

राष्ट्रीय प्रौद्योगिकी संस्थान पुदुच्चेरी  
थिरुवेत्ताकुडी, कारैक्काल- 609 609  
NATIONAL INSTITUTE OF TECHNOLOGY PUDUCHERRY  
Thiruvettakudy, Karaikal – 609 609

CORRIGENDUM

**Correction notified in yellow shade**



**Tender Document**

**For**

**Extension of Wi-Fi Network Connectivity with Existing  
Controller**

**Tender Enquiry No: NITPY/SYS/Wi-Fi/2018/030**

**Dated: 20-06-2018**

**at**

**National Institute of Technology Puducherry  
Thiruvettakudy, Karaikal – 609 609  
Union Territory of Puducherry  
India.**

National Institute of Technology Puducherry @ Karaikal an autonomous Institute established under Ministry of Human Resource Development, Government of India would like to procure the following items.

<b>Item Required</b>	:	<b>Access Points &amp; L2 Access Switch 24 Port (PoE+)</b> <b>Specification attached</b>
<b>Tender Enquiry No</b>	:	<b>Tender Enquiry No.: NITPY/SYS/Wi-Fi/2018/030</b> <b>Dated: 20-06-2018</b>
<b>Due Date (For submission of bids)</b>	:	<b>10-07-2018 : 3:00 PM</b>
<b>Technical Bid Opening time</b>	:	<b>10-07-2018 : 3:00 PM</b>
<b>EMD</b>	:	The bidders shall furnish, as part of his bid, a Earnest money deposit (EMD)/ Bid security for an amount of Rs.50,000/- should be paid through online State Bank Collect mode under the payment category of Administrative Miscellaneous <a href="https://www.onlinesbi.com/prelogin/icollecthome.htm">https://www.onlinesbi.com/prelogin/icollecthome.htm</a> . The EMD or Performance security will bear no interest whatsoever. The copy of the payment receipt should be enclosed along with the Technical bid of tender document. <b>EMD exemption is applicable to bidders registered with NSIC.</b>
<b>Eligibility Criteria</b>	:	The Contractors / Tenderer should have experience in supply of similar item with <b>ONE</b> similar work of Rs.25,00,000/- or above (or) <b>TWO</b> similar works each of Rs.15,00,000/- (or) above (or) <b>THREE</b> similar works each of Rs.10,00,000/- (or) above executed during the <b>last 3 years</b> with reputed educational institutions, organizations, etc., along with the copy of orders.
<b>Submission of Offer</b>	:	<b>Two Bid System:</b> Two bid system will be followed for this tender. In this system the bidder must submit his offer in <b>two separate sealed envelopes</b> . Both the technical bid and commercial bid envelopes should be securely sealed and stamped separately and clearly marked as <b>“Envelope No: 1 – Technical Bid”</b> and <b>“Envelope No: 2 – Commercial Bid”</b> respectively. EMD should be placed in the Envelope No: 1, Technical Bid.
<b>Place of Submission</b>	:	Please send the tenders in a sealed envelope super scribed as <b>“Extension of Wi-Fi Network Connectivity with Existing Controller, Tender Enquiry No : NITPY/SYS/Wi-Fi/2018/030 dated: 20-06-2018”</b> so as to reach  The Registrar (i/c) National Institute of Technology Puducherry Thiruvettakudy, Karaikal – 609 609.

**Bidders Copy**

**INSTRUCTIONS TO BIDDERS**

1. This document set contains the following:
  - a) Terms and conditions of the Tender
  - b) Details of the Firm offering this Quote
  - c) Technical Compliance Form
  - d) Quotation form (Price Bid)
  - e) Currency Form (quoted on behalf of the foreign suppliers)
  - f) NIT Puducherry's check list copy
2. The bidder's copy is for your future records. **Please fill in and return only NIT Puducherry's copy.**
3. The bidder should give details of their technical soundness and provide list of customers of previous supply of similar items to Universities, Institutes or Government Departments / Undertakings/public sectors with contact details. The details of the agency / profile should be furnished along with the copy of all related documents.
4. Read through the terms and conditions given and affix your signature and seal if you find them acceptable. Any deviations may be recorded. Read carefully list of specifications that we have enclosed.
5. Fill in the questionnaire regarding the Firm.
6. The downloaded documents 'Technical Compliance Form' and 'Quotation Form (Price Bid)' should be TYPE WRITTEN USING CAPITAL LETTERS ONLY. At the time of filling the "Quotation Form (Price Bid)" make sure that you have not missed anything. Specify the model number & specification for each item. The form should be filled item-wise. Do not leave blank fields. If you are not quoting for a specific item, you should specify "NOT QUOTING".

<b>CHECKLIST TO BE FILLED IN BY BIDDER</b>	
List of documents to be enclosed	Completed & Signed
1. Terms and Conditions form	YES / NO
2. Details of the Firm offering this Quote	YES / NO
3. NIT Puducherry's Quotation form (Technical & Price Bid)	YES / NO
4. Currency Form(quoted on behalf of the foreign suppliers)	YES / NO
5. Other technical specifications & pamphlets	YES / NO

- Note:** 1. "Cover" should contain the following:
- a. Form of "**Acceptance of Terms and Conditions**".
  - b. Form of "**Firm details**"
  - c. Pamphlets, if any (in a separate sealed cover)
  - d. Quotation Form (Technical, Price Bid and Currency Form)

**Please retain this page with you for your future reference**

**SECTION : 1 – TWO BID TENDER**

NIT Puducherry Copy

**Envelope 1:**

**EMD:**

The bidders shall furnish, as part of his bid, a Earnest money deposit (EMD)/ Bid security for above mentioned amount should be paid through online State Bank Collect mode under the payment category of Administrative Miscellaneous <https://www.onlinesbi.com/prelogin/collecthome.htm>. The EMD or Performance security will bear no interest whatsoever. The copy of the payment receipt should be enclosed along with the Technical bid of tender document.

EMD exemption is applicable to bidders registered with NSIC.

**Technical Bid:**

(Should be superscribed as 'Technical Bid' duly indicating the Tender reference No. and the due date of opening)

Should contain:

- a. Technical pamphlets
- b. Detailed technical specification
- c. Copy of license certificate for manufacture/supply of the item\*
- d. Income Tax PAN number & TIN number.\*
- e. Last three years balance sheet approved by the CA and the IT clearance certificate.\*
- f. Warranty period offered for the tendered item to be specified. If the warranty period is not conforming to the schedule of requirements given in section 3 of the Tender document, the bid is liable to be treated as non-responsive and will be rejected.
- g. Duly filled up technical questionnaire, if any
- h. Duly filled up deviation schedules to technical specifications, if any
- i. Copy of supply orders completed during the last three years

\* Appropriately pertaining to the country of origin.

**Envelope 2: Price Bid**

(Should be superscribed as 'Price Bid' duly indicating the Tender reference No. and the due date of opening)

Should contain:

- a. Price bid as per the format in Section-4 of the tender document
- b. Break-up price as per the format in Annexure-A

**Note:**

- a. If the prices are revealed in cover 1 or in cover 2, the offer will be summarily rejected.
- b. Each Cover shall be sent in a double sealed cover. The inner covers (Cover 1, Cover 2 and Cover 3) should be sealed individually with the Sellers's distinctive seal and super scribed with the tender reference No. and due date of opening. All inner covers shall be placed in a common outer cover which shall also be sealed with seller's distinctive seal and super scribed with the tender reference No. and due date of opening.

## SECTION : 2 – TERMS AND CONDITIONS FORM

1. The Bidders are requested to give detailed tender in their **own forms** in two bids.  
**Part-1** : **Technical Bid**  
**Part-2** : **Commercial Bid**
2. Tenders, which are submitted without following the two bid offer system will summarily be rejected.
3. The tender document can be downloaded from the National Institute of Technology Puducherry website [www.nitpy.ac.in](http://www.nitpy.ac.in)
4. **Envelope No-1 : Technical Bid**  
The technical offer **should not contain any price information.** The technical offer should comprise of the following:
  - i) Earnest Money Deposit (EMD).
  - ii) The technical bid should be comprehensive and shall indicate all specification of the all products and services. Each page of the bid and cutting / corrections shall be duly signed and stamped by the bidder. Failure to comply with this requirement may result in the bid being rejected.
  - iii) If the bid is for branded makes, an authorization letter from principals clearly indicating that the vendor is competent and authorized to sell and provide services towards the items shall be enclosed.
  - iv) List of deliverables / bill of materials and services.
  - v) Bids should have a validity of **90 days**.
5. **Envelope No-2 : Commercial Bid**  
This should contain only the price information along with commercial terms and conditions. The commercial bids of **only the shortlisted bidders** shall be considered for further processing.
6. **Technical Evaluation Committee**
  - i) A committee duly constituted by The Registrar (i/c), NIT Puducherry will goes through the technical aspects of the tender and recommend short listed firms. The recommendation of the technical committee shall be final and binding on all the parties.
  - ii) The technical committee will examine all the technical aspects of the bids received. Further, the technical committee may seek additional information from the existing users at NIT Puducherry or from other Institutes and also call for technical presentations from the bidders if required.
  - iii) The bidders are required to submit the sample for evaluation before the stipulated time.
  - iv) No cost will be paid by NIT Puducherry for sample.

## 7. **Opening of Commercial Bids**

- i) NIT Puducherry will open commercial bids of only the shortlisted bidders in the presence of the bidders or their authorized representatives who choose to attend the commercial bid opening. The date and time of opening the commercial bid will be intimated only to pre-qualified and technically acceptable bidders for the item at a later date. The representatives of shortlisted firms only will be allowed for commercial bid opening.
- ii) No sub-contracting is allowed with regard to installation, commissioning, training, warranty, maintenance and after sales service. This is the sole responsibility of the principals / their authorized agents.
- iii) The NIT Puducherry reserves the right to accept the offer in full or in parts or reject summarily or partly.

## 8. **Delivery Period / Timelines**

The deliveries and installation must be completed within 04 - 06 weeks from the date of purchase order. The time is the essence of the contract. It is mandatory for the bidders who respond to this bid to meet this expectation, as this is linked to student's admission and shifting the college to permanent campus.

## 9. **Locations for the supply / services**

The items covered by this document is required to be supplied and installed at

National Institute of Technology Puducherry  
Thiruvettakudy, Karaikal – 609 609  
Union Territory of Puducherry  
India

10. NIT Puducherry will not provide any accommodation / transportation for the engineers / representatives for attending installation, commissioning and demonstration work. It is the absolute responsibility of the principal supplier / agent to make their own arrangements.

## 11. **Purchasers right to vary quantities at the time of award**

NIT Puducherry reserves the right at the time of award of contract to increase or decrease the quantity of items specified in the schedule of requirements without any change in price or other terms and conditions.

## 12. **Price**

The price quoted shall be considered firm and no price escalation will be permitted. The quote should be **FOR Destination** at National Institute of Technology Puducherry, Thiruvettakudy, Karaikal – 609 609, Union Territory of Puducherry.

- i) The packing, forwarding, freight, insurance and commissioning charges, if any extra may be quoted separately in commercial bid.
- ii) The actual sales tax percentage (without form "C") if any, should be specified.

**13. Performance Bank Guarantee**

The vendor will have to furnish performance bank guarantee for 10% of the total purchase order value, to be valid for three year plus two months from the date of installation and acceptance.

**14. Installation**

- i) Bidder shall be responsible for installation / demonstration as applicable and for after sales service during the warranty and thereafter.
- ii) Installation and demonstration to be arranged by the supplier free of cost and the same is to be done within 15 days of the arrival of the equipment at site.

**15. Warranty / Support**

- i) The Items supplied shall carry a minimum of **THREE year of comprehensive warranty** from the date of acceptance of the equipment.
- ii) The defects, if any, during the guarantee / warranty period are to be rectified free of charge by arranging free replacement wherever necessary. This includes cost, insurance, freight, custom duty, octroi, local taxes if any and should be borne by the beneficiary or his agent. A clear confirmation should be given for this item.

**16. Indemnity**

The vendor shall indemnify, protect and save NIT Puducherry against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from infringement of any law pertaining to patent, trademarks, copyrights etc., or such other statutory infringements in respect of all the items supplied by him.

**17. Freight and Insurance**

The items to be supplied will be insured by the vendor against all risks of loss or damage from the date of shipment till such time it is delivered at NIT Puducherry permanent campus.

**18. Payment**

90% payment shall be made at site against delivery, installation, commissioning and acceptance as per purchase order and balance 10% shall be made after receipt of performance bank guarantee. If no bank guarantee is given, the balance 10% will be paid after the warranty period plus two months. The bidders should not claim any additional cost for installation of Active & Passive components under this tender

**19. Penalty for delayed services / LD**

- i) As time is the essence of the contract, delivery period mentioned in the purchase order should be strictly adhered to. Otherwise the NIT Puducherry will forfeit EMD and also LD clause will be applied / enforced.
- ii) If the supplier fails to supply, and fix the item as per specifications mentioned in the order within the due date, the supplier is liable to pay liquidated damages of 1% of order value for delay of every week or part here of subject to a maximum of 10% beyond the due date. Such money will be deducted from any amount due or which may become due to the supplier.

iii) NIT Puducherry reserves the right to cancel the order in case the delay is more than 10 weeks. Penalty as at (ii) above, will be deducted from the security deposit.

**20. Jurisdiction**

The disputes, legal matters, court matters, if any, shall be subject to Karaikal Court Jurisdiction only.

**21. Force Majeure**

NIT Puducherry may consider relaxing the penalty and delivery requirements, as specified in this document, if and to the extent that the delay, in performance or other failure to perform its obligations under the contract, is the result of a force majeure.

**22. Arbitration**

All disputes of any kind arising out of supply, commissioning, acceptance, warranty maintenance etc., shall be referred by either party (NIT Puducherry or the bidder) after issuance of 30 days notice in writing to the other party clearly mentioning the nature of dispute and will be referred to the arbitrator to be nominated by The Registrar (i/c), NIT Puducherry, Karaikal. The Venue for arbitration shall be Karaikal, Union Territory of Puducherry, India.

**23. Interpretation of the clauses in the Tender Document / Contract Document**

In case of any ambiguity / dispute in the interpretation of any of the clause in this tender document, interpretation of The Registrar (i/c), NIT Puducherry, Karaikal shall be final and binding on all parties.

24. Purchase Order may be issued to the supplier based on the lowest price of the each item.

25. The bidder should have **OEM Certified Engineer** for the Installation and Commissioning. Engineer details with the certifications need to be attached along with the Tender.

26. **The bidders are requested to visit the site before submitting the quote** and they have to make sure of coverage performance of

- a. At least -65 dBm at 95% of the intended coverage area
- b. At least -70 dBm at 100% of the intended coverage area

The Bidder should be produced the necessary Test certificate while installation.

**-Sd-**  
**Registrar (i/c)**  
**NIT Puducherry**



**“DETAILS OF THE FIRM OFFERING THIS QUOTE”**  
**(Write or print or type in block letters)**

1. Name of the firm: \_\_\_\_\_
2. Date of incorporation: \_\_\_\_\_
2. Nature of the company (tick one): Government / Public / Private Company / Partnership / Proprietorship
3. Specify the number of years in this line of activity by the Company: \_\_\_\_\_
4. Turnover in the last three years (Lakhs in Indian Rupees):

2015-2016	2016-2017	2017-18

5. Provide the postal address, telephone & fax numbers, and email address of the nearest service center.
6. Number of service engineers in the above location trained on the product quoted along with their educational qualification, certification and designation (applicable only for instruments):
7. Assured response time for service calls in hours:
8. Delivery period from the date an official purchase order placed (in weeks):
9. Enclose the list of customers to whom you have supplied “.....” during the last 3 years ending 31/05/2018 with full postal address and name of the contact person with phone, FAX numbers, and E-Mail id. Certificate regarding satisfactory performance of the “.....” from the minimum three end users should be furnished.
10. Enclose the certificate regarding the authorized dealer or distributor for the products quoted.
11. On Manufacturer’s Side to whom NIT Puducherry have to contact in case of delayed in supply and other issues committed by the authorized dealer / distributor / reseller :

Contact Person Name:

Address:

E-mail ID:

Telephone / Cell Phone:

**PRICE BID**

**ACTIVE & PASSIVE COMPONENTS**

S. No.	Description of Items	Unit Price In Rs.	Qty	Sub Total In Rs. (Excluding of all Taxes) Col.2*Col.3	ED in % for Col.4	GST in for Col.4	Service Tax in for Col.4	Total Value In Rs. (Inclusive of all Taxes)
	Column No. 1	2	3	4	5	6	7	8
1.	L2 Access Switch 24 Port (PoE+)							
2.	Access Point – Indoor (200 Concurrent Users / maximum 100 m range)							
3.	RJ45 24 Port Jack panel							
3.	Additional AP license for Smart Zone Controller							
4.	Support Pack for additional AP license							
5.	Other accessories /spares (UTP Cable, PVC Conduit, I/O Outlet with Back Box, etc) as given in scope of supply							
6.	Installation, Testing, Commissioning & Rearrangement of AP's							
7.	Packing & Forwarding charges in Rs.(extra, if any)							
8.	FOR Dispatching station value in Rs.							
9.	Freight & Transit insurance charges, extra, if any							
10.	Total all inclusive price in Rs. delivered, installed and commissioned at NIT Puducherry							
11.	<b>Net cost in Rs. to be paid by NIT Puducherry for whole package</b>							

**Signature & Seal of Vendor**

**Note: The price bid should be submitted only as per the above format. No row shall be left blank. Please indicate NA, in case the item is "Not Applicable". The firm should quote all the items as a whole package. Purchase Order may be issued to the L1 supplier based on the quote all the items as a whole package.**

# Technical Specifications for Extension of Wi-Fi Network Connectivity with Existing Controller

## A. Scope of the Work

1. This is a turnkey project for the Extension of Wi-Fi Network Connectivity with Existing controller in the NITPY Campus, Karaikal. The scope of the work includes supply, installation, configuration and deployment of the solution and also the **rearrangement of existing access points which already installed** and on-site training to NIT Puducherry, Karaikal personnel for one day plus its maintenance during warranty period.
2. The bidder shall be responsible for providing all materials, equipments and services specified herein or otherwise which are required to fulfill the intent of ensuring operability, maintainability, and reliability of the complete equipments covered under this tender within bidder's quoted price. The quantities for the passive components mentioned in the tender are the estimates. The bidder may quote and include in their bill of quantities any components, which they deem are necessary for successful implementation of the project.
3. All products being quoted should be compatible and seamlessly integrated with the existing networking infrastructure in NIT Puducherry, Karaikal. Quantities of the passive components mentioned in the tender are indicative and therefore may vary as per actual requirements.
4. Each product should come with a comprehensive on-site warranty including labour and spares for Five years starting from the date of installation and acceptance.

## B. Eligibility Criteria for Vendors

1. The bidder should be an OEM or an authorized representative of the OEM. The bidder shall furnish the OEM's authorization letter specific to this tender clearly mentioning the tender details for which the authorization is being provided.
2. The bidder shall furnish proof of being capable of providing continuous support including software upgrades and availability of spares for a minimum period of 5+2 years from the respective OEM for the quoted items. Lifecycle of the items, software availability and the OEM's product roadmap should be submitted. The OEM shall also be responsible for successful implementation of the proposed solution.
3. The average annual turnover of the bidder for the last three financial years (2015-2018) should be at least Rs. One Crore. Supporting documents must be enclosed.

4. The bidder/system integrator (SI) should be in the Wi-Fi business for the minimum last three years and OEM for the last Five years in India. The bidder also should have their own after sales support facilities in Tamilnadu / Pondicherry. The support facilities should be fully owned by the bidder / OEM and managed by their permanent employees (company payroll) and not through franchisee(s). It is mandatory to enclose the supporting documents.
5. All the Active components (Access switches and Access Points etc.) from single OEM.
6. The offered products in the Wi-Fi solution against the supply order shall be the latest version and should be under support for next 5 years. However, if any product, which is declared end of life product by the OEM during the supply period of material, the bidder should supply replaced model or next higher model/version of the product.
7. The bidder must have successfully executed at least two wireless controller based projects each consisting of minimum 50 access points under managed mode of operation during the last Five calendar years i.e. 2013 to 2018. At least one deployment should be in Government organization/Autonomous body/Higher education Institute of repute. (Documentary proof for installation should be attached with offer issued by purchaser department).
8. Access Points should have been available in the market for at least 5 years and should be Leader in Gartner Magic Quadrant.
9. The bidder must specify item-wise compliance to the technical specifications. This compliance should also be countersigned by the respective OEM official. The make and model of the quoted items must be clearly specified.
10. The quotation should be valid for minimum period of **90 days**.
11. The Bidder should have valid NSIC Certificate.

### **C. Terms and Conditions:**

- NIT Puducherry does not bind itself to accept the lowest bid or any tender and reserves the right to reject any or all tenders without assigning any reasons.
1. Complete technical specifications and pamphlets should be sent along with the bid. Quotations without proper technical specifications will be rejected.
  2. The time allowed for delivery, installation, commissioning and completion of the work shall be 4-6 weeks effective from the date of the issue of the purchase order.

3. The bidder shall provide OEM's authorization letter confirming that the OEM supports the bidder.
4. The bidder shall submit the following documents along with the bid document:
5. WPC approval for APs, Type approval from TEC for the switches, Relevant UL/IEC certification, Hyperlink for technical compliance, installation plan, cabling layout plan, and deployment architecture

**Signature of the Authorized Signatory**

**Name and Designation**

**Address**

## ANNEXURE – I

### Active Components for WI-FI Network Connectivity

<b>S.No.</b>	<b>Name of the Item</b>	<b>Required Quantity</b>
1.	L2 Access Switch 24 Port (PoE+)	3
2.	Access Point – Indoor (200 Concurrent Users / Maximum 100m Range)	68

### Passive Components and other Miscellaneous Items for WI-FI Network Connectivity

<b>S.No.</b>	<b>Name of the Item</b>	<b>Required Quantity</b>
1.	RJ 45 24 Port Jack Panel	2

**Note:-**

Quantities in above table are provided for calculating L1 bidder. Actual quantity may vary during installation and the bill is to be raised as per actual installed quantity. However, more than 10% variation in the above mentioned quantity of Access Points (APs) will be borne by the bidder.

Where so ever compliance is not being done and alternative mechanism is available with the bidder to fulfill the functional requirements, alternate solution may be provided. All required software licenses and hardware items provided due to this alternative mechanism will be at the bidder cost and all licenses should be perpetual in nature.

All Passive Cabling works whether it is UTP / Electrical wiring should be installed through 1 inch PVC flexible pipe / conduit including all accessories.

## ANNEXURE - II

### 1. Specifications of L2 Access Switch (PoE+) – 3 Nos.

<b>Edge / Access Switch (PoE+)</b>			
<b>Features</b>	<b>Specifications</b>	<b>Compliance (Yes/No)</b>	<b>Remarks</b>
Architecture	Switch should offer Wire-Speed and Non blocking Switching		
	24 10/100/1000 RJ45 PoE+ ports with support for 802.3 af & 802.3 at Power over Ethernet		
	2 1G SFP from day one and upgradable to 2 10G SFP+		
Performance & Scalability	Non- Blocking Switch fabric Capacity of 128 Gbps or more		
	Wire – Speed packet forwarding of 95 Mbps or more		
	16,000 MAC addresses or more, Support MSTP RSTP		
L-2 features	4000 VLANs		
	802.1Q with tagging, 802.1ad (Q-in-Q) tagging, VTP/ GVRP or equivalent		
	Port-Based VLANs		
	Protocol VLANs (IPv4, Dynamic IPv6 and IPX)		
	802.1p QoS with Strict Priority and Weighted Round Robin		
	ACL-based rate limiting QoS		
	802.1D Spanning Tree Protocol , 802.1s Multiple Spanning Tree		
	802.1W Rapid Spanning Tree, PVST/PVST		
	802.3ad link aggregation (dynamic trunk groups)		
	Link Aggregation Control Protocol with support for Single link LACP		
	Uni-directional Link Detection		
	DHCP , IGMP v1/v2/v3 Snooping, 8 hardware queues per port		
L-3 features	Layer 3/4 ACLs from day one		
System Level features	ACL-based mirroring		
	Packet-based broadcast, multicast, and unknown-unicast rate limits		
	DiffServ support, Flow control		
	Port mirroring and monitoring (mirroring of both inbound and outbound traffic on individual ports)		
	System time using a Simple Network Time Protocol (SNTP) server or local system counter		
Stacking and Virtual Chassis features	A stack of up to 4 switches or more to form a virtual chassis.		
	A stacking BW of 40G or more		
Security	802.1X port security, 802.1X authentication RADIUS timeout action		
	Address locking for MAC addresses		
	AES Encryption for SNMP v3, AES Encryption for SSH v2		

	Authentication, Authorization and Accounting (AAA) with support for RADIUS and TACACS/TACACS+		
	DoS attack protection for Smurf (ICMP) attacks and TCP SYN attacks		
	DHCP Snooping, Dynamic ARP Inspection		
Management	802.1X accounting, AAA support for console commands, DHCP Server		
	Specifying which IP address will be included in a DHCP/BOOTP reply packet		
	Manageability using an Element or Network Management System.		
	Remote Monitoring		
	SNTP Server, SNTP client (Broadcast and Unicast)		
	Industry-standard Command Line Interface (CLI), including support for Serial and Telnet access, Alias command, On-line help, Command completion, Scroll control, Line editing, Searching and filtering output and Special characters		
IPv6 Management	IPv6 Access List (management ACLs)		
	IPv6 ping, IPv6 trace route, IPv6 SNMP Traps		
	IPv6 SNTP, IPv6 TACACS/TACACS+		
	IPv6 Telnet, IPv6 TFTP		
Physical attributes Power Supply and Fans	19" Universal EIA (Telco) rack mountable with a rack mount kit.		
	00-240VAC, 50/60 Hz internal universal power; Indian type power cord.		
	Support for Optional Internal/External Redundant AC Power supplies for system power.		

## 2. Specifications of Indoor AP: 68 nos.

S.No.	Specifications	Compliance (Yes/No)	Remarks
1	Access Points proposed must include radios for 2.4 GHz and 5 GHz.		
2	Should have 2 x 10/100/1000 Mbps interface		
3	Must support 3x3 multiple-input multiple-output (MIMO) with Three spatial streams on both radio.		
4	Must support 802.11b/g/n on the 2.4 & 802.11ac on 5 GHz radios simultaneously.		
5	<b>Must support data rates up to 600 Mbps on 802.11b/g/n and upto 1.3 Gbps on 802.11ac.</b>		
6	Must support 40 & 80 MHz wide channels in 5 GHz.		
7	Must support EIRP as per WPC norm		
8	<b>Should support controller (Ruckus Smartzone 100) based operations</b>		
9	Access point should support wireless backhaul, Point to Point, Point to Multi-Point, bridging and Serial		



10	Should support Encrypted and authenticated connectivity between all backhaul components		
11	Must incorporate radio resource management for power, channel, coverage hole detection and performance optimization		
12	Access Point must support spectrum analysis intelligence to detect different wifi and non wifi interference and take corrective action for self-healing and self-optimized network.		
13	Access point should send spectrum analysis data to Controller for performance optimization on basis of spectrum analysis data sent to controller.		
14	Access point should support technology to increase the downlink performance to 802.11g clients, providing improved coverage and throughput to existing clients		
15	Must support Power over Ethernet, Direct 100- 240 VAC.		
16	Access Point must be having integrated internal or external antenna		
17	Access point should be supplied with OEM mounting kit and shall support pole, wall, and roof mounting options.		
18	Geographic orientation/Mounting flexibility – tilt angle for pole, wall, and roof mounting units.		
19	The Access point shall be IP66/IP67 rated for dust and water Ingress protection.		
20	The Access point shall be rated for operation over an ambient temperature range of 0° to 55°C		
21	Access point must be supplied with VAC power cable and OEM mounting kit.		
22	Access point should able to work as sensor for WIDS/WIPS functionality.		

## Passive Networking Components

### OEM CRITERIA

- 1) OEM components should be an ISO 9001 and ISO 14001 certified manufacturer.
- 2) OEM must be ETL Verified.
- 3) Cat6 cabling components should be tested and verified by ETL.
- 4) Cat6 components should be RoHS compliant.
- 5) The cabling should be certified to have application support warranty for next 20 years.
- 6) OEM to furnish test report from ETL / third party laboratory for testing of IEEE 802.3ab on cabling system with zero bit error.
- 7) The bidder will provide end to end Penta scanning report of each cable laid throughout Campus.
- 8) All fiber patch cords should have connectors as per switching SFP/SFP+ Connectors.
- 9) All items should be from one OEM only.

### LIST OF RECOMMENDED VENDORS

S.No	Items	Approved Makes
1	L2 Access Switch 24 port (PoE+)	ARUBA/RUCKUS/FORTINET/JUNIPER/CISCO/Any OEM