802.3af & at compliance (for PoE ports) and 120 W Power Budget.
4	Switch should support surge protection of 2kV as per IEC/EN 61000-4-5.
5	Switch should support IGMP Snooping v1, v2 and MLD snooping v1/v2.
6	Switch shall support IEEE 802.1AB Link Layer Discovery Protocol (LLDP) or LLDP-MED.
7	Switch Should Support 4K VLAN ID's, Min 256 static VLAN and Voice & Video VLAN.
8	Switch should support Port Mirroring One to one/Many to One.
9	Switch should support Quality of Service (QoS), 802.1p, Strict, Weighted Round Robin (WRR)/ Shaped Round Robin (SRR) scheduling.
10	Switch should support Access Control List (ACL), Port Base, MAC Base, IP Based, L2 & L3 ACL (IPv4 and IPv6)
11	Switch Should Support Security Features like Broadcast/Multicast/Unicast Storm Control, Traffic segmentation, TLS, DoS attack prevention, 802.1X Portbased Access Control , Port Security, ARP Spoofing Prevention, DHCP Server Screening, IP-MAC-Port Binding, ARP Inspection, DHCP Snooping, 802.1X Authentication local/RADIUS database (IPv4 & IPv6), port-based access control.

12	Switch Should Support features IPv4 & IPv6 Inspection, SSH v2 feature, Flow Control governed by IEEE 802.3x.
13	Switch Should Support Management thru console Port, Web-based and CLI.
14	Switch Should Support SNMP v1/v2c/v3.
15	Operating temperature/ Humidity: 0°C to 50°C, 10%-90% non-condensation.
16	The switch should work on 100-240V AC, 50Hz power supply.
17	Switch should have EMI CERTIFICATE as per EN/FCC/IC/CE
18	Switch should have SAFETY CERTIFICATE as per UL/ IEC/EN 60950.

SOR-5: Switch Type-II

SN	Specification
1	Should have minimum 24 x GE SFP based ports.
2	Should have minimum 4 nos. SFP+ based 10 GE ports.
3	Should have at least 64 Gbps full duplex line rate traffic.
4	Should have support for 802.3x flow control.
5	Should support 802.1D spanning tree control/RSTP support and MSTP support.
6	Should support management features viz. Web-based GUI/SSH, SNMP, TFTP Client System Log.
7	Should support Auto MDI-II/MDI-X uplink for all the twisted pair ports.
8	Should support 802.1Q VLAN, 802.1p Priority queues.
9	Should support port mirroring, jumbo frame & should have at least 16K MAC address
10	Should support console port and telnet-based management.
11	Should have power supply arrangement as given below in chassis without any external adaptors with redundant power supply (RPS): i) AC power supply 100 to 240 V AC with 50 to 60 Hz (ii) -48 V DC Supply DC power supply should work as a redundant power supply to power on the switch in case failure of AC power supply.
12	Should support Port-based VLAN, 802.1Q Tagged VLAN along with Management VLAN
13	Should support ITU-T G.8032 Ethernet Ring protection for Loop Protection and fast convergence time (Sub 50 ms) in ring topologies/ IEEE 802.1W RSTP for Sub Second failover. Industry Standard IEEE 802.1W RSTP is standard for Ring /STP topology.
14	Switch should support Surge Protection on power input and on Ethernet ports as per EN61000-4-5 standard and as per requirement at Indian Railway Station.

15	Should support Quality of Service (QoS) features viz. Priority Queue, Class of Service (CoS), Rate Limiting (Bandwidth Control), Strict Priority Queue (SPQ), Weighted Round Robin (WRR) or better, DOS attack prevention.
16	IPv6 feature should be ready from day 1.
17	Minimum Operating Temperature 0 to 50 degree.
18	It should have safety certificates as per UL/IEC/EN 60950. The switch should have EMC certification as per EN/CE/FCC standards.
19	Switch shall be with Rack Mountable clamps for standard 19-inch rack mountable.
20	The Switch shall be designed for continuous operations.
21	Should support port Trunking of at least 2 Nos. GE/10GE ports.
22	Switch should support LLDP or similar functionality.
23	Should support following security features viz.: i) SSL (HTTPS)/SSH, ii) Broadcast/Multicast/Unicast Storm Control, iii) DoS Attack Prevention/ DAI
24	Switch should support following SNMP traps or syslog i) Interface UP & Down ii) Optical Power SFP threshold alarms iii) STP Topology Changes and New root bridge iv) LLDP table changes

SOR-6: (Outdoor Access Point) Type-I:

Reference	Parameters	Technical specification
CT2HW1	Hardware	Access Points proposed must include radios for both 2.4 GHz and 5 GHz.
CT2HW2	Hardware	Must have a robust design for durability, without visible vents
CT2HW3	Hardware	Must include dual band antennas to support both the 2.4GHz and 5GHz operations simultaneously.
CT2HW4	Hardware	Proposed access point shall support MDO(Mobile Data offload)
CT2HW5	Hardware	Mounting kit should be standard which shall be used for mounting access point
CT2HW5	Hardware	Must support operating humidity of 10 to 90% (noncondensing)
CT2WS1	wireless Standard	Must support 2X2 multiple-input multiple-output (MIMO) with TWO spatial streams
CT2WS2	wireless Standard	Must support simultaneous 802.11ax with backward compatibility to 802.11a/b/g/n/ac/ac wave 2
CT2WS3	wireless Standard	Must support data rates unto 1200 Mbps on 5GHz radio and 574 Mbps on 2.4GHz radio.
CT2WS4	wireless Standard	Must support 20/40/80 MHz Channel Bandwidth.

CT2WS5	wireless Standard	Antenna Gain of Access Points must be +3dBm or better. Must support following minimum transmit power for both 2.4GHz and 5GHz radios.
		(i) 2.4-GHz band : +21dBm
		(ii) 5.0-GHz band: +23dBm
CT2WS6	wireless Standard	AP should support VLAN trunking (802.1q) and VLAN based SSID for user traffic.

Reference	Parameters	Technical specification
CT2RF1	RF	The Wireless AP should have the technology to improve downlink performance.
CT2RF2	RF	The AP shall be able to load-balance between 2.4Ghz and 5Ghz band.
CT2RF3	RF	Must have -95dB or better Receiver Sensitivity.
CT2RF4	RF	Must incorporate radio resource management for power, channel, coverage hole detection and performance optimization
CT2RF6	RF	Should support configurable carrier sense threshold
CT2M1	Mesh	The Wireless Backhaul shall operate in 5Ghz
CT2M2	Mesh	Support Encrypted and authenticated connectivity between all backhaul components
CT2M3	Mesh	Access point shall have wired uplink interfaces i.e. 1X100/1000BASE-T Ethernet
CT2R1	Roaming	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.
CT2S1	Security	Must support Management Frame Protection.
CT2S2	Security	Should support locally-significant certificates on the APs using a Public Key Infrastructure (PKI) or preinstalled certs on AP for authentication
CT2S3	Security	Provision of Wireless IPS to filter malicious traffic
CT2E1	Encryption	Access Points must support a distributed encryption/decryption model.
CT2E2	Encryption	Access Points must support hardware or software-based encryption
CT2M1	Monitoring	Must support the ability to serve clients or monitor the RF environment.
CT2M2	Monitoring	AP model proposed must be able to be both a client-serving AP and parallelly monitor- Intrusion Prevention services.
CT2F1	Flexibility:	Should support mesh capabilities for temporary connectivity in areas with no Ethernet cabling.
CT2F2	Flexibility:	Should support QoS for voice over wireless.

CT2F3	Flexibility:	The solution must support integration with existing controllers in the RailTel network, specifically including compatibility with Cisco AIR-CT-8540-K9, Ruckus Virtual SmartZone (VsZ-H), Aruba 7240XM, and HFCL -iCon controllers. If the proposed solution is not compatible with any of these existing controllers, the Original Equipment Manufacturer (OEM) must provide an appropriate controller at no additional charge to ensure seamless operation within the RailTel infrastructure. OEM Supporting document to confirm compatibility of offered AP with RailTel existing controlled must be submitted along with the bid.
CT2F4	Flexibility:	Must support 16 WLANs per AP for SSID deployment flexibility.
CT2O1	Operational:	Must support telnet or SSH or console login to APs directly for troubleshooting flexibility.
CT2O2	Operational:	Must support automatic detection of dropped connection to controller,
CT2O3	Operational:	Must support automatic failover to secondary controller, upon detecting lost connection to controller
CT2O4	Operational:	Must support DHCP Option 82, defined in RFC 3046, including support for Sub-option 01 (Circuit-Id) and Sub-option 02 (Remote Id) fields in all mode.
CT2O5	Operational:	With Controller APs (from a data-plane perspective) must support:
		- Ethernet over GRE IPv6 tunnel - Automatic detection of failed tunnel termination, with configurable connection retry and timeout.

Reference	Parameters	Technical specification
		- Automatic failover to secondary tunnel termination address.
CT2O6	Operational:	Support for basic AP monitoring statistics for each radio: Bytes Sent, Bytes Received, Packets Sent, Packets Received, Radio Channel Utilization, Noise.
CT2O7	Operational:	Must support data-plane split tunneling in which ACLs may be configured to enable a range of destination net blocks and/or IPs/Mac to bypass the data-plane tunnel and be bridged on the wired interface.
CT2O8	Operational:	AP should have capability to split tunnel for both IPv4 and IPv6 tunnel to segregate the management and data traffic.
CT2O9	Operational:	AP should have capability to split tunnel for specific destination Mac/IP/Subnet (For implementing policy based Caching solutions) using local NAT and forward user traffic.
CT2O10	Operational:	The AP shall support 200 concurrent Clients per AP
CT2O11	Operational:	APs shall support SNMP v1/V2/V3 or equivalent
CT2P1	Power:	Must support Power over Ethernet/PoE+/UPoE/Power Injector/AC/DC .

CT2Q1	Quality of Service:	shall have the support of 802.11e and WMM
CT2Q2	Quality of Service:	Should be Wi-Fi Alliance certified and WPC Approved and ETA Certified
CT2Q3	Quality of Service:	Must support QoS for video, voice and Data traffic.
CT2EES1	Environmental and Electrical Specifications	Must support QoS and Video Call Admission Control capabilities.
CT2EES2	Environmental and Electrical Specifications	Access point shall support powering from POE/PoE+/UPoE /Power Injector/AC/DC.
CT2EES3	Environmental and Electrical Specifications	Access point shall support pole, wall, and roof mounting options.
CT2EES4	Environmental and Electrical Specifications	Geographic orientation flexibility – tilt angle for pole, wall, and roof mounting units
CT2EES5	Environmental and Electrical Specifications	The equipment shall support up to 100 MPH sustained winds & 140MPH wind gusts.
CT2EES6	Environmental and Electrical Specifications	The Access point shall be IP67 certified.
CT2EES7	Environmental and Electrical Specifications	The Access point shall be rated for operation over an ambient temperature range of 0C to +55 C

Reference	Parameters	Technical specification
MTCTE	MTCTE Certificate	Shall submit Certificate of Mandatory Conformance (MTCTE) issued by TEC(Telecommunication Engineering Center), DoT.

SOR-7: (Indoor Access Point) Type-II:

Reference	Parameters	Technical specification
CT2HW1	Hardware	Access Points proposed must include radios for both 2.4 GHz and 5 GHz.
CT2HW2	Hardware	Must have a robust design for durability, without visible vents
CT2HW3	Hardware	Must include dual band antennas to support both the 2.4GHz and 5GHz operations simultaneously.
CT2HW4	Hardware	Proposed access point shall support MDO (Mobile Data offload)
CT2HW5	Hardware	Mounting kit should be standard which shall be used for mounting accesspoint
CT2HW5	Hardware	Must support operating humidity of 10 to 90% (noncondensing)

CT2WS1	wireless Standard	Must support 2X2 multiple-input multiple-output (MIMO) with TWO spatial streams
CT2WS2	wireless Standard	Must support simultaneous 802.11ax with backward compatibility to 802.11a/b/g/n/ac/ac wave 2
CT2WS3	wireless Standard	Must support data rates upto 1200 Mbps on 5GHz radio and 574 Mbps on 2.4GHz radio.
CT2WS4	wireless Standard	Must support 20/40/80 MHz Channel Bandwidth.
CT2WS5	wireless Standard	Antenna Gain of Access Points must be +3dBm or better. Must support following minimum transmit power for both 2.4GHz and 5GHz radios.
		(i) 2.4-GHz band: +21dBm
		(ii) 5.0-GHz band: +21dBm
CT2WS6	wireless Standard	AP should support VLAN trunking (802.1q) and VLAN based SSID for user traffic.
CT2RF1	RF	The Wireless AP should have the technology to improve downlink performance.
CT2RF2	RF	The AP shall be able to load-balance between 2.4GHz and 5GHz band.
CT2RF3	RF	Must have -95dB or better Receiver Sensitivity.
CT2RF4	RF	Must incorporate radio resource management for power, channel, coverage hole detection and performance optimization
CT2RF6	RF	Should support configurable carrier sense threshold
CT2M1	Mesh	The Wireless Backhaul shall operate in 5GHz
Reference	Parameters	Technical specification
CT2M2	Mesh	Support Encrypted and authenticated connectivity between all backhaul components
CT2M3	Mesh	Access point shall have wired uplink interfaces i.e. 1x100/1000BASE-T Ethernet
CT2R1	Roaming	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.
CT2S1	Security	Must support Management Frame Protection.
CT2S2	Security	Should support locally-significant certificates on the APs using a Public Key Infrastructure (PKI) or preinstalled certs on AP for authentication
CT2S3	Security	Provision of Wireless IPS to filter malicious traffic
CT2E1	Encryption	Access Points must support a distributed encryption/decryption model.
CT2E2	Encryption	Access Points must support hardware or software based encryption
CT2M1	Monitoring	Must support the ability to serve clients or monitor the RF environment.
CT2M2	Monitoring	AP model proposed must be able to be both a client-serving AP and Parallely monitor- Intrusion Prevention services.

CT2F1	Flexibility:	Should support mesh capabilities for temporary connectivity in areas with no Ethernet cabling.
CT2F2	Flexibility:	Should support QoS for voice over wireless.
CT2F3	Flexibility:	The solution must support integration with existing controllers in the RailTel network, specifically including compatibility with Cisco AIR-CT-8540-K9, Ruckus Virtual SmartZone (VsZ-H), Aruba 7240XM, and HFCL -iCon controllers. If the proposed solution is not compatible with any of these existing controllers, the Original Equipment Manufacturer (OEM) must provide an appropriate controller at no additional charge to ensure seamless operation within the RailTel infrastructure. OEM Supporting document to confirm compatibility of offered AP with RailTel existing controlled must be submitted along with the bid.
CT2F4	Flexibility:	Must support 16 WLANs per AP for SSID deployment flexibility.
CT2O1	Operational:	Must support telnet or SSH or console login to APs directly for troubleshooting flexibility.
CT2O2	Operational:	Must support automatic detection of dropped connection to controller,
CT2O3	Operational:	Must support automatic failover to secondary controller, upon detecting lost connection to controller
CT2O4	Operational:	Must support DHCP Option 82, defined in RFC 3046, including support for Sub-option 01 (Circuit-Id) and Sub-option 02 (Remote Id) fields.
CT2O5	Operational:	With Controller APs (from a data-plane perspective) must support:
		- Ethernet over GRE IPv6 tunnel
		- Automatic detection of failed tunnel termination, with configurable connection retry and timeout.
CT2O6	Operational:	- Automatic failover to secondary tunnel termination address.
		Support for basic AP monitoring statistics for each radio: Bytes Sent, Bytes Received, Packets Sent, Packets Received,
CT2O7	Operational:	Radio Channel Utilization, Noise.
CT2O7	Operational:	Must support data-plane split tunneling in which ACLs may be configured to enable a range of destination net blocks and/or IPs/Mac to bypass the data-plane tunnel and be bridged on the wired interface.
CT2O8	Operational:	AP should have capability to split tunnel for both IPv4 and IPv6 tunnel to segregate the management and data traffic.

Reference	Parameters	Technical specification
CT2O9	Operational:	AP should have capability to split tunnel for specific destination Mac/IP/Subnet (For implementing policy-based Caching solutions) using local NAT and forward user traffic.
CT2O10	Operational:	The AP shall support 200 concurrent Clients per AP
CT2O11	Operational:	APs shall support SNMP v1/V2/V3 or equivalent
CT2P1	Power:	Must support Power over Ethernet/PoE+/UPoE/Power Injector/AC/DC .
CT2Q1	Quality of Service:	shall have the support of 802.11e and WMM
CT2Q2	Quality of Service:	Should be Wi-Fi Alliance certified and WPC Approved and ETA Certified
CT2Q3	Quality of Service:	Must support QoS for video, voice and Data traffic.

CT2EES1	Environmental and Electrical Specifications	Must support QoS and Video Call Admission Control capabilities.
CT2EES2	Environmental and Electrical Specifications	Access point shall support powering from POE/PoE+/UPoE /Power Injector/AC/DC.
CT2EES3	Environmental and Electrical Specifications	Access point shall support pole, wall, and roof mounting options.
CT2EES4	Environmental and Electrical Specifications	Geographic orientation flexibility – tilt angle for pole, wall, and roof mounting units
CT2EES7	Environmental and Electrical Specifications	The Access point shall be rated for operation over an ambient temperature range of 0C to +50 C
MTCTE	MTCTE Certificate	Shall submit Certificate of Mandatory Conformance (MTCTE) issued by TEC(Telecommunication Engineering Center), DoT

SOR 8: SFP TYPE-I (SFP-1G-BIDI-10 KM)

SN	Description
1	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.
2	Should support 10 km optical distance on single fiber.
3	Should have LC type connector.
4	Should have capacity of bidirectional transmission.
5	Should have 1 Gigabit Ethernet capacity on single mode fiber.
6	Should support DDMI feature.
7	OEM should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
8	Should have CE and FCC regulatory compliances.
9	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

SOR 9: SFP TYPE-II (SFP-1G-BIDI-40 KM)

SN	Description
1	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.
2	Should support 40 km optical distance on single fiber.
3	Should have LC type connector.
4	Should have capacity of bidirectional transmission.

5	Should have 1 Gigabit Ethernet capacity on single mode fiber.
6	Should support DDMI feature.
7	OEM should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
8	Should have CE and FCC regulatory compliances.
9	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

SOR 10: SFP TYPE-III (SFP+ 10G-BIDI-10 KM)

SN	Description
1	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.
2	Should support 10 km optical distance on single fiber.
3	Should have LC type connector
4	Should have 10 Gigabit Ethernet capacities on single mode fiber.
5	Should support DDMI feature. Option should be available for both SFP+ and XFP
6	Should should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
7	Should have CE and FCC regulatory compliances.
8	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

SOR 11: SFP TYPE-IV (SFP+ 10G-BIDI-40 KM)

SN	Description
1	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.
2	Should support 40 km optical distance on single fiber.
3	Should have LC type connector
4	Should have 10 Gigabit Ethernet capacities on single mode fiber.
5	Should support DDMI feature. Option should be available for both SFP+ and XFP
6	Should should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
7	Should have CE and FCC regulatory compliances.
8	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

SOR-12: SFP Type-V (QSFP-40G-LR4)

SN	Parameter	Value
1	Module Form Factor	QSFP+
2	Aggregate Data Rate	40 Gb/s
3	Link Length Supported	10 KM
4	Protocols Supported	Typical applications include OTN OTU3, 40G Ethernet, Infiniband, Fibre Channel,
5	Fiber type	Dual Fibre, Duplex LC Connector
6	Operating temperature range	0°C to 65°C
7	Power consumption	< 3.5W
8	Average Launch Power	-7 dBm to 2.3 dBm
9	Receiver Sensitivity	-11 dBm or better
10	Should have RoHS-6 Compliant	
11	Should have XLPPI Electrical Interface	
12	Built in Digital Diagnostic Function	
13	Should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.	
14	Product must be IEC 60825(Laser Safety) and IEC 60950(Electrical Safety) certified by CSA or equivalent	
15	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.	

SOR-13: SFP Type-VI (QSFP28-100G-LR4-10KM)

SN	Description
1	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.
2	Optics Should support upto 10 km optical distance on single mode fiber
3	Connector type Dual LC
4	Signalling rate, each channel 25.78125 GBd +/-100 ppm
5	Standards compliance (Ethernet/OTN Standard, for e.g. 100GBASE-LR4) IEEE 802.3ba-2010
6	Operating Temperature (range) 0° C to 70° C
7	Transmitter output power, each lane (minimum, maximum) – 2.3 dBm, 4.5 dBm
8	Cable type SMF
9	Receiver input power, each lane (minimum, maximum) :- -12dBm

10	Transmitter wavelengths (range): 1294.53nm ~ 1296.59 nm 1299.02nm ~1301.09 nm 1303.54nm ~ 1305.63 nm 1308.09nm ~ 1310.19 nm
11	Should support below Digital Diagnostic Monitoring features: Transceiver temperature Laser bias current(4-Channel) Transmitted optical power (4-Channel) Received optical power (4-Channel) Transceiver supply voltage Power consumption < 3.5W

SOR-14: SFP Type-VII (SFP-1xGigE Electrical (1000 Base TX))

SN	Description
1	SFP modules should comply with multi-source agreement (MSA), enabling compatibility with other vendors equipment.
2	Should support 90 meter distance on copper cable.
3	Should have RJ45 Connector
4	Should have 1 Gigabit Ethernet capacities
5	Should should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
6	Should have CE and FCC regulatory compliances.
7	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

SOR-15: (UPS type-I) 2KVA UPS

SN	Specification	
i.	Capacity	2KVA/1600 W
ii.	Wave form	Pure Sine wave
iii.	Rectifier	IGBT based
iv.	Display	LCD/LED
v.	Input power factor correction	0.8 or better
vi.	Input configuration	1Ph,L-N+PE
vii.	Output Power factor	0.8 or better
viii.	Frequency (Input)	50z frequency
ix.	Frequency (output)	50Hz+/- 0.5Hz
x.	V threshold	3%max full linear load, 6% max on Nonlinear load
xi.	Crest factor	3.0 or better
xii.	AC-AC Efficiency	85% or better

SN	Specification	
xiii.	Transfer time Main-Battery	0
xiv.	Transfer time Inverter-Bypass	4 msec
xv.	Communication	SNMP V1/V2/V3
xvi.	Port	USB
xvii.	Battery Type	SMF
xviii.	Battery backup	1 Hrs. with full load, Battery size calculation is to be submitted along with the bid.
xxi.	Environmental Parameter	
A	Operating Temperature range	0-50 deg
B	Over Temperature, Load on Battery, Battery on Charge, Battery low, Mains on	Indication required
C	Input AC mains and output power supply surge protection	inbuilt
D	Humidity	0% to 95% non-condensing
E	Noise Level	50 dBA max
xxii.	Protection	
A	Mechanical Parameter	EMI or equivalent BIS/IS standard
B	Safety	EN or equivalent BIS/IS/IEC standard
C	Performance	IEC/EN or equivalent BIS/IS standard
D	Voltage Range (Bypass)	230VAC+/-15%
E	Voltage Range	175-280 VAC (1-phase) @ 100% load
xxiii.	Installation mode	Tower

SOR-16: (UPS type-II) 2KVA UPS

SN	Specification	
i.	Capacity	2KVA/1800 W
ii.	Wave form	Pure Sine wave
iii.	Rectifier	IGBT based
iv.	Display	LCD/LED
v.	Input power factor correction	0.9
vi.	Input configuration	1Ph,L-N+PE
vii.	Output Power factor	0.9 or better
viii.	Frequency (Input)	50Hz frequency
ix.	Frequency (output)	50Hz+/- 0.5Hz

SN	Specification	
x.	V threshold	3%max full linear load, 6% max on Nonlinear load
xi.	Crest factor	3.0 or better
xii.	AC-AC Efficiency	85% or better
xiii.	Transfer time Main-Battery	0
xiv.	Transfer time Inverter-Bypass	4 msec
xv.	Communication	SNMP V1/V2/V3
xvi.	Port	USB
xvii.	Battery Type	SMF
xviii.	Battery backup	6 nos. of 9AH batteries to be supplied inside the UPS cabinet
xxi.	Environmental Parameter	
A	Operating Temperature range	0-50 deg
B	Over Temperature, Load on Battery, Battery on Charge, Battery low, Mains on	Indication required
C	Input AC mains and output power supply surge protection	inbuilt
D	Humidity	0% to 95% non-condensing
E	Noise Level	50 dBA max
F	Size	not more than (2U+/-0.5U) rack mountable
xxii.	Protection	
A	Mechanical Parameter	EMI or equivalent BIS/IS standard
B	Safety	EN or equivalent BIS/IS/IEC standard
C	Performance	IEC/EN or equivalent BIS/IS standard
D	Voltage Range (Bypass)	230VAC+/-15%
E	Voltage Range	175-280 VAC (1-phase) @ 100% load
xxiii.	Installation mode	Rack

SOR-17: (UPS type-III) 3KVA UPS

SN	Specification	
i.	Capacity	3KVA/2400 W
ii.	Wave form	Pure Sine wave
iii.	Rectifier	IGBT based
iv.	Display	LCD/LED
v.	Input power factor correction	0.8 or better
vi.	Input configuration	1Ph,L-N+PE
vii.	Output Power factor	0.8 or better

SN	Specification	
viii.	Frequency (Input)	50z frequency
ix.	Frequency (output)	50Hz+/- 0.5Hz
x.	V threshold	3%max full linear load, 6% max on Nonlinear load
xi.	Crest factor	3.0 or better
xii.	AC-AC Efficiency	85% or better
xiii.	Transfer time Main-Battery	0
xiv.	Transfer time Inverter-Bypass	4 msec
xv.	Communication	SNMP V1/V2/V3
xvi.	Port	USB
xvii.	Battery Type	SMF
xviii.	Battery backup	2 Hrs. with full load, Battery size calculation is to be submitted along with the bid.
xxi.	Environmental Parameter	
A	Operating Temperature range	0-50 deg
B	Over Temperature, Load on Battery, Battery on Charge, Battery low, Mains on	Indication required
C	Input AC mains and output power supply surge protection	inbuilt
D	Humidity	0% to 95% non-condensing
E	Noise Level	50 dBA max
xxii.	Protection	
A	Mechanical Parameter	EMI or equivalent BIS/IS standard
B	Safety	EN or equivalent BIS/IS/IEC standard
C	Performance	IEC/EN or equivalent BIS/IS standard
D	Voltage Range (Bypass)	230VAC+/-15%
E	Voltage Range	175-280 VAC (1-phase) @ 100% load
xxiii.	Installation mode	
		Tower

SOR-18: Patch Cord Type-I – LC-LC- 5 Mtr

SOR-19: Patch Cord Type-II – LC/PC-LC/PC- 5 Mtr

SOR-20: Patch Cord Type-III – FC/PC-LC/PC- 10 Mtr

SOR-21: Patch Cord Type-IV - SC/APC-LC/PC- 5 Mtr

The Patch cords for SOR-18 to SOR-21 should be confirming to TEC NO.: TEC/GR/TX OFJ-01/05/NOV-09 with latest amendment No. TEC/T/OFC-OFJ/155/2013. However, the Patch cords should have the following:

- i) Operating Temperature: -40°C to +85°C.

ii) Insertion Loss:

- a) Insertion Loss of complete patch cord including adapter when tested from each direction in all conditions of operations: ≤ 0.3 dB
- b) Insertion Loss of Adaptors: ≤ 0.1 dB

iii) Return Loss for each connector of patch cord:

- a) Type-I SC-APC: ≥ 65 dB
- b) Type-II LC: ≥ 50 dB

iv) The length and type of connector of each Patch Cord: As per SOR.

v) The patchcord with connectors and adaptors shall conform to the TEC Specification No. TEC/GR/TX/OFJ-01/05 NOV-09 with amendment No. TEC/T/OFC-OFJ/155/2013 (latest).

v) Connector Body:

- a) FC-PC: Ni plated brass body (Ni plating shall be as per BIS Standards)
- b) SC-PC & SC-APC: Engineering thermoplastic (Glass filled PBT: Polybutylene Terephthalate)
- c) LC: PEI (Polyetherimide)/ PPS (Polyphenylene Sulphide)

vii) Color of connector body:

- a) FC-PC connector: Ni plated Brass
- b) SC-PC connector: Blue
- c) SC-APC connector: Green
- d) LC connector: Blue

viii) Radius of curvature:

- a) FC-PC: 10 to 25 mm
- b) SC-PC: 10 to 25 mm
- c) SC-APC: 5 to 12 mm
- d) LC: 10 to 25 mm

ix) Minimum bending radius of the cable:

- a) Loaded: 50 mm
- b) Unloaded: 30 mm

SOR-22 CAT-6a cable

CAT 6a 23AWG UTP cable conforming to EIA/TIA 568.2-D.

SOR-23 CAT-6 cable

CAT 6 23AWG cable conforming to EIA/TIA 568-B.2.

SOR-24 CAT-6a patch chord—Length- 02 meter

CAT 6a 23AWG UTP cable conforming to EIA/TIA 568.2-D.

SOR-25 Electrical Wire

Supply of PVC insulated 3 core 4 Sq. mm (1.1 KV grade) outdoor strengthened Copper Cable for AC supply distribution (as per BIS/ISI standards).

SOR-26 Electrical Wire

Supply of PVC insulated 3 core 6 Sq. mm (1.1 KV grade) outdoor strengthened Copper Cable for AC supply distribution (as per BIS/ISI standards).

SOR-27 OFC 12F

It will as per latest specification of TEC/BSNL as mentioned in clause 17.2 of RDSO Specification no. RDSO/SPN/TC/65/2021 version 6 or latest.

SOR-28 PVC Conduit

Supply of PVC Conduit 25 mm (ISI mark).

SOR-29 PVC flexible pipe

Supply of PVC flexible pipe 32 mm (ISI mark).

SOR-30: HDPE Duct

As per TEC GR No. GR/TX/CDS-008/03/March 11 with latest amendment.

SOR-31: FDMS 12/24F (1U) (SC-APC Type)

As per TEC GR NO. GR/FDM-01/02 April 2007 with Amendment No. 1 dated 02.05.2012 or latest.

OFFER LETTER**Annexure-II**

**ED/Marketing,
Northern Region, RailTel
6th Floor, 3rd Block,
Delhi Technology Park,
Shastri Park, New Delhi,
Delhi-110053**

Ref:- Tender No GEM/2024/B/5644819 Dated: 25.11.2024

It is hereby confirmed that we have understood the terms and conditions of the Tender, have thoroughly examined the specifications, are aware of the nature of the goods & services required and our offer is to supply goods & services strictly in accordance with the requirements, terms & conditions of this Tender. We agree to abide by the terms and conditions of the tender if the contract is awarded to us.

2) We hereby offer to supply the goods and services detailed above or such portions thereof as you specify in the purchase order at the price quoted and agree to hold this offer open for acceptance for a period of 60 days from the date of opening of the bid.

3) Online payment vide transaction No. _____ dated _____ for Rs. ___Lacs in favor of RailTel Corporation of India Ltd, towards EMD has been paid through the details as mentioned in tender notice/ tender document. 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 30 days after issue of Purchase Order.

SIGNATURE OF SUPPLIER (S)

Date:

CONTRACTOR (S) ADDRESS

SIGNATURE OF WITNESS:

- 1.
- 2.

Annexure-III

**PROFORMA FOR PERFORMANCE BANK GUARANTEE
PERFORMANCE BANL GAURANTEE BOND
(On Stamp Paper of Rs one hundred)
(To be used by approved Scheduled Banks)**

1. In consideration of the RailTel Corporation of India Limited., 6th Floor, 3rd Block, Delhi-IT-Park, Shastri Park, New Delhi-110053 (Herein after called RailTel) having agreed to exempt(Hereinafter called “the said Contractor(s)”) from the demand, under the terms and conditions of an Agreement No.....dated.....made between.....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.....(Rs only). 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.
2. We ,..... Bank and our local branch at New Delhi (indicate detail address of local New Delhi branch with code no.) 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 is 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 Rs
3. We, bank undertake to pay to the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) / Tenderer(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) / Tenderer(s) shall have no claim against us for making such payment.
4. We,.....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.

- 5. We,..... (indicate the 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 of 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) / Tenderer(s).

We, the Bank further agree that this guarantee shall be invocable at our place of business at...../New Delhi (indicate detailed address of local New Delhi Branch with code no.). The branch at New delhi is being advised accordingly.

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

Dated the day of MM, 2024

for
(indicate the name of the Bank)

Witness:

- 1. Signature
 Name
- 2. Signature
 Name

Annexure-IV

Manufacturer Authorization form (MAF)

**Executive Director, Marketing,
RailTel Corporation of India Ltd.
6th Floor, 3rd Block,
Delhi Technology Park, Shastri
Park, Delhi – 110053.**

Date: _____

Sub: Manufacturer Authorization Form (MAF) to M/s _____ for

Ref: Tender No GEM/2024/B/5644819 dated 25.11.2024

Dear Sir,

We, M/s....., are established and reputed manufacturer and service provider of
.....(Product details), having our registered office at
.....

We hereby authorize M/s (bidder name), Office
..... to participate in bid and subsequently upon
award of the bid to execute the “Procurement of Electronics and other Misc. Items 24-25/04
through GeM” of our range of products against your above said bid.

We further extend our warranty for three years for our range of products offered by M/s
..... against the above-said bid.

Thanking you,
Best regards,

Authorised Signatory

Annexure-V**FORMAT FOR AFFIDAVIT TO BE UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS**

*(To be executed in presence of public notary on non-judicial stamp paper of the value of Rs.100/-. The stamp paper has to be in the name of the tenderer) ***

I.....(Name and designation)** appointed as the attorney/authorized signatory of the tenderer (including its constituents), M/s. _____ (hereinafter called the tenderer) for the purpose of the Tender documents for the work of _____ as per the tender No. _____ of (-----Railway), do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

- (i) I/We the tenderer (s), am/are signing this document after carefully reading the contents.
- (ii) I/we the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
- (iii) I/We hereby declare that I/We have downloaded the tender documents from electronic-tender portal. I/We have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenderers, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
- (iv) I/We declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
- (v) I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.
- (vi) I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents submitted by us.
- (vii) I/We undersigned that if the certificates regarding eligibility criteria submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender EMD besides banning of business for five year on entire IR. Further, I/we (*insert name of the tenderer*) ** _____ and all my/our constituents understand that my/our offer shall be summarily rejected.
- (viii) I/we also understand that if the certificates submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of EMD/SD and Performance

Guarantee besides any other action provided in the contract including banning of business for five year on entire IR.

DEPONENT
SEAL AND SIGNATURE
OF THE TENDERER

VERIFICATION

I/We above named tenderer do hereby solemnly affirm and verify that the contents of my/our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

DEPONENT
SEAL AND SIGNATURE
OF THE TENDERER

Place:

Dated:

** The contents in Italics are only for guidance purpose. Details as appropriate, are to be filled in suitably by tenderer. Attestation before Magistrate/Notary Public.

Annexure-VI

OEM’S UNDERTAKING ON LETTER HEAD FOR PROVEN FACILITY, BLACKLISTING, MALICIOUS CODE, IPR & RESTRICTION ON COMPANIES FROM LAND BORDER SHARING COUNTRIES WITHINDIA

(To be signed by the OEM)

To

**ED/Marketing
RailTel Corporation of India Limited,
Shastri Park, 6th floor, IIIrd Block,
Delhi Technological Park, Shastri Park,
New Delhi-110053**

E-Tender No. GEM/2024/B/5644819 dated: 25.11.2024

Sub: OEM undertaking

Dear Sir,

Over and above all our earlier conformations and submissions as per your requirements of the RFP, we confirm that,

A. I/We undertake/Certify that

“I/We have proven facilities at
(Complete Address along with Pin Code) for Engineering, manufacture, assembly, integration, testing and basic facilities with respect to space, Engineering, Personnel, Testequipment, Manufacture, Training, Logistic Supports for at least past three years in the country from where the proposed equipment are planned to be supplied.”

“In case OEM is located outside India, we have training, repair and service center facilities in India at(Complete Address along with Pin Code) also.”

B. I/We have not been black-listed or debarred currently by Central Govt./State Govt./CPSU in India or anywhere globally by Government for security reasons either in Individual capacity or as a member of partnership firm/LLP/JV/Society/Trust.

C. I/We Certify that,

(i) All proposed hardware and software components in scope of supplies when shipped by _____, does not contain embedded malicious code that would activate proceduresto: -

- a. Inhibit the desired and designed function of the equipment.
- b. Cause physical damage to the user or equipment during the exploitation.
- c. Tap information resident or transient in the equipment/networks.

(ii) I/We, _____ will be considered to be in breach in case physical damage or malfunctioning is caused due to activation of any such malicious code in embedded

software and thus be liable to repair, replace or refund the price of the infected software if reported (or, upon request, return) to the party supplying the software to Customer, if different than _____

- (iii) Security breach or damages to system, if any, so caused by any embedded malicious code or otherwise, due to the act of either OEM or bidder or both, the OEM as well as the bidder would be considered liable jointly or severally and shall be banned for conducting any business with RailTel. Also the present contract, may liable to be terminated by the purchaser.
- D. I/We have read the clause regarding restrictions on procurement from a OEMs of a country which shares a land border with India; I certify that I/We is/are not from such a country or, if from such a country, has been registered with the Competent Authority, I/We hereby certify that I/We fulfils all requirements in this regard and is eligible to be considered.
- E. Offered Hardware and Software (Routers, switches, SFP, Wi-Fi AP's) are having End of Life (EOL) not less than 08 years from the date of Supply.

Place:

Date:

**Seal and signature of the authorized representative
of OEM Name and Designation of the authorized
representative of OEM**

Annexure-VII**GUIDLINES REGARDING PROVISION FOR PROCUREMENT FROM A BIDDER WHICH SHARES A LAND BORDER WITH INDIA**

- I. 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)].
- II. "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.
- III. "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.
- IV. 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 shareholders 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;
 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.
- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.
- VI. 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.]"

Annexure-VIII**PROFORMA FOR “NIL DEVIATION COMPLIANCE” UNDERTAKING
(To be signed by the Bidder)****To,****Executive Director/Marketing,
RailTel Corporation of India Limited
6th Floor, IIIrd Block,
Delhi Technology Park, Shastri Park,
New Delhi-110053**

Tender Reference No.: GEM/2024/B/5644819 dated 25-11-2024.

Sub: NIL Deviation Compliance

Over and above all our earlier conformations and submissions as per your requirements of the tender, we confirm that,

1. All SOR item proposed in scope supplies are compliant to the technical specifications of the equipment as mentioned in the Annexure-I of ITB Document.
2. We will also ensure our unconditional compliance of all the terms and conditions as mentioned in the Tender document including all corrigenda.
3. List of deviations (Partial Compliance and Non-compliance) from terms and conditions as mentioned in the Tender document including all corrigenda, if any, is enclosed as Annexure with this form. We understand that any partial compliance or non-compliance, may result in REJECTION of our bid.

Seal and signature of the bidder

Place:

Date:

(This letter should be on the letterhead of the bidder duly signed by an authorized signatory)

Annexure-IX**Format for Bid Security Declaration****(On Non-judicial stamp paper of Rs. 100/-)**

Whereas, I/We _____ (Name of Agency) has submitted bid for _____ (Name of Work and Tender No.) and whereas Earnest Money Deposit is being exempted in the aforesaid tender to give relief to the bidders as per Govt. of India guidelines due to severe financial crunch on account of slowdown in the economy due to the pandemic,

I/We hereby submit the following “Bid Security Declaration” in lieu of exemption from submitting Earnest Money Deposit: -

- 1) If I/We withdraw or modify my/our bid during the bid validity period (including extended validity of tender) specified in the tender documents;

Or

- 2) If, after the award of work, I/We fail to accept LOA/LOI, or to sign the contract agreement or fail to submit performance guarantee or fail to commence the work within stipulated time period prescribed in tender documents;

Or

- 3) If I/We furnish any incorrect or false statement / information/ document;

Or

- 4) If I/We hide any relevant information or do not disclose any material fact in the tender;

Or

- 5) If I/We commit any breach of integrity Pact;

I/We may be disqualified and banned for a period of three years and shall not be eligible to bid for future tenders in RailTel Corporation of India Ltd. for the period of three years from date of issue of such orders.

(Signed by the Authorized Representative of Firm)

Name of Authorized Representative

Name of Firm

Date

CHECK LIST (To be Filled up & uploaded)**List of Documents to be Submitted (Online):**

SN	Have you submitted the following documents?	Submitted /Complied or Not	Page No./ref No. of Offer
1.	Offer letter as per Annexure-II & as per clause no. 20(i) of ITB.		
2.	EMD Submission details as per clause no. 8 of ITB.		
3.	BOQ of offered equipment as per clause no. 20(iii) of ITB.		
4.	Clause wise compliance along with all mentioned documents/annexures for all clauses of GeM Bid and ATC documents as per clause no. 20(iv) of ITB.		
5.	Data Sheet of offered equipment as per clause no. 20(v) of ITB.		
6.	Financial (Certified copies of audited balance sheets/annual reports of last three preceding financial years) and Technical Eligibility Criteria documents as per clause no. 12 of ITB.		
7.	Technical Compliance of all Specification of items as per GeM Bid and ATC documents as per clause no. 20(vii) of ITB.		
8.	Certificate from the End user against the Eligibility criteria for OEM as per para 11 of ITB.		
9.	Proof of document required against Eligibility criteria of OEM and Bidder vide para 11 & 12 respectively.		
10.	OEM declaration (Routers, switches, SFP, Wi-Fi AP's) should have End of Life (EOL) as per Annexure-VI & as per clause no. 16 of ITB.		
11.	MAF/OEM Authorization as per para 12.3 and Annexure-IV of ITB.		
12.	Notarized affidavit on a non-judicial stamp paper as per Annexure-V & as per clause no. 18 of ITB.		
13.	Certificate as per Annexure-VII & as per clause no. 20(xiii) of ITB.		
14.	Nil Deviation as per Proforma attached in Annexure-VIII & as per clause no. 20(xv) of ITB.		
15.	Bid Security Declaration as per Annexure-IX of ITB.		
16.	Power of Attorney as per clause no. 19 of ITB.		

(END OF TENDER DOCUMENT)