

Corrigendum-I
RailTel's Bid Specific Additional Terms & Conditions

Information to Bidder for the "Procurement of Switches, SFP, Patch cords etc. for HMIS Project"

Ref: GeM Bid No. GEM/2022/B/1865340

Dated: 21.01.2022

- 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*
- 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.
- 4. Equipment offered shall have complete data sheets and detailed description on OEM web sites. Bidder shall provide the complete details in their bid.
- 5. Bidder shall submit the detailed BOM of the equipment offered duly verified and certified by the respective OEM. Unpriced BOM shall be submitted by bidder in their technical bid and priced BOM in their price bid. The bidder shall also attach unit Rate analysis of Schedule of Requirement (Cost of each sub-assembly, card, module, License, supervision of I&C charges etc.) in their Price bid. The quoted unite rates should correspond to the referred unit rate. Priced BOM/SOR submitted with technical bid will be summarily rejected.
- 6. GSTIN ID of vendor should be provided from where goods will be supplied.
- 7. Delivery Period, Consignee Address and inspection**
 - 7.1 **Delivery Period:** The supplier will have to supply the material within 30 days from the date of issue of confirmed 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.

Note: Supplier should also submit internal test report, guarantee and fitment certificate along with the supply of materials.

7.2 Consignee Address:

S.No.	Consignee	Consignee Address	RailTel	Items to be
1	Sr. Mgr/Stores RCIL/Mumbai	RailTel Office, Mumbai	Western Region	All Qty.

7.3 Inspection:

Post Receipt Inspection at consignee Site before acceptance of stores: Nominated RailTel Executive by CA.

8. Estimated cost of tender & Earnest Money Deposit (EMD):

8.1 **Estimated cost of tender:** Estimated cost of the Tender is **Rs. 26,47,126/-** (Incl. GST).

8.2 **Earnest Money Deposit (EMD): Rs. 52,943/-** with Payment online through RTGS/ internet banking in Beneficiary name RailTel Corporation of India Limited Account No. 11037321307, IFSC Code SBIN0001821, Bank Name: State Bank of India, Branch address: Churchgate Branch, Maharshi Karve Marg, Mumbai- 400 020. **The Bid received without EMD will be summarily rejected.**

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

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

10. Security Deposit/Performance Bank Guarantee:

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

i. Security Deposit/Performance Bank Guarantee @ 10% 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. PBG format specified in **Annexure-V**

ii. The security deposit/PBG shall be submitted to RCIL/WR, Mumbai.

- 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.

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 Mumbai.

Note:

1. Any Performance security upto a value of Rs. 5Lakhs is to be submitted through online transfer only
2. No interest shall be paid on the amount of Performance Security held by RailTel, at any stage.

11. Eligibility Criteria for OEM:

- The Equipment offered by the OEM or equipment of the same series/family (an undertaking by the OEM has to be submitted in support incase of immediate predecessor) 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. OEM shall also submit proper contact detail of clients (Firm Name, Contact person, Designation, Telephone Number, Fax, Official mail id etc.).
- The OEM should have supplied at least 35% of the tendered quantity 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 Data Network equipment 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)

- All the documents of the OEM should be in English/Hindi languages only. Document other than English/Hindi will not be entertained. However, Technical Specifications and details should be in English only
- OEM should not have been banned/blacklisted by any Govt/Semi Govt./PSU/State Govt./Any Telecom entity in India for the supply of the material. An undertaking to this effect signed by the authorized signatory to be submitted by the OEM.

12. Eligibility Criteria:

12.1 Technical Eligibility for Bidder:

The tenderer must have successfully completed any of the following during last 07 (seven) 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 30% of advertised value of the tender, or
- Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
- One similar work each costing not less than the amount equal to 60% of advertised value of the tender.

Similar Work- Supply/ Service/ Supply and installation of All type of Telecom equipment with satisfactory working in Government/PSUs/Telecom Service providers/Public Listed Company in India or outside India.

Note: 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.

12.2 Financial Criteria for Bidder:

The bidder should have minimum cumulative turnover of 150% of tendered value or above during the last 3 financial years (i.e. current year and/or three previous financial years). The bidder should provide Audited Balance Sheets / annual reports as documentary evidence and for current year, the Statutory Auditor's certificate for turnover of current year up to the date of bid opening for which Balance Sheet/P&L may not be available. In case of photocopy of Balance Sheet/P&L the same should be certified by Chartered Accountant as true copy.

12.3 Bidder should have authorization specific to this tender from respective OEM as per **Annexure-III**.

12.4 The bidder should have registered office in India for a minimum period of 3 years as on schedule date of bid opening. Certificate of incorporation will have to be submitted.

12.5 The bidder or their promoters having equity stake or operating partnership in bidder, should not be holding valid License for Telecom Service Provider/ISP/NLD, Services License of Government of India for Telecom Operation.

12.6 Bidder should not have been banned/blacklisted by any Govt./Semi Govt./PSU/State Govt./Any Telecom entity in India for the supply of the material. An undertaking to this effect signed by the authorised signatory to be submitted by the Bidder.

13 Splitting of Quantity: Not Applicable.

14 Evaluation Criteria:

- i. The bidder shall quote the equipment prices as per the price format given in the tender.
- ii. Bidder should quote for all the items. Non-quoting for all items will render the bid invalid and will not be considered for evaluation. The Offers will be evaluated on total cost including Long Term Maintenance Cost as quoted if applicable.
- iii. The offers for respective Item will be determined on Total Unit Rate on CIP destination basis which will include basic rate, GST, freight, insurance and any other charge or cost quoted by the tenderer.
- iv. Offers from the tenderers not meeting the eligibility criteria will not be considered.

- v. Any optional item/modules, accessories etc. required for meeting the tender criteria may be quoted separately, if required. The bidder should indicate brand name, type / model number of the material offered.

15. Variation of Quantities at the Time of Award

The purchaser reserves the right to increase or decrease the quantity to be ordered up to 30 percent at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity by up to 30% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.

16. Warranty:

The materials are to be warranted for **3 years** from date of delivery to the consignee. The tenderer shall warrant that stores to be supplied shall be new and free from all defects and faults in material, workmanship and manufacturing and shall be of the highest grade and consistent with the established and generally accepted standards of materials of the type ordered and shall perform in full conformity with the specifications and drawings.

The supplier shall be responsible for any defects that may develop under the conditions provided by the contract and under proper use, arising from faulty materials, design or workmanship such as corrosion, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in design and/ or otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty.

17. Long Term Maintenance Support: (Not applicable for this Bid)

Tenderer (OEM) shall provide maintenance support after successful completion of the warranty obligations for a minimum period of 5 years. The long term maintenance support shall be comprehensive and include all hardware and software of equipment supplied against this contract. RailTel should be extended the benefits of periodical software patches/updates made by OEM on the system from time to time for equipment security/performance without any additional cost to RailTel.

Buyer reserves the right to enter into Long Term Maintenance @ 3.5% of ordered value of equipment after expiry of warranty period.

Bidder/OEM, shall be paid @ 3.5% of supply cost per annum towards Long Term Maintenance Support after completion of warranty period, to undertake repairs/replacements of all type of module/ card/assembly/ subassembly and update/upgrade of software released during this period and /or which may fail in the network after the warranty. Only incremental cost in % over and above this, if

perceived by the OEM and Tenderer, may be indicated in Schedule of Requirement. AMC cost for 5 years shall be added towards evaluation of tender. If however the tenderer feels that his AMC Cost is less than 3.5% per annum, he should give suitable discount in equipment pricing and for AMC he will be paid @ 3.5% per annum. If the Tenderer quotes a higher base rate for AMC, he will be paid at his quoted rate per annum. AMC would have to be valid for minimum period of 5 years after the warranty.

Separate agreement for AMC after warranty period shall be entered with OEM or Bidder specifically authorized by OEM by RailTel. A fresh Bank Guarantee for a value of 10% of the value of the AMC contract's 5 years value valid for a period of 64 months (4 months beyond the AMC period of 5 years) from the date of issue of LOA shall be required to be submitted by Bidder/OEM for due fulfillment of long term maintenance support obligation. This PBG of AMC shall be submitted by the bidder within 30 days from the date of issue of LOA for the AMC. In case bidder does not submit the PBG in the stipulated time period, RailTel may encash the PBG given with the original LOA.

Quarterly payment for AMC Charges as per the Service Level Agreement (SLA) at the end of every quarter would be made by RailTel after successful completion of AMC Services of that quarter and on the certificate furnished by concerned RailTel representative.

Note: The acceptance of the above clause is mandatory and specific acceptance from OEM is required to be enclosed as per Annexure-II. Any deviation / non acceptance will lead to rejection of the bid.

18 Repair and Return Services applicable for Warranty Period (Clause No. 16) as well as Long Term Maintenance Support (Clause No. 17)

18.1 Repair

18.1.1 Contractor's Responsibility:-

- The Contractor will take-over the defective equipment/component from station/site and hand-over the repaired equipment/component at the same location. The following activities will be performed by the contractor:
- After receiving a defective part request through Welcome Centre (dedicated phone line or e-mail), the defective equipment/component will be taken over by the contractor from each of the station. All the documentation including identification number (Serial number) will be provided by RailTel.
- There will be initial one time activity of all existing faulty equipment/component being repaired by Contractor before commencement of the AMC. AMC will cover only equipment which are in working condition. **(Not applicable for the Bid)**

- **Delivery Period:** The received defective part will be got repaired by the contractor within 30 days from the date of receiving and will be handed over to RailTel authorized representative at station/site. The contractor will also give probable reason for repeated failure of equipment/component/modules.

Uninterrupted Network: For smooth and uninterrupted traffic during the repair being carried out by the contractor.

1. RailTel will provide its own spares in the first instance for the defective equipment where spares have been procured as per the SOR. For remaining items contractor shall make spares available at his own cost.
2. If contractor fails to return the repaired equipment/module/card/SFP/part within stipulated time of 30 days from the date of receipt then the OK (good conditioned) equipment/cards/SFPs/parts etc. will be provided by the contractor for the subsequent time period free of cost till replacement is made with the repaired equipment/module/card/SFP/part.
3. All transportation, freight and insurance charges will be borne by the contractor.
4. Contractor will keep the record of repair on each defective equipment/part/cards/SFP/components with serial numbers (unique identification) particulars.

18.1.2 **RailTel Responsibility**

RailTel will hand over the equipment/defective card/SFP/Parts/etc. to the contractor's authorized representative at each of the station/site along with the following relevant information & documentation.

- Identification/serial number and location of use.
- Fault report document duly filled-in in a format as per requirements of Contractor.
- All relevant documentation including failure description, diagnostic tests results.
- Adequate packing material to protect against reasonable risk of damages.
- Provide all necessary government authorization and documentation necessary to facilitate custom clearance processing.
- Perform a physical check test on the repaired parts.

18.2 **Return**

If any part goes beyond repair due to Contractor at the time of repair being carried out, this is to be communicated to RailTel and after agreed upon, it will be labeled as "unworkable". If it will be required to deploy a new equipment/part on that location that will be provided by the contractor free of cost. To achieve this, contractor is required to always keep adequate spares with it during the period of AMC. However this excludes damaged, spoiled, rusted or misused

equipment/parts. Any such equipment/parts will be not-repairable and no replacements shall be provided by contractor. RailTel will have to purchase fresh spares in case the equipment/cards are non-repairable due to any of these above mentioned reasons.

18.3 If the contractor fails to return the equipment/accessories within 30 days, the following penalties will be imposed:

Equipment	Duration of repair	Deduction/Penalties
All Equipment/Module and accessories	More than 30 days and upto 40 days (from the date of receipt)	10% of the cost of affected equipment/module
All Equipment/Module and accessories	More than 40 days and upto 50 days (from the date of receipt)	25% of the cost of affected equipment/module
All Equipment/Module and accessories	More than 50 days and upto 60 days (from the date of receipt)	75% of the cost of affected equipment/module
All Equipment/Module and accessories	More than 60 days (from the date of receipt)	Full cost of affected equipment/module

Contractor 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.

19. Payment Conditions:-

- (i) 100% payment against full supply.
- (ii) 80% payment against part supply. 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.
- (iii) 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
 - Original Consignee receipt with GRN No.
 - Original Inspection Certificate
 - Transit Insurance Certificate
 - Warranty Certificate of OEM
 - Copy of BG/Proof of BG Submission

- Certificate of receipt of Goods in good condition from RailTel
- 20.** 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-IV. 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. Performance Guarantee (PG) of contract forfeited and agency barred for doing business on RailTel (RCIL).

21. Online 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 as per GeM Bid and the bid will be opened as per GeM Bid.

- (i) EMD.
- (ii) BOQ of offered equipment and unit rate analysis.
- (iii) Clause wise compliance along with all mentioned documents/annexures for all clauses of GeM Bid and ATC (Information to bidder) documents.
- (iv) Data Sheet of offered equipment.
- (v) Financial (Certified copies of audited balance sheets/annual reports of last three preceding financial years) and Technical Eligibility Criteria documents.
- (vi) Technical Compliance of all Specification of items as per ATC documents.
- (vii) Undertaking of Long Term Maintenance Support from OEM as per para Annexure-II. **(Not Applicable for this bid)**
- (viii) Proof of document required against Eligibility criteria of OEM and Bidder vide para 11 & 12 respectively.
- (ix) MAF/OEM Authorization as per **Annexure-III**.
- (x) Notarized affidavit on a non-judicial stamp paper as per **Annexure-IV**.
- (xi) Duly notarized Power of Attorney in name of authorized signatory as per Clause No. 25.

22. Offline submission:

Original copy of documents shall be submitted by tenderer offline at RailTel Corporation of India Western Railway Microwave Complex, Senapati Bapat Marg Mahalaxmi (West) Mumbai - 400013 at any point of time whenever asked for verification. Incase original are not produced before due date, bid may be rejected.

23. Make in India

The provisions of the Public Procurement (Preference to Make in India) Order 2017 dated June 15, 2017 (or subsequent revisions, if any) by Department of Industrial Policy and Promotion, GoI shall apply to this tender to the extent feasible. Minimum Local Content for SOR Items shall be 60% for purchase preference as per the Notification No. 18-10/2017-IP dated 29th August 2018 issued by Department of Telecommunications, Ministry of Communications or as per the latest notification for FY 2020-21. Bidder shall be required to give a self-certification in his bid that the item offered meets the local content and shall give details of the location(s) at which the local value addition is made. Further the bidder shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. In case of any false declaration, action shall be taken in line with the provisions of the PPP-MIII order.

24. Insurance

- 24.1 The Contractor shall take out and keep in force a policy or policies of insurance from the date, the delivery of material starts (including the transit portion) against all liabilities of the contractor or the Purchaser. The contractor shall take out and keep in force a Policy or policies of Insurance for all materials covered in schedule of requirement irrespective of whether used up in the portion of work already done or kept for the use in the balance portion of the work until such material are provisionally handed over to RailTel. The contractor should ensure the stores brought to site, against risks as required under the Emergency Risk (Goods) Insurance Act in force from time to time up to contract value.
- 24.2 It may be noted that the beneficiary of the insurance policy should be RailTel or the policies should be pledged in favor of RailTel. The contractor shall keep the policy/policies current till the equipment are handed over to the purchaser.

25 Constitution of Firm and Power of Attorney

- 25.1 Any individual(s) signing the tender or other documents connected therewith should specify whether he is signing:-
 - (a) As sole proprietor of the concern or as attorney of the sole Proprietor.
 - (b) As partner or partners of the firm.

- (c) As a Director, Manager or Secretary in the case of Limited Company duly authorized by a resolution passed by Board of Directors or in pursuance of the authority conferred by Memorandum of Association.
- 25.2 In the case of a firm not registered under the Indian Partnership Act, all the partners or the attorney duly authorized by all of them should sign the tender and all connected documents. The original Power of Attorney or other documents empowering the individual or individuals to sign should be furnished to the Purchaser for verification, if required.
- 25.3 The RailTel will not be bound by Power of Attorney granted by the tenderer or by the changes in the composition of the firm made subsequent to the execution of the contract agreement.
- 25.4 In case where Power of Attorney partnership deed has not been executed in English, the true and authenticated copies of the translation of the same by Advocate, authorized translators of Courts and licensed Petition Writers should be supplied by the contractor(s), while tendering of the work.
- 25.5 The duly notarized Power of Attorney shall be submitted in original at the time of bid submission as per Clause 22 above.

- Note:** 1) The bidder is required to give acceptance of all the clauses of **GeM bid, ATC** and RailTel's Bid Specific **ATC** document. 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.railtelindia.com and GeM 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/2022/B/1865340**.
- 4) After opening of the technical bid no correspondence/submission of document made at the initiative of the bidder will be entertained. However, the purchaser can, if required, ask for clarifications in writing which need to be submitted before a target date. The clarifications submitted as required by the purchaser before the target date will be considered.

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

Annexure-I**Technical Specification**

1. With 3 years warranty. The Electronics product should not be declared EOL or EoS by OEM for next 8 Years.
2. Equipped with necessary hardware/software to comply all above required / support features.
3. 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.
4. 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.

S. N.	Description of Item	Unit	Quantity
SOR-1	Supply of Switches L2, POE based (8 ports)	Nos.	9
SOR-2	Supply of Switches L3	Nos.	1
SOR-3	Supply of LAN Fibre Switches	Nos.	9
SOR-4	Supply of OFC Armoured 12F	Mtrs	1450
SOR-5	Supply of SC Type FDMS 24F	Nos.	2
SOR-6	Supply of 6U Rack with LIU's	Nos.	10
SOR-7	Supply of 42U Rack Central	Nos.	8
SOR-8	Supply of Wifi access Point (indoor)	Nos.	13
SOR-9	Wireless Controller with 2X10G and 4X1G ports for management of Access point	Nos.	1
SOR-10	SFP'S 1Gbps (10km dual)	Nos.	54
SOR-11	SFP'S 10Gbps (60km BIDI)	Pair	16
SOR-12	Patch cords LC-SC 5Mtrs	Nos.	54
SOR-13	Patch cords LC-LC 5Mtrs	Nos.	53
SOR-14	PoE Injectors	Nos.	13

Schedule of Requirement (SOR) wise technical Specification:**SOR item 1 : Switches L2, POE based 8 ports Technical Specification**

S.N.	Description	Compliance
1	Should have 8 ports 10/100/1000 Mbps Base T	
2	Should have support for 2 ports SFP Based Gigabit ports.	
3	Should have at least 20 Gbps switching fabric.	
4	Should support at least 8K entries in the MAC table.	
5	Packet forwarding rates 14 million PPS	
6	Should Support 255 minimum VLANs.	
7	Switch should support IEEE 802.3af & IEEE 802.3at on Ethernet ports & Min 120W PoE Power Budget	
8	Should have AC Power Supply 100 to 240 V AC with 50 to 60 Hz and equipped with 3 pin plug.	
9	Should support Dual Images.	
10	Should support port mirroring and jumbo frame.	
11	Should support following for min. 64 Groups :	
	i. IGMP Snooping,	
	ii. IGMP v1/v2/v3 awareness Snooping,	
	iii. IGMP Snooping Queried.	
12	Should support RSTP, spanning-tree root guard, Port Fast and BPDU Guard/Filter or similar functionalities.	
13	Switch should support :	
	i. Surge protection of ± 2 kV (line-earth) and ± 1 kW (line-line) on power	
	ii. Surge protection of ± 4 kV on Ethernet ports and this will be applicable in case switch has copper ports.	
14	Should support following security features viz.:	
	i. Web Management (HTTPS),	
	ii. Broadcast/Multicast/Unicast Storm Control,	
	iii. DoS Attack Prevention	
15	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	
	v. Threshold alarms for Temperature.	
16	Switch should comply to following Temperature performance parameters :	
	i. Operating Temperature - min -0 to 50 °C (23 to 122 °F)	
	ii. Storage Temperature - min -0 to 70 °C (-40 to 158 °F)	
17	It shall support MAC address notification to allow administrators to be notified of users added to or removed from the network.	

18	The switch shall be designed for continuous operations.	
19	IPv6/v4-L3 and IPv6-Multicast functionalities/features for Switches are desired but not mandatory.	
20	Safety Requirement :- Switch should have safety compliance of UL.	
21	Electromagnetic Compatibility (EMC) Requirements:- Switch should have EMC compliance of CE and FCC.	
22	The LAN switch shall support a console port or auxiliary/Ethernet port for the purpose of local and remote configuration and diagnostics.	
23	IPv6 feature should be ready from day 1.	
24	Qualitative Requirements:- i. The equipment shall be manufactured in accordance with the international standards ISO 9000:2008 or later for which the manufacturer shall be duly accredited. A quality plan describing the quality assurance system followed by the manufacturer shall be required to be submitted	
	ii. The MTBF (Mean Time Between Failure) and MTTR (Mean Time To Repair) predicted and observed values shall be furnished along with calculations by the manufacturer.	

SOR item 2 : Switches L3 Technical Specifications

S. No	Description	Compliance
1	The switch shall be designed for continuous operations .The bidder shall furnish the MTBF (Mean Time between Failures) and MTRR (Mean Time to Restore) and predicted and observed values along with calculations by manufacturer.	
2	In case of full system failure, Switches shall maintain a trace area in the NVRAM, which would be used for analysis /diagnosis of the problem.	
3	Switch shall have built in power on diagnostics system to detect hardware failures.	
4	Switch should have inbuilt redundant DC (-48 V) power supply	
5	Switches shall have suitable Visual Indicators for diagnostics and healthy/unhealthy status of ports & modules.	
6	Switch shall have minimum 24 Nos. 10/100/1000 Base –TX auto sensing ports with 4 Nos. of 10 Gigabit SFP+ ports and should have minimum nos. QSFP+ based 40 GE ports complying to IEEE 802.3, IEEE 803.3u, IEEE 802.3ab and IEEE 802.3ba standard, supporting half duplex mode, full duplex mode and auto negotiation on each port to optimize bandwidth.	
7	Switch shall have minimum of 140Gbps (full duplex) forwarding bandwidth at layer 2 switching fabric.	
8	Switch shall have minimum 200 million packets (64 Byte packets) per second forwarding rate.	
9	Switches shall have a minimum of 32000 MAC address space.	

10	It should be possible for the switches to be mounted on a 19-Inch rack. All accessories required for this mounting should be supplied.	
11	Should support jumbo frame.	
14	Switch should support port mirroring for minimum 4 mirroring sessions	
15	Shall have the following features. All software's/hardware's/License required for this must be supplied along with the switch.	
	i. Link Aggregation Control (LCAP) as per IEEE 802.3ad.	
	ii. Support for IEEE 802.1Q VLAN on all ports.	
	iii. Support for minimum 256 VLANs.	
	iv. Support for IEEE 802.1 D spanning tree protocol.	
	v. Support for IEEE 802.1 s MSTP	
	vi. Support Dynamic Host Configuration Protocol (DHCP)	
	vii. Support Auto –MDIX (Media Dependent Interface Cross over)	
	viii. Support Inter VLAN IP routing for full layer -3 routing	
	ix. Support for 802.1x for authentication and access control	
	x. Support for 802.3x flow control	
	xi. Support for IPv6.	
	xii. Support Strict Priority Queuing.	
	xiii. Should support jumbo frame.	
	xiv. Should support OSPF v2, IGMP v1/v2/v3, PIM, VRRP, BFD	
	xv. Should support OSPFv3 , VRRPv3	
	xvi. Should support Netconf/Yang models	
	xvii. Should support REST API	
	xviii. Support Network Time Protocol (NTP) / Simple Network Time Protocol (SNTP) based for IPv4/IPv6	
	xix. RFC 1305 / 2030 for synchronization of date & time from the Central NTP Server.	
	xx. Support RADIUS protocol for console access restriction and authentication as per RFC 2138.	
	xxi. Support 4 group of embedded RMON (history, static's and alarms).	
	xxii. Support multiple privilege level to provide different level of access on console port and telnet sessions.	
	xxiii. Support classification and scheduling as per IEEE 802.1P on all ports.	
	xxiv. Support Port Spanning functionally for measurements using a networks analyzer.	
	xxv. Support all the standard MIBs (MIB-I&II).	
	xxvi. Support for console port Interface for configuration and diagnostics purposes.	
	xxvii. Support Port Spanning functionally for measurements using a networks analyzer.	
	xxviii. Should support Optical Transceiver Digital Diagnostic Monitoring.	
	xxix. Queues: 12 hardware-based queues per port for flexible QoS management	
	xxx. Traffic prioritization: QoS with internal and external (a.k.a., remarking) prioritization.	

	xxxi. Bandwidth management: Flow-based bandwidth management, ingress rate-limiting; egress rate shaping per port.	
	xxxii. Queue management: Configurable scheduling algorithms — Strict Priority Queuing (SPQ), Weighted Round Robin (WRR) and Deficit Round Robin (DRR).	
16	The following Metro Ethernet features should support with software upgrade or additional licenses.	
	i. Transparent LAN Services with Service VLAN (SVLAN) and Customer VLAN (CVLAN) concept	
	ii. CVLAN to SVLAN translation and mapping	
	iii. IEEE 802.1ag Ethernet OAM: Connectivity Fault Management (Support 32 MEPs)	
	iv. Ethernet OAM compliant with IEEE 802.3ah	
	v. Ethernet Ring Protocol (ERP) support for multiple ring instances on the same physical ring	
	vi. Should support Optical Transceiver Digital Diagnostic Monitoring.	
	vii. L2 Protocol Tunneling.	
	viii. Loopback function/detection.	
	ix. Switch should support real time performance monitoring like Latency, Packet drop, Jitter and etc. Same should be accessible using the command-line interface (CLI) or Simple Network Management Protocol (SNMP) and SYSLOG Management Information Bases (MIBs).	
17	Switch shall have support of following Standards	
	i. IEEE 802.1D (STP)	
	ii. IEEE 802.1p (CoS)	
	iii. IEEE 802.1Q (VLANs)	
	iv. IEEE 802.1ag (Connectivity Fault Management)	
	v. IEEE 802.1s (MSTP)	
	vi. IEEE 802.3x (Flow Control)	
	vii. IEEE 802.3z (Gigabit Ethernet)	
	viii. IEEE 802.3ab (1000Base-T)	
	ix. IEEE 802.3ac (VLAN Tagging)	
	x. IEEE 802.3ad (Link Aggregation)	
	xi. IEEE 802.3ae (10 Gigabit Ethernet)	
18	Switch shall have the following Certifications or equivalent Indian standard certificate	
	i. UL/EN 60950-1 Information Technology Equipment	
	ii. EN 60825-1 Safety of Laser Products	
	iii. FCC 47CFR Part 15 Class A (USA)	
	iv. EN 55022 Class A Emissions (Europe)	
	v. EN 61000-3-2 Power Line Harmonics	
	vi. EN 61000-3-3 Voltage Fluctuations and Flicker	
	vii. EN 61000-4-2 ESD	
	viii. EN 61000-4-3 Radiated Immunity	
	ix. EN 61000-4-4 EFT	

	x.	EN 61000-4-5 Surge	
	xi.	EN 61000-4-6 Low Frequency Common Immunity	
	xii.	EN 61000-4-11 Voltage Dips and Sags	

SOR item 3 : LAN Fibre switches Technical Specifications

SN	Description	Compliance
1	Should have 24 ports SFP Based Gigabit ports.	
2	Should have support for 4 ports SFP+ Based Gigabit ports.	
3	Should have at least 120 Gbps switching fabric.	
4	Packet forwarding rates 90 million PPS	
5	Should support at least 16K entries in the MAC table.	
6	Should Support 255 minimum VLANs.	
7	Should have AC and DC power supply arrangement as given below in chassis without any external adaptors :	
	i) AC Power Supply 100 to 240 V AC with 50 to 60 Hz	
	ii) -48V DC supply	
	DC power supply should work as a redundant power supply to power-on the switch in case failure of AC power supply.	
8	Should support Dual Images.	
9	Should support Optical Transceiver Digital Diagnostic Monitoring for All SFP ports of 1G and 10G	
10	Should support port mirroring and jumbo frame.	
	Should support following for min. 64 Groups :	
11	i. IGMP Snooping,	
	ii. IGMP v1/v2/v3 awareness Snooping,	
	iii. IGMP Snooping Queried.	
12	Should support RSTP ,MSTP, spanning-tree root guard, Port Fast and BPDU Guard/Filter or similar functionalities.	
13	Should support following security features viz.:	
	i. Web Management (HTTPS),	
	ii. Broadcast/Multicast/Unicast Storm Control,	
	iii. DoS Attack Prevention	
14	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	
	v. Threshold alarms for Temperature.	
	vi. Ethernet OAM SNMP alarms.	

15	Switch should comply to following Temperature performance parameters :	
	i. Operating Temperature - min -0 to 50 °C (23 to 122 °F)	
	ii. Storage Temperature - min -0 to 70 °C (-40 to 158 °F)	
16	It shall support MAC address notification to allow administrators to be notified of users added to or removed from the network.	
17	The switch shall be designed for continuous operations.	
18	IPv6/v4-L3 and IPv6-Multicast functionalities/features for Switches are desired but not mandatory.	
19	Safety Requirement :-	
	Switch should have safety compliance of UL.	
20	Electromagnetic Compatibility (EMC) Requirements:-	
	Switch should have EMC compliance of CE and FCC.	
21	The LAN switch shall support a console port or auxiliary/Ethernet port for the purpose of local and remote configuration and diagnostics.	
22	The LAN switch shall support built in power diagnostics system to detect hardware failures.	
23	IPv6 feature should be ready from day 1.	
24	Qualitative Requirements:-	
	i. The equipment shall be manufactured in accordance with the international standards ISO 9000:2008 or later for which the manufacturer shall be duly accredited. A quality plan describing the quality assurance system followed by the manufacturer shall be required to be submitted	
	ii. The MTBF (Mean Time Between Failure) and MTTR (Mean Time To Repair) predicted and observed values shall be furnished along with calculations by the manufacturer.	
25	Switch should support following Metro Ethernet Features:	
	i. Q in Q , Double VLAN (Q-in-Q) ,Port-based Q-in-Q and VLAN Translation	
	ii. IEEE 802.1ag Ethernet OAM: Connectivity Fault Management	
	iii. Ethernet OAM compliant with IEEE 802.3ah/Y.1731	
	iv. ITU-T G.8032 Ethernet Ring Protection designed for loop protection and fast convergence times (sub 50 ms) in ring topologies.	
	v. L2 Protocol Tunneling.	
	vi. Loopback Detection	
	The operating system of the Switches category/series/family should be MEF-9/14 or CE (Carrier Ethernet) Certified/compliant.	

SOR item 4 : OFC- Armoured 12F Technical Specifications

A. Delivery Information:

i) Cable Weight : 95Kg/KM (Nominal)

ii) Cable Diameter : 9.0mm (Nominal)

B. Attenuation of Cabled Fiber:

i) At 1310nm : ≤ 0.40 dB/KM

ii) At 1550nm : ≤ 0.25 dB/KM

C. Construction:

i) Primary Coated Fiber : Single Mode (As per G-652)

ii) Type : Uni-tube

iii) Tube filling compound : Thixotropic Gel

iv) Loose Tube : PBTP

v) Moisture Barrier : Water Swell able Tape/Powder

vi) Armour (T for steel = 0.15 ± 0.015 mm): Corrugated, Copolymer coated,
(Copolymer coating thickness 50 ± 10 µm): Chrome plated steel tape

Strength Member (D=1.0mm) : Steel rod of music spring grade (2 nos)

Jacket (thickness = 1.80mm Min) : Black HDPE with Anti termite

D.Drum Length

Drum Length : 1.45 KM

SOR item 5 : SC type FDMS 24F Technical Specification

The FMS should be confirming to TEC NO.: GR/FDM-01/02/APR-2007 (Type-I) with latest amendment No. TEC/T/OFC-FDMS/149/2012. However, the FMS should have the following:

- i) It should be mountable in standard 19" rack and of slider type.
- ii) There should be arrangement of termination of 48/24/12/6 Nos. of fibers (as per SOR).
- iii) It should be supplied with 48/24/12/6 Nos. of pigtails of respective type of connector (as per SOR) of minimum 3 meter length.
- iv) Colour coded pigtails (900 µm tight jacket) shall be provided for easy identification.
- v) The FMS should be supplied with arrangement of required Nos. of adapters (as per SOR).
- vi) The adaptors shall be fixed in such a way that these shall be easily accessible protecting the eye from direct exposure to laser.
- vii) There should be minimum two nos. of trays for the provision of termination of the fibers & sufficient space for routing of the fibers in the trays.
- viii) Trays shall be numbered bottom to top (tray no. 1 is lower most).
- ix) Pigtails shall follow tray numbering.
- x) Pigtails shall be labeled through colour coding/ferruling.
- xi) Adaptors shall be numbered Bottom to Top or Left to Right in ascending order.
- xii) All adaptors shall be provided with dust protection caps.
- xiii) Important Do's and Don'ts about the operation of the FMS shall be clearly indicated at convenient place on the FMS.
- xiv) Insertion Loss: ≤ 0.3 dB

- xv) Return Loss: ≥ 45 dB
- xvi) The FMS shall be manufactured as per latest state of art technology.
- xvii) The FMS shall be protected against the entry of dust and insects, rodents etc.
- xviii) Body should be of MS steel; powder coating painting (min. 70 micrometer thickness) shall be provided with rust resistance paint.
- xix) **Marking:** The marking on the system shall be indelible and following minimum information shall be provided by way of engraving or Laser printing method:
 - a) "RAILTEL" should be written on each FMS to be visible from front.
 - b) Manufacturer's name & date/ year of production.
 - c) Model No./Batch No./ Serial No.
 - d) Capacity i.e. No. of cables and the fibers.
 - e) Identification details/ cables/ Fiber/ labeling facility.
- xx) Preferred type of connector is SC/APC for all connectors.

SOR item 6 : 6U Rack with LIU's Technical Specifications

- i) Supply of Outdoor 19"-6Ux 600D wall mount industrial heavy duty racks.
- ii) Racks shall have front glass door, side openable & removable doors with proper ventilation with inbuilt lock-key arrangement at each door,
- iii) Inside of rack four AC operated 90 CFM fans and spike guard with fuse with pole brackets, clamps and other fixing accessories.

SOR item 7 : 42 U Rack central Technical Specifications

SN	Item	Description
1	Dimension	As per requirement
2	Side panels	To be provided across whole height of the rack should be open able with latching arrangement at top and bottom.
3	Front door	Rack should have front door tough and transparent glass fitted on MS/CRCA sheet on sides with Lock and key.
4	Rear side	Shall be perforated for appropriate level as per industry standard.
5	Top & Bottom	Rack top and bottom should be MS/CRCA steel made with cable entry provision with glands at both side.
6	Fan module	Compact fan module of 90CFM working on AC power supply 4 Nos teach rack properly fitted at top of rack.
7	Earthing Provision	Rack Should have earthing provisions.
8	Cable manager	2nos.horizontal and 2nos. vertical cable manager with cable loops to be provided with each rack.
9	Power Distribution Unit(PDU)	Adequate and Redundant power distribution units with electronically controlled circuits for surge and spike protection, isolated input to ground and output to ground.
10	Material used	CRCA/MS with Thickness varying from 1.6 Mm to 2.0 mm
11	The rack should be fitted with one modem tray 19"	

12	The earthing kit consisting of copper bus bar with dimensions 20 inch length, 1.0 inch breadth & 5mm thickness (min.) having appropriate number of M6 tapped holes and 3 brass nut bolts and washers for fixing of earthing cables shall be fixed near the bottom of the rack.
13	The good quality powder coating light grey in colour shall be used for painting of the rack.
14	The rack should be fitted with dual source power supply distribution board.
15	“INDIAN RAILWAYS Logo along with Year” in bold and easily recognizable fonts should be written at the front top of the rack preferably in black or blue color.
16	OEM should have a valid ISO 9001 certification on the date of opening of bid.
17	Rack should be minimum IP20 certified. Rack should also comply with EIA 310/DIN 41494 standards.

SOR item 8 : Wi-Fi access point (indoor) Technical Specifications

The access points are required to be managed from a centralized location with backup at DR site. The detailed specification of access points are as below:

- a) Access Points proposed must include radios for both 2.4 GHz and 5 GHz
- b) Must have a robust design for durability, without visible vents
- c) Must include dual band antennas to support both the 2.4GHz and 5GHz operations simultaneously.
- d) Proposed access point shall support MDO(Mobile Data offload)
- e) Mounting kit should be standard which shall be used for mounting access point.
- f) Must Support operating Temperature of 0 °C to 40 °C
- g) Must support operating humidity of 10 to 90% (Non Condensing)
- h) Must support 2X2 multiple-in put multiple-output (MIMO) with TWO spatial streams
- i) Must support simultaneous 802.11 n on both the 2.4 GHz and 5 GHz radios and 802.11 ac on 5gliz .
- j) Must Support data rates upto 800 Mbps on 5Ghz radio and 140mbps on 2.4Ghz radio.
- k) Must support 40 MHz and 80 MHz wide channels in 5GHz.
- l) Must support following minimum transmit power.
 - i. 2.4-Ghz band : +21dBm(radio), +25dbm (EIRP)
 - ii. 5.0-Ghz band: +21dBm(radio), +25dbm (EIRP)
- m) AP should support VLAN trunking (802.1 q) and VLAN based SSID for user traffic.
- n) The Wireless AP should support technology to improve downlink performance
- o) The AP shall be able to load-balance between 2.4Ghz and 5Ghz band.
- p) Must have -90dB to - 100db or better Receiver Sensitivity.

q)

Existing clause	Amended clause
Must incorporate radio resource management-for power, channel,	Must incorporate radio resource management-for power, channel, and performance optimization

coverage hole detection and performance optimization	
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- r) Should support configurable carrier sense threshold
- s) The Wireless Backhaul shall operate in 5Ghz
- t) Support Encrypted and authenticated connectivity between all backhaul components
- u) Access point shall have wired uplink interfaces i.e. 1X10/100/1000BASE-T Ethernet
- v) Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.
- w) Must support Management Frame Protection.
- x) Should support locally-significant certificates on the APs using a Public Key Infrastructure (PKI) or pre installed certificates on AP for authentication
- y) Provision of Wireless IPS to detect malicious traffic
- z) Access Points must support a distributed encryption/decryption model.
- aa) Access Points must support hardware or software based encryption
- ab) Must support the ability to serve clients and monitor the RF environment Concurrently.
- ac) AP model proposed must be able to be both a client-serving AP and Parallel monitor- Intrusion Prevention services.
- ad) Must support QoS for voice over wireless.
- ae) Must support Controller-based deployments
- af) Must Support 16 WLANs per AP for SSID deployment flexibility.
- ag) Must Support telnet or SSH or console login to AP's directly for troubleshooting flexibility.
- ah) Must support automatic detection of dropped connection to controller
- ai) Must support automatic fail over to secondary controller, upon detecting lost connection to controller
- aj) Must support DHCP Option 82, defined in RFC 3046, including support for Sub-option 01 (Circuit-Id) and Sub-option 02 (Remote Id) fields.
- ak) With Controller- (from a data-plane perspective) must support:
 - i. Ethernet over GRE IPv6 tunnel
 - ii. Automatic detection of failed tunnel termination, with configurable connection retry and timeout.
 - iii. Automatic failover to secondary tunnel termination address.
- al) Support for basic AP monitoring statistics for each radio: Bytes Sent, Bytes Received, Packets Sent, Packets Received, Radio channel Utilization Noise
- am) Must support data-plane split tunneling in which ACLs may be configured to enable a range of destination net blocks and/or IPs to bypass the dataplane tunnel and be bridged on the wired interface.
- an) AP should have capability to split tunnel for both IPv4 and IPv6 tunnel to segregate the management and data traffic.
- ao) AP should have capability to split tunnel for specific destination IP/Subnet (For implementing policy based Caching solutions) using local NAT and forward user traffic.
- ap) Must support Power over Ethernet/AC/Power Injector/DC.

- aq) Shall have the support of 802.11e / WMM
- ar) Should be WiFi Alliance Certified and WPC approved and ETA certificate
- as) Must support Reliable Multicast Video to maintain video quality
- at) Must support QoS to prioritize video ,voice and Data traffic

SOR item 9:

Existing Description of Item	Amended Description of Item
<u>Wireless controllers Smart zone 100 with 2X10G and 4X 1G ports for management of access point (1+1) (controller) Technical Specifications</u>	<u>Wireless controllers with 2X10G and 4X 1G ports for management of access point (1+1) (controller) Technical Specifications</u>

- a) Must be compliant with IEEE CAPWAP or equivalent for controller-based WLANs.
- b) Controller should support 5000 access points from Day 1 from single chassis. If any OEM/Bidder can't provide WLAN controller to support 5000 AP, multiple stack able controllers must be proposed from Day One from single chassis of minimum 1500 Access Point per WLC. Proposed controller should support 1 *1/N+1 redundancy from the day one. The solution should be scale able to support 200fi0 or more APs. The WLC will be implemented in Railtel Data Centers (Delhi & Hyderabad).
- c) Note: - Access Point Licensees on wireless controllers should be given as per SOR/PO/LOA (Access point total Qty) + 20% extra.
- d) Controller must have at least 2 x 10Gbps of up link interfaces.
- e) Controller shall support concurrent sessions specified to be supported either by single controller (if it support 5000 or above APs) or by stake of controller (which support 5000 or above APs)
- f) WLAN controller shall support Mobile data offload as a feature
- g) Must Support both 1 + I and N+1 redundancy models.
- h) Must have feature for state full recovery without re-authentication of the client in the event of LAN and WLAN infrastructure disruption to deliver a non-stop client session
- i) Must support internal 230 VAC redundant power supplies.
- j) Must support an ability to dynamically adjust channel and power settings based on the RF environment.
- k) Radio coverage algorithm must allow adjacent APs to operate on different channels, in order to maximize available bandwidth and avoid interference
- l) Must have Automatic 802.11 interference detection, identification, classification, and mitigation.
- m) Must support coverage whole detection and correction
- n) Must support RF Management with 20/40/80 MHz channels with 802.11a/b/g/n/ac
- o)

Existing Clause	Amended Clause
WLC Should support L2 and L3 roaming of IPv6 client	WLC Should support L2/L3 roaming of IPv6 client

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- p) WLC should support Guest-access functionality for IPv6 clients
- q) Controller performance must remain the same if encryption is on or off for wireless SS IDs except the throughput processing of the controller.
- r) Should adhere to the strictest level of security standards, including 802.11 I Wi-Fi Protected Access 2 (WPA2), WPA, Wired Equivalent Privacy (WEP), 802.1X with multiple Extensible Authentication Protocol (EAP) types, including Protected EAP (PEAP), EAP with Transport Layer Security (EAP-TLS), EAP with Tunneled TLS (EAP-TTL8)
- s) Should support Management frame protection for the authentication of 802.11 management frames by the wireless network infrastructure
- t) The Controller should support a capability to shun / block WLAN client in Collaboration with wired IPS on detecting malicious client traffic.
- u) Controller should have rogue AP detection, classification and automatic containment feature
- v) Controller should be able to detect attacks like Broadcast de-authentication, NULL probe, from day one for all access points
- w) Controller should have profiling of devices based on protocols like HTTP, DHCP and more to identify the end devices on the network
- x) Must support internal and external web authentication. However the user authentication shall be taken care by RailTel system.
- y) Must be able to set a maximum per-user bandwidth limit on a per-SSID basis.
- z) Must support user load balancing across Access Points.
- aa) Controller must provide Mesh capability for Mesh supported AP.
- ab) Mtrrs I support client roaming across Controller separated by a layer 2/3 routed boundaries.
- ac) Solution proposed must support clients roaming across at least 100 APs.
- ad) Must support AP over-the-air packet capture for export to a tool such as Wire shark. Should be able to classify different types of interference
- ae) Should provide a snapshot of air quality in terms of the performance and impact of interference on the wireless network identifying the problem areas.
- af) Should provide real-time charts showing interfere per access point, on a per-radio, per-channel basis.
- ag) Should support encrypted mechanism to securely upload/download software images to and from wireless Controllers
- ah) Must support Ethernet over GRE IPv4 tunnel to northbound gateway jj) Should support Ethernet over GRE IPv6 tunnel to northbound gateway
- ai) Must support automatic detection of failed tunnel termination, with configurable connection retry and timeout
- aj) Must support automatic fail over to secondary tunnel termination address.
- ak) Must support Controller-based configuration of Ethernet over GRE tunnel termination
- al) Must be wifi pass point 2 complaint
- am) System shall support various modes of operations like Tunnel Mode and local Breakout on the Same AP

- an) Must support configuration of data-plane split tunneling by enabling specific destination IP addresses and net b1ocLs to bypass the data-plane tunnel and be bridged on the wind interface
- ao) Shall support API's/SNMP MIBs for NB Integration with NMS.
- ap) System shall support Reporting functionally with/without external server.
- ag)

Existing Clause	Amended Clause
Should support following Information through SNMP: i. Interface utilization. ii. Interface errors and discards. iii. Connected APs (count), Connected Clients (count), Access Point Failed Assoc. Count iv. Connected Stations (count), Admin Status (on/off), Broadcast SSID (on/off). v. CPU, Chassis Temperature and Memory statistics. vi. AP name, AP IP address, AP Model, AP uptime, AP admin status, operational Status, POE Status, Ethernet speed, number of clients and AP mode. vii. Should also support SNMP traps on failure conditions	Should support following Information through SNMP/equivalent protocol: i. Interface utilization. ii. Interface errors and discards. iii. Connected APs (count), Connected Clients (count), Access Point Failed Assoc. Count iv. Connected Stations (count), Admin Status (on/off), Broadcast SSID (on/off). v. CPU, Chassis Temperature and Memory statistics. vi. AP name, AP IP address, AP Model, AP uptime, AP admin status, operational Status, Ethernet speed, number of clients and AP mode . vii. Should also support SNMP traps/equivalent functionality on failure conditions

- aq) Must Support 802.11e (WMM)
- a) Shall able to prioritize all traffic such as (Data,voice and video)
- b) Controller shall integrate with existing firewall and deep packet inspection To deliver optimal bandwidth usage, reliable multicast must use single session between AP and Wireless Controller.
- c) WLC Shall support WIDS/WIPS, and spectral analysis from day 1.

SOR item 10 : SFP'S 1Gbps (10km dual fiber) Technical Specifications

1. Should be compatible with OEM equipments like Cisco Juniper, Edgecore and D Link. IT should be MSA Complaint.
2. Should support minimum 10 km optical distance on Single mode Fiber (ITU-G 652D) Should have LC type connector.
3. Should have 1 Gigabit Ethernet throughput on single mode fiber.

4. Important Parameters:
 - A. Link Budget (Max Tx Power- Receiver Sensitivity) 5 dB or better.
 - B. Transceiver supply voltage: 3.3 V (Nominal)
 - C. The case operating temperature -20 Degree Centigrade to +70 Degree Centigrade.
 - D. The storage Temp: -40 Degree Centigrade to +85 Degree Centigrade
 - E. Wavelength- 1310nm
5. Should support Digital Diagnostic Monitoring (MSA-SFF 8472 Compliant) feature with following operating parameters:
 - A. Transceiver temperature
 - B. Laser bias current
 - C. Launch Optical Power
 - D. Received optical power
 - E. Transceiver supply voltage:
 - F. It will provide alarm and warning flags to alert the user when particular operating parameters are outside of a factory set normal range.
6. Complies with SFF-8431/8432 SFP+ MSA (Multi-Source Agreements Standards)
7. Applications- 1 Gbps Ethernet
8. Performance Certificate: The bidder will submit a satisfactory performance certificate from Telecom Service Provider/ISP/Govt/PSU for the offered make of the SFP.
9. Regulatory Compliance
 - A.EMI/EMC compatible with FCC/EN/IEC
 - B.Laser Safety compatible with FDA/EN/IEC
 - C. RoHS compliant

SOR item 11 : SFP'S 10Gbps (60km BIDI) Technical Specifications

1. Should be compatible with OEM equipments like Cisco Juniper, Edgecore and D Link. IT should be MSA Compliant.
2. Should support minimum 60 km optical distance on Single Fiber (ITU-G 652D) (Bi Directional on Single Mode Fiber).
3. Should have LC type connector.
4. Should provide quantity in such a way that matching pair (BX U & D) can be achieved.
5. Should have 10 Gigabit Ethernet throughput on single mode fiber.
6. Important Parameters:
 - A. Link Budget (Max Tx Power- Receiver Sensitivity) 25 dB or better.
 - B. Transceiver supply voltage: 3.3 V (Nominal)
 - C. The case operating temperature -0 Degree Centigrade to +70 Degree Centigrade.

- D. The storage Temp: -40 Degree Centigrade to +85 Degree Centigrade
 E. Wavelength- 1270/1330 or 1310/1550 or 1490/1550 (Nominal)

7. Should support Digital Diagnostic Monitoring (MSA-SFF 8472 Compliant) feature with following operating parameters:
- A. Transceiver temperature
 - B. Laser bias current
 - C. Launch Optical Power
 - D. Received optical power
 - E. Transceiver supply voltage:
 - F. It will provide alarm and warning flags to alert the user when particular operating parameters are outside of a factory set normal range.
8. Complies with SFF-8431/8432 SFP+ MSA (Multi-Source Agreements Standards)
9. Applications- 10 Gbps Ethernet
10. Performance Certificate: The bidder will submit a satisfactory performance certificate from Telecom Service Provider/ISP/Govt/PSU for the offered make of the SFP.
11. Regulatory Compliance
- A. EMI/EMC compatible with FCC/EN/IEC
 - B. Laser Safety compatible with FDA/EN/IEC
 - C. RoHS compliant

SOR item 12: Patch cords LC-SC 5mtrs Technical Specifications

S. No	Specification	Specification Name	Values	Compliance
1	GENERIC	Description of item	Fiber Optic Patch Cord for Optical Fiber Cabling	
		Connector type, Connector End A	LC	
		Connector type, Connector End B	SC	
		Cable type	Simplex	
		Fiber type	Single Mode 9/125 micron	
		Cable Size, Outer dia (in mm)	1.2	
		Cord Length (in m)	5	
		Jacket material (Sheath material)	PVC	
		Cable color	Yellow	

		Operating temperature	-10 deg.C to +60 deg C	
2	CONSTRUCTION	Connector Insertion loss, Max. (in dB)	0.3	
		Connector Return loss, Min. (in dB)	50	
		Material of Ferrule	Zirconia Ceramic, PreRadiused and pre polished	
		Durability	200 Mating cycle	
3	CERTIFICATIONS	Availability of Type test report from Central government/NABL/ILAC accredited laboratory to prove conformity of products to the specification	Yes	
		Test report number - Must declare	-	
		Report date - Must declare	-	
		Name of lab - Must declare	-	
		Address of lab - Must declare	-	
		Agreed to furnish all the test reports and certificates to the buyer/consignee on demand	Yes	

SOR item 13 : Patch cords LC-LC 5mtrs Technical Specifications

S. No	Specification	Specification Name	Values	Compliance
1	GENERIC	Description of item	Fiber Optic Patch Cord for Optical Fiber Cabling	
		Connector type, Connector End A	LC	
		Connector type, Connector End B	LC	
		Cable type	Simplex	

		Fiber type	Single Mode 9/125 micron	
		Cable Size, Outer dia (in mm)	3	
		Cord Length (in m)	5	
		Jacket material (Sheath material)	PVC	
		Cable color	Yellow	
		Operating temperature	-20 deg.C to +60 deg C	
2	CONSTRUCTION	Connector Insertion loss, Max. (in dB)	0.3	
		Connector Return loss , Min. (in dB)	50	
		Material of Ferrule	Zirconia Ceramic, PreRadiused and pre polished	
		Durability	1000 Mating cycle	
3	CERTIFICATIONS	Availability of Type test report from Central government/ NABL/ ILAC accredited laboratory to prove conformity of products to the specification	Yes	
		Test report number - Must declare	-	
		Report date - Must declare Must declare	-	
		Name of lab - Must declare Must declare	-	
		Address of lab – Must declare Must declare	-	
		Agreed to furnish all the test reports and certificates to the buyer/consignee on demand	Yes	

Plug and play non configurable 1 port Gigabit PoE Injector:

- i) Ethernet IEEE802.3af/at,
- ii) Power output upto 30W,
- iii) Voltage boost up to 55VDC for PoE,
- iv) Distance supportable upto 100mtrs.
- v) LAN Port: 10/100/1000Mbps Auto-Negotiation RJ45 LAN port (LAN In), (1)
10/100/1000Mbps Auto- Negotiation RJ45 PoE port (Power+Data Out), (1)
power socket (DC In), auto negotiation
- vi) Power Supply: AC Adapter 230v. 1 mtrs Cat6 cable with both ends terminated on Rj45 connector.

Note :- 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.

Annexure-II (Not Applicable for this Bid)

**PROFORMA FOR THE LONG-TERM MAINTENANCE SUPPORT
(To be signed by the O.E.M.)**

RGM/WR
RailTel Corporation of India Ltd.

Dated:

.....
.....
.....

Applicable for OEM directly participating in the Bid.

I / We hereby confirm that we have read specifications & conditions of GeM Bid No.and accept that the requirement of Long Term Maintenance Support as per Clause 17 shall be met by us **directly or through our subsidiary in India** as per rates quoted in the Price Bid. I / We shall provide services as per terms and conditions pertaining to Long Term Maintenance Support of tender document.

Or

Applicable for Authorized Distributor/Partner of OEM

I / We hereby confirm that we have read specifications & conditions of GeM Bid No.and accept that the requirement of Long Term Maintenance Support as per Clause 17 shall be met by Authorized Distributor/Partner of OEM. However, if Authorized Distributor/Partner fails to fulfil the support obligation due to any un-foreseen circumstances, the same shall be provided by us **directly or through our subsidiary in India for the mentioned/remaining period at the quoted prices by the bidder. I/We have gone through the requirement mentioned in the Bid Document and shall provide services as per terms and conditions pertaining to Long Term Maintenance Support of Bid document.**

(Signature of Firm's Authorized Officer)

Seal

Signature of witness:

.....

.....

Note: Please Strike out whichever is not applicable.

Annexure-III

RGM/WR
RailTel Corporation of India Ltd.

Dated:

.....
.....
.....

Subject: Manufacturer Authorisation form (MAF) to M/s for

Ref: GeM Bid No. GEM/2022/B/1865340 dated.21.01.2022

Dear Sir,

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

.....
We hereby authorise M/s (bidder name), Office
..... to participate in bid and subsequently upon
award of the bid to execute the supply and Installation & Commissioning of our range of
products against your above said bid.

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

Thanking you,
Best regards,

Authorised Signatory

Annexure-IV**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 RailTel's website www.railtelindia.com or GeM Portal gem.gov.in. 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 alongwith 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 - V

PROFORMA FOR PERFORMANCE BANK GUARANTEE 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, having its registered office at Plate A, 6th Floor, Office Block Tower -2, East Kidwai Nagar, New Delhi-110023 (Herein after called RailTel) having agreed to exempt(Hereinafter called "the said Contractor(s)") from the demand, under the terms and conditions of an Purchase Order/LOA 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 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) / Bidder(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) / Bidder(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.
6. This Guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s) Supplier(s).
7. We, (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.
8. Notwithstanding anything contained herein,
 1. Our liability under the Bank guarantee shall not exceed Rs. (In Rupees)
 2. This Bank Guarantee shall be valid up toand
 3. We are liable to pay the guaranteed and or any part thereof under this Bank Guarantee only and only if you serve upon is a written claims or demand or before
..... (date of expiry of guarantee).

Dated the day of 2022

for
(indicate the name of the Bank)

Witness

1. Signature
Name
2. Signature
Name
