

No. NU/IT/2015-16/09/

Date:

To,

1. (As per list Attached)
2. Notice Board(NU)
3. Website of NU & CPPP

Sub: Limited tender enquiry for Supply, Installation, Testing and Commissioning (SITC) of Campus wide area network (CWAN) of Nalanda University, Rajgir.

Dear Sir(s),

1. Sealed tender are requested for and on behalf of the Registrar, Nalanda University for Supply, Installation, Testing and Commissioning (SITC) of campus wide area network(CWAN) of Nalanda University, Rajgir as per Specifications detailed in Annexed-I & II, Price Schedule and on the terms & conditions **as two bid system**, detailed here under :-

2. DUE DATE & TIME FOR RECEIPT/OPENING OF TENDER:-

- i. Due date and time for receipt: **27.5.2016 up to 3:00 P.M.**
- ii. Time for opening of offer: **27.5.2016 at 3:30 P.M.**

3. MODE OF SUBMISSION OF TENDER:-

- i. The bid prepared by the bidder shall comprise of technical bids and financial bid.
- ii. Bid may be submitted in the following manner:
 - a) **Envelop No. 1-** Shall contain the bid EMD/Tender fee. On the top of envelope must be suprescribed "EMD/Tender fee".
 - b) **Envelop No. 2-** Shall contain all the information and documents in the same serial order as shown in the **technical bid**. On the top of envelope must be suprescribed "Technical Bid".
 - c) **Envelop No.3-** Shall contain the rates/prices of the items duly filled in (schedule of rates) and signed and stamped. On the top of envelope must be suprescribed "Financial Bid".
 - d) **Envelop No.4-** Shall contain the rates/prices of the items duly filled in (schedule of rates as Scheduled-I A) and signed and stamped. On the top of envelope must be suprescribed "**AMC and Support Cost**", which is optional rate for AMC and support engineer after 3 years of warranty. University may consider this rate in future.

(Please note that the price should not be indicated in any of the documents enclosed in envelope 1 & 2).

- iii. All the envelopes must be suprescribed "**Tender for Supply, Installation, Testing and Commissioning (SITC) of Campus wide area network (CWAN) of Nalanda University, Rajgir**" with due date and time and shall be **sealed in fourth envelope** and addressed to the **Registrar, Nalanda University, Rajgir, Dist- Nalanda (BIHAR) PIN-803116**. The Tender must reach on or before due date. If the date on which the tender is opened for acceptance is declared to be a holiday, the tenders shall be deemed to remain open for acceptance till the next working day.
- iv. Incomplete and conditional tender will be rejected.
- v. Bids must be deposited/ dropped in the **Tender Box** placed in the Reception Office, Nalanda University, Chabilapur Road, Rajgir, Dist- Nalanda (BIHAR) on or before due date and time.
- vi. All the envelopes shall indicate the name and address of the bidder to enable the bid to be returned, if required.
- vii. (No other method/means of submission of bid except as stated above shall be acceptable.
- viii. **All the documents submitted in the bid must be legible and self-attested. Otherwise the bid is likely to be rejected.**
- ix. No bid will be received/accepted after the expiry of the prescribed date and time for submission of the bids.

- x. Interested firm/company/organization are advise to read carefully and sign with seal the entire document before submitting their tender and the tender document not received in prescribed format and /or fond incompetent in any respect will be summarily rejected.
4. **Minimum eligibility criteria of the Bidders :**
- Bidders should have registered service center office at Patna/Gaya/Biharsharif for replacement of faulty equipment in next working days.
 - Bidders if not OEM, should have authorization from manufacturers.
 - Bidder should have minimum five years of experience of supplying Computer Hardware/Services in bulk to Departments/Ministries of the Government of India/PSUs.
 - Bidders should have minimum turnover of Rs.35 Lakh per year during each of the last three financial years. .
 - Bidders should not have been blacklisted by Departments/Ministries of the Govt. of India.
 - The bidder must have infrastructure support i.e. service center/franchise/OEM service center. The bidder must submit the details of their infrastructure with reference to locations, technical manpower availability, inventory of spare, etc. and also indicate their business model for providing warranty and after sale support.
5. **Technical Bid :**
- The Bidders are required to submit technical bid enclosing therewith photocopies of the following documents, failing which their bids will be summarily rejected and will not be considered any further:-
- Registration Certificate of the firm/proprietorship, etc.
 - Copy of CST/VAT/TIN/Service Tax Registration Certificates;
 - Copy of PAN/GIR Card.
 - Copies of Income Tax Return filed for the last three financial years;
 - Copies of audited A/c statement of Balance Sheets and Profit & Loss A/c for last three financial years;
 - Original copy of authorization from manufacturer for supply, installation and warranty support in case the firm is not an Original Equipment Manufacturer (OEM) of the item.
 - Proof of supply to Government Departments/PSUs for last three years. Two copies of POs value of Rs. 5 lakh each with proof of the supply the items should be enclosed.
 - Copy of DGS&D Registration Certificate, if registered with them.
 - Declaration regarding blacklisting or otherwise
 - The above information shall be furnished by the bidder .The firm may be asked to furnished original documents to verify the authenticity of the documents at any point of time.
 - Valid quality assurance certificate for quoted products with validity date from a certifying institution.
 - The technical bid should give the product matching specifications given in the If there is any deviation, it may be clearly indicated in the technical bid.
 - The Technical Committee may reject the bid, if the deviation from the technical specifications is not acceptable to the technical committee.
6. **VALIDITY:** -
- The offer shall be kept valid for a period of 120 days (one hundred twenty days) from the date of opening of price bid of the tender.
7. **PRICES:-**
- The prices shall be including of Supply, Installation, Testing and Commissioning (SITC) of campus wide area network (CWAN) of Nalanda University, Rajgir. On door delivery basis inclusive of packing, freight & forwarding charges, Excise Duty, VAT/CST/BRCT & other levies, if any. Payment of any type of Govt. Statutory levies/taxes will be responsibility of the bidders. Please ensure that the rates/prices are strictly filled in in the Schedule-I enclosed herewith. The price shall be neatly typewritten in numbers and words. The price schedule-1 shall be duly signed and stamped on each pages.

- ii. In case of decrease in prices, the benefit shall be passed on to the Nalanda University, Rajgir. No claim for compensation or loss due to fluctuations in currency rates or any other reasons/causes shall be entertained. The price shall be quoted in Indian rupees only.

8. TENDER Fees:

Bidders have to deposit the nonrefundable tender fee of **Rs.500** (Five hundred only) in the form of DD from Nationalize/Scheduled bank in favour of Nalanda University payable at rajgir. The bidder should write the tender no., Name, Address on reverse of DD. Cheques/Money order/Cash/BG shall not be accepted as tender fee. A bid received without tender fee shall be rejected as non-responsive at the bid opening stage and return to the bidder unopened. Bid will be rejected and returned to the bidder, if tender fees is found to be of lesser amount or tender fees is not submitted in a manner prescribed thereof .The submission of tender fee is compulsory for all the bidders and no exemption will be granted for submission of tender fee in any case.

9. Bid Security/Earnest Money Deposit (EMD):

- i. EMD of Rs.50,000 (fifty Thousand only) in the form of Demand Draft /Banker's Cheque from any nationalized scheduled bank drawn in favour of "Nalanda University" payable at Rajgir shall be submitted in a separate envelope. The bidder may write the tender no., name and address of the bidder on the reverse of EMD Draft/Banker's Cheque.
- ii. Cheque/Money Order/Cash/BG shall not be accepted as EMD.
- iii. The EMD may be forfeited, if a Bidder withdraw his bid during the period of bid validity, specified by the Bidder in the Bid and/or on submission of false documents/undertaking.
- iv. A bid received without EMD shall be rejected as non-responsive at the bid opening stage and returned to the bidder unopened.
- v. Bid will be rejected and returned to the bidder, if EMD is found to be of lesser amount or EMD is not submitted in the manner prescribed therefor.
- vi. The submission of EMD is compulsory for all the bidders and no exemption will be granted for submission of EMD in any case.
- vii. The bid security is normally to remain valid for a period of 60 days beyond the final bid validity period.
- viii. The bid security of the unsuccessful bidder will be returned to them within 30 days after finalization and award of the tender without any interest.

10. Performance Guarantee(PG):

The successful bidder have to deposit Performance Guarantee at the rate of 10% of the total cost of the item before signing of the contract/issue of work order for supply of item in the form of BG/Fixed Deposit payable in favour of "Nalanda University" payable at Rajgir .The PG will remain valid for a period of 60 days beyond the date of completion of all contractual obligations of supply including warranty period ie. 5 years and 60 days. If there is any dues against the firm, the same may be deducted from the PG. PG can be withheld or forfeited in full or in part in case of unsatisfactory service maintenance during warranty/Full Service Maintenance Agreement period. No interest shall be payable on PG. EMD will be return after the submission of PG.

11. Contract :

- i. The bidder whose quotation has been accepted by Nalanda University shall enter into a formal agreement with Nalanda University on the date and place to be notified by Nalanda University.
- ii. Contract document for the agreement shall be prepared after award of work as intimated to the successful bidder through NIT together with the annexed documents and the bidder's acceptance thereof shall constitute a bidding contract between successful bidder and NALANDA UNIVERISITY. The statement of agreed variations, if any, shall be prepared based on the finally retained and the agreed

deviation. All correspondence, minutes of meetings, addendum/amendments issue by Nalanda University. Above mentioned contract document shall supersede all correspondence and minutes of meetings etc. held between Nalanda University and the bidder prior to issue a letter of intent .Any deviations of stipulations made and accepted by Nalanda university after award of the job shall be treated as amendments to the contract documents made as above.

- iii. Only the bidder in whose name in NIT is issued shall eligible for making the contract agreement with Nalanda University.

12. **Warranty and maintenance**

The bidder shall provide comprehensive onsite warranty of **three years**. The period of comprehensive onsite warranty will start from the date of installation of items but not later than 30 days from the date of supply of items in the, Rajgir. The bidders shall furnish and **undertaking from OEM** of the concerned product that they shall supply spares for the quoted product for the five years after warranty period is over.

13. **Preventive/Annual Maintenance:**

Two years of annul maintenance shall be included after the 3 years of warranty of supplied equipment. The minimum deliverable of annual maintains are follows:

- i. Supplier shall inspect all equipment at least once in month as a part of preventive maintenance apart from any breakdown visit.
- ii. Regular check to ensure Wi-Fi router configuration check, backup and updates required by deputing a full time engineer at site.
- iii. Ensuring constant and regular power supply to network equipment's for 24x7 operation.
- iv. Testing and configuration of network equipment for optimal coverage area.
- v. Taking regular backups from the equipment and storing with labeled folder.
- vi. Replacing faulty devices and accessories whenever required.
- vii. Any other remarks regarding the electrical system, etc.
- viii. Breakdown calls, nature of repair done, parts replaced etc. should be recorded in log book.

14. **Supply, Commissioning / installation**

- i. The items may be delivered at Nalanda University, Rajgir. No octroi, freight, insurance, etc. shall be paid by the Nalanda University, Rajgir.
- ii. The Goods supplied under the Contract shall be fully insured—in a freely convertible currency from an eligible country—against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the tender.
- iii. Delivery of the said item should be within the 45 days of date of work order issue to supplier.
- iv. A Bill giving details of Sales Tax/VAT Registration Nos. etc. may be submitted to Nalanda University office at Rajgir for settlement.

15. **GENERAL TERMS & CONDITIONS OF THE TENDER**

The following terms & conditions shall apply in connection with the supply of computer equipment:

- i. The complaint should invariably be attended to by the firm within 4 hours of lodging the same and must be resolved within 24 hours. The engineer of the firm/OEM will attend the complaint at the location of the item (s).
- ii. Delivery/installation of the item (s) at Nalanda University, Rajgir shall be arranged by the firm at their own cost.
- iii. The firm may be blacklisted for further business with Nalanda University, Rajgir owing to nonperformance of satisfactory and timely service.
- iv. If there is any damage during transportation/installation, the same would be borne by the supplier firm. The damaged item should be replaced by the supplier.
- v. Quantity of items given in the financial bid is approximate, which may likely vary +, - 10%.
- vi. The tender document is not transferable.
- vii. University also reserves the right to place the order in installments.

16. Clarifications.

In case of bidder requires any clarification regarding the tender documents, they are advised to submit their queries to IT and Computers department of Nalanda University through e-mail i.e. **itproc@nalandauniv.edu.in** on or before one week of last date of submission. No irrelevant query will be entertained.

17. Time Schedule:

The time stipulated for completion of works in all respect SITC of campus wide area network is 45 days from issuance of letter of award.

Milestone(s) as per table given below:-

S. No.	Description of Milestone (Physical)	Time allowed (from date of start)	Amount to be with-held in case of non-achievement of milestone
1	Submission of technical documents as per Scoped work, drawing, General arrangement as per site layout and Details of the Equipment S and its approval from department.	15 days	0.25% of bid amount
3	Supply of equipment and entire material as per BOQ	25 days	1 % of bid amount
4	Installation of active and passive components as specified in BOQ.	35 days	0.5 % of bid amount
5	Testing commissioning of the equipment as system.	45 days	0.5% of bid amount
		Total	2.5% of bid amount

18. Nalanda University's Rights:

- i NALANDA UNIVERSITY reserves the right to accept a tender other than the lowest and to accept or reject any quotation in whole or part, or to reject all the Tender received with or without assigning any reasons.
- ii University reserves right to stop the work or cancel the contract or part of the contract without assigning any reason.

19. Quantity Variation(s)

Nalanda University, Rajgir reserve the right to procure any of the items in this tender through quantity variation(s) on LQ 1 bidder at LQ 1 rates and as per terms and conditions of this tender limited upto 25% of the initial purchase order value for a period of 6 months from the date of issue of initial work orders which may be extended for a period of another 6 months at the sole discretion of University.

20. PAYMENT:-

Subject to completion of all formalities as per terms of order, 80% on supply, installation and 20% after 60 days of acceptance though RTGS/NEFT/Cheque. Payment of each consignment inclusive of all charges shall be paid to the firms within 30 days from the date of installation and commissioning of material in good condition. The payment shall be released by the Finance and account section Nalanda University, Rajgir, District Nalanda.

21. PENALTY:-

The delivery period is the essence of the contract and has to be maintained under any circumstances In case of delay in execution of the order, the Nalanda University may at its option either :-

- i. Recover from the supplier/contractor as agreed towards liquidated damages a sum @ 1% (one percent) of the price of any stores not delivered for a week or part thereof subject to maximum of 10%.
OR

- ii. Purchase from elsewhere on account and at the risk and responsibility of the suppliers, the stores not delivered or others of similar descriptions.
OR
- iii. Cancel the contract for part or whole of the quantity on order, with liability.

22. CONSIGNEE:-

The delivery of the item is to be made to the store in charge, Nalanda University.

23. EXTENSION ORDER:-

University reserves right to place an extension order for any additional quantity to the extent of 25% quantity of the original order on the same rates, terms and conditions within six months from the date of order.

24. ACCEPTANCE:

It is not binding on the university to accept the lowest or any tender. The Nalanda University reserves the right to accept or reject any offer at its option or place order with more than one supplier for full or part quantity of this enquiry without assigning any reason and the same shall be binding on suppliers unless otherwise stated in the offer. No correspondence shall be entertained on this account.

25. DISPUTES:

All disputes in connection with the execution of contract shall be settled under the provisions of Arbitration and Conciliation Act 1996 and the rules framed there under and in force shall be applicable to such proceedings.

19. Bidders/Suppliers are requested to confirm their acceptance to the commercial terms & conditions as per Enquiry. Stated specifically to the contrary it shall be deemed that you have agreed to all terms and conditions mentioned in the enquiry and the same shall be binding on you.

Please acknowledge the receipt of enquiry.

Encl :-(1) Schedule-I (Price & Quantity Schedule) & Schedule II-(Scope of Work and Technical Specification)

Yours faithfully,

Registrar

SHEDULE-I
(To be kept in the sealed envelope)
(Price & Quantity)

A. Hardware and Services for Campus Wide Area Network:-

Sr.No	Descriptions	Qty	UoM	Rate/ Amount
1	24 x GE + 2 x 10G SFP+ ports + 1 x expansion slot (for dual 10G SFP+ ports) L2+ Stackable Switch/ 1 x RJ45 console port, 1 x USB type A storage port, RPU connector, fan-less design, Stack up to 4 units, PoE Budget max. 410W	4	Nos	
2	10G SFP+, 1310 nm Single mode, 802.3ae 10GBASE-LR compliance, 10Km, LC duplex, compatible with core switch.	4	Nos	
3	Wireless Access Controller, 2 x GE with default 10 AP licenses, manage 500 Aps should be compatible with existing edgecore-ECW7220	1	Nos	
4	AP SW License/Per AP	20	Nos	
5	Controller-based 802.11a/b/g/n/ac dual band dual radio, 3x3 Indoor AP	26	Nos	

B. Passive and Service

Sr.No.	Description	QTY	Units	Rate/ Amount
1	Cable Cat6 for Active Nodes	1,500	Mtr.	
2	Rack 42 U with all accessories (Fan,Power,Cable try etc)	1	Nos	
3	Rack 9U with all accessories (Fan,Power,Cable try etc)	4	Nos	
4	Patch Pannel Cat6 Loaded	5	Nos.	
5	Cat 6 Patch Cord 2 M	50	Nos	
6	Cat 6 Patch Cord 1 M	50	Nos	
7	RJ-45 Connector	50	Nos	
8	Information Outlet	60	Nos	
9	PVC pipe 25 mm	1,700	Mtr.	
10	Fiber Cable 6 Core	1,000	Mtr.	
11	LIU 24 port Fully loaded	1	Nos.	
12	LIU 24 port with 12 Coupler loaded	3	Nos.	
13	Pigtails 1 meter	40	Nos.	
14	Fiber Patch Cord	36	Nos.	
15	HDPE pipe 32 mm	250	Mtr.	
16	UPS 1 KVA online with 60 mins backup.	4	Nos.	

17	UPS 5 KVA online with 120 mins backup.	1	Nos.	
18	Installation and laying services	lumpsum		
			G. Total(A+B)	

NOTE:

- a) The offers, with the rates given in any form/Performa, other than mentioned above may be liable for rejection.
- b) Payment of any type of Govt. statutory levies / taxes will be responsibility of the Bidder.
- c) While quoting the prices, tax detail, Make/model and part code of the offered material require to be indicated clearly.

Signature of Tenderer

Name in full & Designation

SCHEDULE-II A
(To be kept in the sealed envelope)

AMC charges with residential engineer (Yearly)

Sr.No.	Description	QTY	Units	Rate/Amount
1	AMC charges	2	Mtr.	
2	Residential engineer(9 x 6 days a week)	2	Nos	

NOTE:

- The offers, with the rates given in any form/Performa, other than mentioned above may be liable for rejection.
- Payment of any type of Govt. statutory levies / taxes will be responsibility of the Bidder.
- While quoting the prices, tax detail, Make/model and part code of the offered material require to be indicated clearly.

Signature of Tenderer

Name in full & Designation

SCHEDULE-II
(To be kept in the sealed envelope)
(Technical Specification and Scope of work)

Objective:

The objective shall be to provide infrastructure provisions for LAN and telecommunication backbone within each room or occupied area for data and voice transmission. The combination of the twisted pair versions of Ethernet and wireless IEEE 802.11 latest version for connecting end systems to the network, along with the fiber optic versions for site backbones, is the most widespread wired LAN technology.

Section A. General Conditions and Scope of Work for active components.

1. Planning, Designing, Supply, Installation, integration, configuration, commissioning & maintenance of network setup starting from head end (Central/Core Switch) and up to access level switches (tail end) including Distribution Switches and all other associated circuits.
2. Integration & Configuration of all servers with Core Switches. Servers that need to be connected to core switches through DMZ ports of Firewalls are: Web servers, Compute servers, Proxy servers, Mail servers, storage and all other associated hardware. In view of the future server deployments, it should be scalable.
3. Configuration of layer 7 devices with core switches and all other associated hardware including Gigabit switches etc.
4. Network is designed in 3 layer architecture Core-> Distribution->Access layers.
5. Wireless hotspot will be segregated using VAP with 8 to 16 different VLAN Profile.
6. All Profiles will have centralized authentication using MAC/ Firewall/Radius rule base for better control and Manageability.
7. Wireless access point profile/rule-base will be manage using centralized Wireless controller.
8. Wireless controller with SYSLOG server give online reporting for Clients and Network.
9. User/IP Based Bandwidth Management with Data Traffic Policy for maximum Bandwidth optimization and need.
10. Integration of firewall, Radius server and Wireless controller gives almost maintenance free, Secure and Fully Managed converged network for administration.
11. Seamless roaming with user profile will be the main advantage for the Users and Administration point of view.
12. Bidders must cover any other associated work (if any) in order to install, commission, integration and configuration of the entire Network setup which is not mentioned in this tender document.
13. The vendor must ensure the clean power supply using proper Earthling and UPS.
14. Main Applicable Standards
 - i. Standards ISO/IEC 11801 V2 Amd.1 and EN 50173 V2 and EIA/TIA 568 B2 which define the architecture, structure and performance of cabling components
 - ii. Standards ISO/IEC 14763-1 and 2 which recommend the administration and planning & installation of the cabling (density of distributors and work areas).
 - iii. Standards ISO/IEC 18010 which recommends cable and socket supports.
 - iv. Standards TIA-606 which recommend the principles for marking cabling components.
 - v. Cabling entities defined by standard ISO 11801:
 - Telecommunications outlet (TO) for connecting a VDI terminal
 - Work area (WA), a space reserved for the connection of VDI terminals
 - Consolidation point (CP), provides flexibility of modification for TOs (12 WA max. per CP)
 - Floor distributor (FD), node for the TOs of a floor or a zone
 - Horizontal cabling (HC), serving the TOs from the FDs.
 - Vertical intra-building cable (BCB), linking the FDs
 - Building distributor (BD), node between the FDs and the external and/or campus networks

- Campus distributor (CD), node for the BDs and external networks.
 - Vertical inter-building cabling (CCB), which links BDs to the CDs.
15. Documentation for the work must be supplied by the vendor. It should contain the followings:
- i. Deliverables
 - ii. Network Architecture
 - iii. Configuration of whole system.
 - iv. Status of all equipment.
 - v. Others (if required).
16. LAN points will be provided on a need basis. It will be structured with Rack Mounted Layer Switches & Core Switches along with the following components.
- Cat6 U/UTP Patch Cords – factory crimped /molded – 1 mtr for Rack End and 2 mtr for End User site.
 - Cat6 U/UTP Patch Panels 19” Loaded with Toolless RJ45 connectors modular type rack mounted.
 - Cat6 U/UTP Copper Cable for Horizontal Data, Voice Communication & CCTV.
 - Cat6 U/UTP Information Out Toolless RJ 45 Socket along with Modular Faceplate & Back Box (Input / Output Point (Box)).
17. The Active Component Switches will have uplink ports as and where necessary. The cabling termination will be done by IEEE 568B standards. All points will be duly marked and numbered especially for future MAC (Moves, Additions & Changes). These cables shall run in dedicated low voltage conduits, separate from electrical cables, to avoid any electromagnetic interference. The following shall be used for carrying wires / cable: -
- UPVC conduits wherever the conduit runs exposed in ceiling or chased in wall.
 - HDPE conduits / GI Pipe for external, underground laying of OFC
 - GI cable trays or cable ladders for carrying multi-conductor cables.

Technical Specification of Active components

1. 24 Port POE Switch :

Product specification		COMPLIANCE YES/NO
1	24 x10/100/1000BASE-TX PoE ports and 2 x 10G SFP+ ports and External Power supply for redundant purpose.	
2	Should support console port Rj-45/RS232 and H/W stack minimum bandwidth support of 40 Gbps	
3	Shall support PoE Power budget 410W without extra power supply.	
4	Shall support Switching Capacity 128Gbps, Forwarding Rate 95.23Mpps	
5	Switch Shall be IEEE 802.1D,802.1S with BPDU Guard, BPDU filtering, Root Guard BPDU transparent Loopback detection, Loop Back and DAI Support	
6	Switch shall supports 4K IEEE 802.1Q VLANs Port-based ,GVRP,IEEE 802.1v Protocol-based VLANs, Mac-based VLANs , IP subnet based VLAN, ,Qin Q and Selective QinQ	
7	Shall support Trunk groups: 16,Trunk Load Balance: SA+DA, SA,DA,SIP+DIP, SIP, DIP	
8	Switch shall support Hardware base IPV4 Static route and RIPV1&V2, for maximum performance.	

10	Shall support Three Color Marker and Policing Single rate: Committed Information Rate (CIR) Two rate: CIR + Peak Information Rate (PIR) Traffic Policing and H/W Queues 8 (8 egress queues per port)	
11	Shall support Rate Limiting (Ingress and Egress, per port base) GE: Resolution 64Kbps ~ 1000Mbps	
12	Shall support IEEE 802.3ah Link ,IEEE 802.1ag Connectivity Fault Management, Loopback, ITU-T Y.1731 Performance and Throughput Management,G.8032 (ERPS),	
13	ACL, Port security, MAC authentication, Web authentication	
14	IEEE 802.1X port based and MAC based authentication	
15	Dynamic VLAN Assignment, Auto QoS, Auto ACL,SNTP, NTP	
16	DHCP Snooping, DHCP Option 82,IP Source Guard, Dynamic ARP Inspection, Instruction lock (link detection),PPPoE Intermediate Agent	
18	Shall Supports Port mirroring, Support VLAN mirror, MAC Based Mirror ACL Mirror, Supports sFlow	
19	Shall support IPV4 and IPV6 ACL L2/L3/L4 , ICMPv6	
20	Shall support IPv6 Neighbor Discovery-Router Discovery,IPV6 Sflow, IPV6 Source Guard,IPV6ACL,Traceroute Over IPV6,RA Guard	
21	Shall support minimum MTBF 494581 Hours	
22	0°C to 45°C standard operating Temperature	
23	Minus 40°C to 70°C (-40 °F to 158 °F) Storage Temperature	
24	Shall be Environmental Regulation compliance: RoHS radios for 2.4	

2. Wireless Access Point

S N		Minimum Specification	Compliance (Y/N)
1	Hardware:	Access Points proposed must include radios for 2.4 GHz and 5 GHz with 802.11ac Wave 1.	
2		Must have a robust design for durability, without visible vents	
3		Mounting kit should be standard from OEM directly.	
5		Must have at least 4 dBi gain on both radios	
6	RF	Must support 3x3 multiple-input multiple-output (MIMO) with three spatial streams	
7		Must support simultaneous 802.11n on both the 2.4 GHz and 5 GHz radios.	
8		Must support 802.11ac Wave 1 on the integrated 5-GHz radio	
9		Must support data rates up to 450Mbps and 1.3Gbps on 802.11ac.	
10		Must support up to 23dbm of transmit power in both 2.4Ghz and 5Ghz radios.	
11		The Wireless AP should have the technology to improve downlink performance to all mobile devices including one-, two-, and three spatial stream devices on 802.11n and 802.11ac. The technology should work without requiring feedback from clients and should work with all existing 802.11 clients.	

12		Should support detecting and classifying non-Wi-Fi wireless transmissions while simultaneously serving network traffic	
13		Should support configuring the access point as network connected sensor to access any network location covered by the access point to get real-time Spectrum analysis data.	
14		Must support AP enforced load-balance between 2.4Ghz and 5Ghz band.	
15		Must incorporate radio resource management for power, channel, coverage hole detection and performance optimization	
16		Should support spectrum analysis and security scanning using a dedicated hardware separate from the radio serving the clients with 80MHz channel support	
17		Should be able to classify different types of interference within 30 seconds.	
18		Must have -97 dB or better Receiver Sensitivity.	
20	Security	Must support Management Frame Protection.	
22		Must operate as a sensor for wireless IPS	
23		Should support non-Wi-Fi detection for off-channel rogues and Containment for both radio	
24	Encryption	Access Points must support a distributed encryption/decryption model.	
25		Access Points must support Hardware- based DTLS encryption on CAPWAP or IPSEC Standard.	
26	Monitoring	Must support the ability to serve clients and monitor the RF environment concurrently.	
27		Same model AP that serves clients must be able to be dedicated to monitoring the RF environment.	
28	Flexibility:	AP model proposed must be able to be both a client-serving AP and a monitor-only AP for Intrusion Prevention services.	
29		Should support mesh capabilities for temporary connectivity in areas with no Ethernet cabling.	
30		Mesh support should support QoS for voice over wireless.	
31		Must be plenum-rated (UL2043).	
32		Must support 16 WLANs per AP for SSID deployment flexibility.	
33		Must continue serving clients when WAN link to controller is back up again, should not reboot before joining	
34		Must support Controller-based and standalone(autonomous) deployments	
35		Should support Local authentication at the AP level in case of WAN outage	
36	Operational:	Must support telnet and/or SSH login to APs directly for troubleshooting flexibility.	
37	Power:	Must support Power over Ethernet, local power (DC Power) and power injectors.	
38		Must operate at 3x3 or higher with 802.3af PoE is the source of power	
39	Quality of Service:	802.11e and WMM	
40		Must support Reliable Multicast Video to maintain video quality	
41		Must support QoS and Video Call Admission Control capabilities.	

NOTE: - All the Active networking components shall be of same make to avoid the features compatibility issues.

Section B: General condition for Passive components.

This section consists of LAN (Local Area Networking) system “Passive Components” Technical Specification in accordance with the requirements of Indian Standards ISO/IEC for building up a robust, smooth & scalable Network Infrastructure. This will enable the users to access more bandwidth, greater reliability and lower maintenance during data transmission & internet access facilities via structured cabling system

1. The proposed OEM should have direct presence in India more than at-least 10 years (Supporting documents required).
2. All passive components (Copper & Fibre) should be RoHS (Restriction of Certain Hazardous Substance) complied.
3. All passive material including networking rack should be from one OEM make only.
4. The proposed OEM should be enlisted in Telecommunications Industry Association (TIA/EIA) S
5. The proposed OEM should follows ANSI/TIA/EIA Standards:
 - ANSI/TIA/EIA/568-C.1, Commercial Building Telecommunications Cabling Standard – 2009
 - ANSI/TIA/EIA 568-C.3, Optical Fibre Cabling Components Standard
 - ANSI/TIA/EIA-569-B, Commercial Building Standard for Telecommunications Pathways and Spaces
 - ANSI/TIA/EIA-606-A, Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 - ANSI/J-STD-607-A, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
 - Building Industries Consulting Services International (BICSI) Telecommunications Distribution Methods Manual (TDMM)
 - ANSI/TIA-942, Telecommunications Infrastructure Standard for Data Centres.
6. The proposed OEM should not propose any product whose End of Life or End of Sale date has been announced.
7. The proposed OEM should not propose Refurbished products.
8. The proposed OEM should not propose any Co-branded equipment (i.e., Product bearing brand shared with other OEM).
9. OEM warranty and performance assurance certificate is needed for 20 years for all the Passive components.
10. All passive components (Copper, Fibre) must be modular based & easy to install application and matching with Electrical W/A - Aesthetic & Synergy.
11. OEM must be an active member of the Telecommunications Industry Association (TIA) committee.
12. OEM authorization certificate for this particular tender is required.
13. OEM Part number with description needs to be mentioned for each product.
14. OEM must not propose any product whose End of Life or End of Sale date has been announced.
15. Single bidder will only be selected for the entire project (including all kinds of Active, Passive components inclusive networking rack) for having single point of contact for support related issues.
16. All passive components including Rack & Cable laying (PVC based DLP or Aluminium Trunking) & Fiber runner accessories must be from the same OEM only.
17. Incomplete and non-compliant bids will be summarily rejected.

Technical Specification for Passive Components & System

DETAILS	SPECIFICATION	COMPLIANCE (YES/NO)	DEVIATION
Cables Category Data/Voice Cable (Copper)	<p>Unshielded twisted pair cabling system, Certificate by Intertek (ETL) under 4-Connectors channel configuration to the standard requirements of the following :</p> <ul style="list-style-type: none"> • Cable should meet or exceed the Attenuation, NEXT specification requirements as per ANSI/TIA 568C.2, ISO/IEC 11801 & EN50173. • The cable NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT and return loss should be verified for CAT6 @ 250 MHz & CAT6A @ 500 MHz. The test result should meet & exceed the performance requirement of copper cable as per ANSI/TIA 568C.2, ISO/IEC 11801, & EN50173. • The cable Fire resistance shall be as per IEC 60332-1, UL VW-1 & operating temperature–20 to + 60°C • The performance of cable shall be verified by UL, ETL, 3P under suitable category. • The Cable shall have suitable protection from noise interference using mess type overall shielding or Aluminum layer for F/UTP, SF/UTP. The cable should be of 23AWG/24AWG for suitable category & copper cable should have the core of minimum 0.53 for 24 AWG and 0.56 for 23 AWG. • The cable sleeve shall be of PVC or LSZH. 		
Modular Patch Panel (1U-Max 24Ports)	<ul style="list-style-type: none"> • The electrical performance of patch panel shall meet or exceed requirement as per ANSI/TIA 568C.2, ISO/IEC 11801, & EN50173. • The patch panel NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT and return loss should be verified for CAT6 @ 250Mhz & CAT6A @ 500Mhz • The patch panel connector shall be compatible for termination of 22~25AWG cable and for Multiple wire 26 AWG. • The patch panel connector termination should be of self-crimping type without use of 110 punching tool requirement. • Mechanical Endurance - The patch panel connectors shall guarantee minimum 2500 insertion cycles without any impact on its termination & performance parameters. • The panel configuration shall be of minimum 6 connectors in 19" & maximum 24 connectors in 1U design & connector shall be of front removable type for ease of maintenance. The Patch panel shall be of quick fix type in rack. The patch panel shall provide through body earthing while installed in cabinet. 		
Toolless	<ul style="list-style-type: none"> • The electrical performance of installation outlet 		

<p>Information Outlet</p>	<p>shall meet or exceed requirement as per ANSI/TIA 568C.2, ISO/IEC 11801, & EN50173.</p> <ul style="list-style-type: none"> • The information outlet NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT and return loss should be verified for CAT6 @ 250Mhz & CAT6A @ 500Mhz. • The information outlet shall be compatible for termination of 0.5 to 0.65 mm, 22~25AWG cable. • Information outlet should have shutter for protection against dust when not used. • The information outlet termination should be of self-crimping type without use of 110 punching tool requirement. Built in crimping hands free Toolless Information Outlet. • Mechanical Endurance - The Information outlet shall guarantee minimum 2500 insertion cycles without any impact on its termination & performance parameters. • The information outlet shall be made of high impact polycarbonate plastic material incase of STP type it shall be made of metal alloy with a copper-nickel coating. • The information outlet connector shall be of gold/nickel, thickness of gold > 0.8 μm. Panel metal part shall be made of galvanised steel sheet. • The FTP/STP information outlet shall provide connectorised grounding while installed with patch panel. • The connectors shall be compatible as per IEEE 802.3af standard for POE application. 		
<p>Patch Cord (Copper)</p>	<ul style="list-style-type: none"> • Patch cord should meet or exceed the Attenuation, NEXT specification requirements as per ANSI/TIA 568C.2, ISO/IEC 11801, & EN50173. • The Patch cord shall be available in UTP, FTP & SFTP configuration. The patch cord sleeve shall be of PVC or LSZH and factory crimped. • The patch cord NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT and return loss should be verified for CAT6 @ 250Mhz & CAT6A @ 500Mhz. • The performance of patch cord in channel link shall be verified by UL, ETL under suitable category. • The patch cord Fire resistance shall be as per IEC 60332-1, UL VW-1 & operating 		

	temperature– 20 to + 60°C		
Fiber Optic Cable & Components	<ul style="list-style-type: none"> • Fiber optic cable shall be of suitable category viz OM2/OM3/OM4 or OS1 for installation within & outside premise. • The fiber optic solution shall meet or exceed the requirement as per ANSI/TIA 568C.3 or ISO/IEC 11801, & EN50173-2 • The fiber optic cable shall be loose structure or tight structure with strength member & sheath of FireBur® fire retardant, UV stabilised, EN 50290-2-27. • The fiber cable shall be available in 6, 12, 24 core single fiber configuration with or without corrugated steel tape insulation. Cable Construction Type: As per IEC 60811, IEC 60708, EN 50290-2-27 standards. • The fiber optic drawer shall be made of galvanized steel sheet. Compact size (mm): 43.8 x 446 x 272.5 (HxWxD). • The fiber optic drawer configuration shall be modular to adopt 4 adaptors with 6X SC, 6X LC or 6X ST type connectors in 19" 1U (Total 24 fiber terminations). • Fiber optic drawer shall be supplied with all required accessories for cable management inside for maintaining bending radius. • The fiber optic patch cord shall be of duplex configuration in suitable configuration between SC, LC & ST type connectors. • 6 port adapter plates, loaded with 3 duplex SC, LC & ST adapters to be compatible to fit in U/UTP patch panel or LIU. • The fiber optic patch cord shall be of OM2, OM3, OM4 & OS1 category as per suitable requirement. 		
Network Rack / Enclosure	<ul style="list-style-type: none"> • The Network enclosure shall be of suitable size in wall mount & free standing design. • The Network enclosure shall be made of CRCA "D grade" steel sheet. With Front door of glass & rear door perforated grill. • The Network enclosure shall be with minimum required accessories for thermal mgmt, power supply, casters & cantilever and cable managers. • The network rack shall have total body earthing. 		

