

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY DHARWAD

3rd Floor, IT Park, Opp. To Glass House, Hubballi-580029

Website: www.iiitdwd.ac.in

**TENDER DOCUMENT**

[Technical bid and Price bid system – e-Procurement mode]

e-Tender Event No: IIITDWD/2020/ET/05

Tender Notification. Ref No.: IIITDWD/MMU/NWINFRA/NIT/185-4/2020/4078 Dated: 07/07/2020

Name of the Work:	Supplying, Installing, Testing & Commissioning and Deployment for providing Networking & Wi-Fi Infrastructure facilities at IIIT Dharwad New Campus.
Estimated amount put to tender	Rs. 2,08,00,000/-
EMD amount	Rs.10,40,000/-
Application Fee	Rs.20,000/-
Processing Fee	As per mhrd.euniwizarde.com
Time for supply of item after release of purchase order	45 Days
Pre-Bid Meeting	17/07/2020, 11:30 IST
Last date for submission of e- tender	28/07/2020, 15:00 IST
Address for Submission of Tender	https://mhrd.euniwizarde.com
Date /Time of opening of Technical bid	28/07/2020; 15:30 IST
Date of opening of Financial bid	Will be notified after evaluation of the Technical Bids

Note: EMD shall be remitted through RTGS/ NEFT and its acknowledgement shall be Uploaded in e-procurement portal while submitting e-tenders.

Detailed procedure for submission of e-tenders is available in the website <https://mhrd.euniwizarde.com>

NOTICE INVITING TENDER (NIT)

Tender Notification. Ref No.: IIITDWD/MMU/NWINFRA/NIT/185-4/2020/4078 Dated: 07/07/2020

The Indian Institute of Information Technology-Dharwad, Karnataka (in short – IIIT-Dharwad) is an Institute of National Importance by act of Parliament under PPP Mode imparting IT Education and engaged in Research Activities. It is proposed to procure the items for the departmental/Institutional academic/research activities at its new campus.

Online Tenders (<https://mhrd.euniwizarde.com/>) are invited for the following items in two cover system (i.e., Technical bid and financial bid) subject to the following terms and conditions, from the reputed manufacturers or its authorized dealers so as to reach this office on or before scheduled date and time. The tender (Technical bid) will be opened online on the due date as mentioned. Bidders can verify their bid status through online portal <https://mhrd.euniwizarde.com/>. The financial bid of only such bidders whose technical bid is accepted shall be opened on the same day or later pre-informed date.

Name of the Work:	Supplying, Installing, Testing & Commissioning and Deployment for providing Networking & Wi-Fi Infrastructure facilities at IIIT Dharwad New Campus.
Estimated amount put to tender	Rs. 2,08,00,000/-
EMD amount	Rs.10,40,000/-
Application Fee	Rs.20,000/-
Processing Fee	As per mhrd.euniwizarde.com
Time for supply of item after release of purchase order	45 Days
Pre-Bid Meeting	17/07/2020, 11:30 IST
Last date for submission of e- tender	21/07/2020, 15:00 IST
Address for Submission of Tender	https://mhrd.euniwizarde.com
Date of opening of Technical bid	28/07/2020, 15:30 IST
Date of opening of Financial bid	Will be notified after evaluation of the Technical Bids

Note: Institute shall not be responsible for any postal delay about non-receipt /non-delivery of the bids or due to wrong addressee.

SECTION 1: INSTRUCTION TO BIDDER (ITB)	
1.	The bid should be submitted in two covers System-Technical Bid and Financial Bid through https://mhrd.euniwizarde.com .
2.	Technical Bid: Documents related to the Technical Bid should be submitted in PDF format through e-Tendering portal https://mhrd.euniwizarde.com .
2.1	Pre-Bid Meeting: Queries shall be sent to procurement@iiitdwd.ac.in on or before 14/07/2020 17:00 IST. Video conference call shall be arranged to the bidders having queries on the scheduled date and time, the link for the meeting will be shared in advance.
3.	<p>The Technical Bid should contain the following documents:</p> <ol style="list-style-type: none"> License certificate for manufacture /supply of the item & Factory license. List of Owner/partners of the firm and their contact numbers (Bidder Information) Copy of GST certificate & PAN No. Catalogue of the Product with detailed product specifications. List of Service Centres at Hubballi/Dharwad (Karnataka). List of customers with contact details including satisfactory report for supply and installation of the materials from the customers end. Warranty Period Offered for the tendered item to be specified. If the Warranty period is not conforming with the schedule of requirements given in section 3 of the document, the bid is liable to be treated as non-responsive and rejected. Undertaking that the successful BIDDER agrees to give a Performance Security amounting to 5% of the purchase order value in favour of “The Director, IIIT Dharwad”. The copy of the Balance sheet, Profit & Loss A/c., Trade or Manufacturing A/c for the last 3 years should be enclosed The Bidder/Manufacturer shall have successfully executed similar work in the last three years i.e., Single Order worth 80% of this tender estimate ‘or’ Two Order worth 45% of this tender estimate ‘or’ Three order worth 35% of this tender estimate. Duly filled in the checklist should be submitted along with the Technical Bid. Contract form given in SECTION 5 needs to be submitted. Earnest Money Deposit (EMD): EMD should be remitted in favour of IIIT Dharwad. EMD shall be paid through online. Bidder shall select the payment option as “DD/E-Payment (Net Banking-Debit Card-Credit card etc)” to pay the EMD wherever applicable and enter details of the instrument. Digitally signed tender document should be attached during bid submission. <p>Note: Tenders received without the EMD will be rejected. The EMD of successful bidder shall be retained (and shall be adjusted to the Security deposit). EMD shall bear no interest. EMD of the bidder is liable for forfeiture as per the terms of the tender document in case of any default. The EMD will be returned to the BIDDERS(s) whose offer is not accepted by IIIT Dharwad within one month from the date of placing the purchase order(s) on the selected BIDDER(s).</p>
4.	Financial bid: The bidders should submit their financial bid in the BoQ format that has been provided with the tender in the form of an Excel sheet in the online bid through e-Tendering portal https://mhrd.euniwizarde.com . After evaluation of technical bid, the technically successful bidders will be qualified for Financial bid.
5.	Bid Evaluation: On the due date, the Technical bids will be opened and referred to the Committee which is duly constituted by the Director, IIIT Dharwad. The committee will go through the technical aspects of the tender and recommend shortlisted firms. The recommendation of the committee is final and binding on all the parties. The committee may visit the manufacturing site to assess the capabilities to manufacture the tendered items as per the specifications. In case of any remarks/default noted, the EMD will be forfeited even if pre-qualified.

6.	Quoting of Price(s): Price quoted should be in Indian Rupees, free delivery to IIIT Dharwad including loading/unloading
7.	The Bid will be accepted only from the manufacturers (OEM) or its authorized supplier.
8.	The incomplete or conditional tender will be rejected.
9.	The Institute reserves the right to cancel at any time after acceptance of the tender with a notice. The Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which might have derived from the execution of the supply.
10.	<p>Performance Security: The successful bidder shall deposit performance security of 5 % of the quoted price in the form of Bank Guarantee / Demand Draft / Fixed Deposit Receipt of any scheduled bank drawn in favour of The Director, IIIT Dharwad, payable at Dharwad. In case the bidder fails to deposit the said Performance Security within the stipulated period, including the extended period if any, the Earnest Money Deposited by the bidder shall be forfeited automatically without any notice. Please note the following points.</p> <ol style="list-style-type: none"> Successful bidder should submit performance Security as prescribed above to the purchase Section, IIIT Dharwad, on or before 30 days from the date of issue of order acknowledgment. Performance Security shall be for the due and faithful performance of the contract and shall remain binding, notwithstanding such variations, alterations for extensions of time as may be made, given, conceded or agreed to between the successful bidder and the purchaser under the terms and conditions of acceptance to tender. The successful bidder is entirely responsible for the due performance of the contract in all respects according to the terms and conditions of the tender. The validity of the Performance Security must cover the warranty period plus two months. In case of imported goods, the Indian agent must furnish Performance Bank Guarantee in Indian Rupees only from Scheduled Bank.
11.	The validity of bids: The rate quoted should be valid for a minimum of 180 days. No claim for escalation of the rate will be considered after opening the Tender.
12.	Warranty/Guarantee & On-site skill support: On-site comprehensive warranty will be effective from the date of successful installation and commissioning. The OEMs/Authorized Distributors and Dealers must attach a certificate of sales and service facilities, escalation support for on-call service or station engineer, etc.
13.	Imports: In case, equipment is to be imported, the Indian agent should furnish authorization certificate by the principles abroad for submission of the bid in response to this Notice Inviting Tender.
14.	The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of the whole or part of the works.
15.	<p>Cancellation of Tender: Notwithstanding anything specified in this tender document, IIIT Dharwad in its sole discretion, unconditionally and without having to assign any reasons, reserves the rights:</p> <ol style="list-style-type: none"> To accept OR reject lowest tender or any other tender or all the tenders. To accept any tender in full or in part. To reject the tender offer not conforming to the terms of the tender. To give purchase preference to Public Sector undertakings when applicable as per Govt. Policy/ Guidelines.

16.	Delivery Period: The Delivery Period/Time shall be deemed to be the essence of the Contract and delivery must be completed not later than such date(s). If the Supplier does not perform its obligations within the Delivery Period/Date mentioned in the Contract, the same would constitute the breach of the Contract and the Institute shall have the right to cancel or withdraw the Contract for the unsupplied portion after the expiry of the original or extended delivery date or period stipulated in the Contract. Such cancellation of the contract on account of non - performance by the Supplier would entitle the Buyer to forfeit the EMD / Performance Security besides other actions such as debarment from the Institute as per GFR 2017
17.	Liquidated Damages: Timely delivery is the essence of contract and hence if the Supplier fails to deliver Goods within the original/extended delivery period(s) specified in the contract, the Institute will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, @ 1% per week or part of the week of delayed period as pre-estimated damages not exceeding 10% of the contract value without any controversy/dispute of any sort whatsoever.
18.	Terms of Payment: <ol style="list-style-type: none"> Payment within 30 days from the date of delivery and Acceptance Certificate and satisfactory performance certificate from concerned Department/Section/Committee. Payment will be made by Standard Payment terms and conditions of IIIT Dharwad as per tender document only. Any request for a change in payment terms and conditions will not be accepted. If the above conditions are not acceptable then tender will be rejected.
19.	Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bid as to the nature of the installation site, the means of access to the site and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the installation to be done and local conditions and other factors having a bearing on the execution of the bid.
20.	If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the bidder.
21.	The rate quoted by the bidder shall be firm throughout the contract period and there shall be no revision of the rates for any reasons whatsoever. It should be clearly understood that any claim for changes will not be entertained in any case once the bids are opened.
22.	One bid per bidder: Each bidder shall submit only one bid either by himself or by representing a firm.
23.	Cost of bid: The bidder shall bear all costs associated with the preparation and submission of his bid. The Institute in no case shall be responsible or liable for those costs.
24.	The bidder shall not make or cause for any alteration, erasure or obliteration to the text of the tender document.
25.	The Institute will declare a bidder ineligible, either indefinitely or for a specified period of time, at the sole discretion of the Institute, for the award of contract/ participating in any other tender, if at any time the Institute determines that he has furnished false information/ engaged in corrupt or fraudulent practices.
26.	Determination of successful bidder: The technically qualified bidder whose offer is evaluated as the lowest total bid shall be the successful bidder subject to its meeting the statutory requirements.
27.	Price variation: The rate quoted by the bidder shall be firm throughout the contract period. No price variation clause is applicable to this contract.
28.	CANVASSING: <ol style="list-style-type: none"> Canvassing in connection with tenders is strictly prohibited and the Tenders submitted

	<p>by the Tenderers who resort to canvassing shall be liable to rejection.</p> <p>b. Subject to the provisions concerning clarification of Bids, no Bidder shall contact the purchase committee on any matter relating to its bid from the time of the bid opening up to the time that the contract is awarded.</p> <p>c. Any effort by the Bidder or Bidder's representative however described to influence the purchase committee in any way concerning scrutiny, consideration, evaluation of the Bid(s) or decision concerning award of contract shall entail rejection of Bid and action against the bidder as deemed fit.</p> <p>d. The purchase committee will deal with the Bidder on a Principal basis, without involvement in any manner in India or abroad of any agent or consultant or associate or another person howsoever described.</p>
29.	Legal Matter: All disputes are subject to Dharwad Jurisdiction only.
30.	The Institute reserves the right to visit to the factory before or after issue of supply order to satisfy itself regarding quality of production. In case of any remarks /default noted, the EMD will be forfeited even if pre-qualified.
31	The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full, but he did not derive in consequence of the foreclosure of the whole or part of the works.
32	Amendment of Tender document: At any time prior to the last date for receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Tender document by an amendment.
33	The bids shall be written in English language and any information printed in other language shall be accompanied by an English translation, in which case for the purpose of interpretation of the bid, the English translation shall govern.
34	The bidder/supplier should have manufacturing unit/ service centre in Karnataka.
35	The Institute reserves the right to accept or reject the item based on the specification and requirement.

SECTION 2: CONDITIONS OF CONTRACT.	
1.	The rates should be quoted for preferably FOR destination from supply within India.
2.	In case of import both CIF and/ or FOB rate should be quoted. All components of expenditure to arrive at Hubli/Dharwad need to be explicitly specified.
3.	The bidder shall indicate the excise duty exemption for the goods if applicable.
4.	The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any.
5.	Rate quoted should be inclusive of Testing, commissioning and Installation of equipment and Training.
6.	<p>Payment: No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security by supplier.</p> <p>In case of Imports, the payment will be made through LC / Sight Draft / After Installation, and performance security need to be submitted at the time of LC commitment / issue of sight draft.</p>
7.	Guarantee and Warrantee period should be specified for the complete period conforming to the section 3 of this tender document.
8.	Period requirement for the supply and installation of item should be specified conforming to the section 3 of this tender document.
9.	In case of dispute, the matter will be subject to Hubli-Dharwad Jurisdiction only.

SECTION 3: SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS	
[To be filled up by the Department / IIIT Dharwad]	
Item(s) Name to be Procured / Name of the Work	Supplying, Installing, Testing & Commissioning and Deployment for providing Networking & Wi-Fi Infrastructure facilities at IIIT Dharwad New Campus
Type (Equipment/Software/Furniture/Others)	Equipment/Software
Brief Specifications of the Item(s) : (Attach Additional Sheet if necessary)	Enclosed
Quantity	Enclosed
Any other details/requirement	-----
Warranty Period (in months)	60 Months
Delivery Schedule expected after the release of a Purchase order (in Weeks)	45 Days
EMD	5% of the estimated amount
Performance Security to be given by Successful Bidder after release of : (in Rupees)	5% of Purchase Order

SECTION 5: CONTRACT FORM

[To be provided by the bidder in the business letter head]

1. (Name of the Supplier's Firm) hereby abide to deliver the by the delivery schedule mentioned in the section 3 tender document for supply of the items if the purchase order is awarded.
2. The item will be supplied conforming to the specifications stated in the tender document without any defect and deviations.
3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of IIIT-Dharwad during this period.

Signature of the Bidder: _____

Name and Designation: _____

Business Address

with Mob. No. : _____

Place:

Seal of the Bidder's Firm

Date:

DECLARATION

(Shall be on the Company's Letter Head only)

I/we have not tampered/modified the tender forms in any manner. In case , if the same is found to be tampered/modified, I /we understand that my/our tender will be summarily rejected and full Earnest money deposit will be forfeited and I /we am/are liable to be banned from doing business with IIIT-Dharwad and / or prosecuted.

Signature of the Bidder: _____

Name and Designation: _____

Business Address : _____

Place :

Seal of the Bidder's Firm

Date :

Additional Instructions to Bidders:

MHRD, Govt of India had implemented e-tendering system solution through the ITI limited (a government of India enterprise) and mandated to adopt the e-wizard system and the accordingly the tender documents are published in <https://mhrd.euniwizarde.com>. The tender notification is also available in the IIIT Dharwad website (www.iiitdwd.ac.in) The bidders are required to submit soft copies of their bids electronically on using valid Digital Signature Certificates. Below mentioned instructions are meant to guide the bidders for registration on the Ewizard Portal, prepare their bids in accordance with the requirements and submitting their bids online on the Ewizard Portal. For more information, bidders may visit the Ewizard Portal <https://mhrd.euniwizarde.com>.

Instructions for Online Bid Submission:

The bidders are required to submit soft copies of their bids electronically on the e-tender Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the e-Procurement Portal, prepare their bids in accordance with the requirements and submitting their bids online on the e-Procurement Portal. More information useful for submitting online bids on the e-tender Portal may be obtained at: <https://mhrd.euniwizarde.com>.

Registration:

- a. Bidders are required to enroll on the e-Procurement Portal (URL: <https://mhrd.euniwizarde.com>) with clicking on the link “**Bidder enrollment**” on the e-Procurement Portal.
- b. As part of the enrolment process, the bidders will be required to choose a unique user name and assign a password for their accounts.
- c. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication with the bidder.
- d. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Only Class III Certificates with signing + encryption key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.
- e. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others which may lead to misuse.
- f. Bidder then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC / e-Token.
- g. Any queries relating to the process of online bid submission or queries relating to e-Wizard Portal, in general, may be directed to the 24x7 e-Wizard Helpdesk. The contact number for the **helpdesk** is 011-49606060, 23710092, 23710091, helpdeskeuniwizarde@gmail.com Mobile: +91-8448288987/88/89,e-Mail: eprochelpdesk.01@gmail.com/eprochelpdesk.02@gmail.com

Searching for Tender Documents:

- a. There are various search options built in the e-Procurement Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Item/work id, Title, Date, etc
- b. Once the bidders have selected the tenders they are interested in, the bidder can pay the processing fees (NOT REFUNDABLE) by net-banking / Debit / Credit card and then download the required

documents / tender schedules, Bid documents etc. Once tender fee is paid, it will be moved to the respective “requested” Tab. This would enable the e-tender Portal to intimate the bidders through e-mail in case there is any corrigendum issued to the tender document.

Preparation of Bids:

- a. Bidder should take into account any corrigendum published on the tender document before submitting their bids and no separate intimation will be provided to the vendors.
- b. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- c. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule in PDF formats. Bid Original documents may be scanned with 100 dpi with Colored option which helps in reducing size of the scanned document.
- d. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Documents” available to them to upload such documents.
- e. These documents may be directly submitted from the “My Documents” area while submitting a bid and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Submission of Bids:

- a. Bidder should log into the website well in advance for the submission of the bid so that it gets uploaded well in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- b. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- c. Bidder has to select the payment option as “DD/e-Payment(Net Banking-Debit card-Credit card etc)/EMD-exemption” to pay the EMD as applicable and enter details as the instructions.
- d. Bidder should prepare the EMD as per the instructions specified in the tender document & submit EMD online.
- e. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the unprotected cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

- f. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- g. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- h. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- i. Upon the successful and timely submission of bid click "Complete"(i.e. after Clicking "Submit" in the portal), the portal will give a successful Tender submission acknowledgement & a bid summary will be displayed with the unique id and date & time of submission of the bid with all other relevant details.
- j. The tender summary has to be printed and kept as an acknowledgement of the submission of the tender. This acknowledgement may be used as an entry pass for any bid opening meetings

**WORK: Supplying, Installing, Testing & Commissioning and Deployment for providing
Networking & Wi-Fi Infrastructure facilities at IIIT Dharwad New Campus
Technical Specifications & Requirements**

<u>SL No</u>	<u>Component</u>	<u>Description</u>	<u>Quantity</u>	<u>Complied</u> (Yes/No)	<u>Remarks</u>
01	Core Switch	(A) Hardware and Performance	02		
		Switch should be fixed form factor based configuration to support at-least 48*1/10/25G and 8*40/100G uplink ports.			
		Switch must have redundant power supplies (1+1) and fans (N+1).			
		Switch should have field replaceable power supplies and FAN trays.			
		Should work at line rate.			
		Shall support modern modular operating system designed for scalability and reliability			
		(B) L2 Feature			
		Switch should support Ethernet standards like: IEEE802.1p, IEEE802.1Q, Flow control, Jumbo frame, 802.1D, 802.1w, 802.1s, Jumbo frames, 802.3ad, private vlan			
		Switch should support vlans based on ports, IP-Subnet based vlan			
		Switch should support LLDP			
		(C) L3 Features			
		Switch must have routing protocols like BGPv4, OSPFv2/v3, ISISv4, VXLAN, BFD, PIM, SSM, Policy based routing			
		Switch should support VRRP, should support active-active port channeling mechanism.			
		Switch should support EVPN (IPv4 & IPv6) based services for Layer-3 Campus Network			
		(D) Security			
		Switch should support IP Source guard, ARP inspection			
		Switch should support Ingress ACL Scale of 2k or better.			
		Switch should support real time data collection with sflow/net flow.			
		(E) QoS features			
		Switch should support 8 queues per port			
		Switch should support QoS classification and policing			
		Switch should support priority queuing, DSCP, traffic shaping			
		Switch should support control plane policing to protect switch CPU from DoS attack			
		Switch should support IEEE 1588/NTP			
		(F) Management and Troubleshooting			

		Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management			
		Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python			
		Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.			
		Platform should support automatic Process recovery without impacting data plane.			
		Switches need to be provided with all software license from day-1 as per RFP specification			
		Switch should support telemetry from Day 1			
SL No	Component	Description	Quantity	Complied	Remarks
		(A) Hardware & Interface / Performance			
02	24 port distribution switch	Switch should have 24 ports or more, capable of 1/10 GbE SFP+ and 2x40/100G uplinks	06		
		Shall support Non-blocking architecture and wire-speed Layer-2 and Layer-3 forwarding			
		For SFP/SFP+, shall support 1/10 Gbe			
		Switch should have console port			
		Switch should have management interface for Out of Band Management with support for 100M/1G Speeds.			
		Shall Support USB port			
		Switch must support minimum 42 Mb fully shared system buffer			
		(B) Operating System			
		Should support modern modular operating system designed for Performance, scalability and reliability based on State full Architecture			
		Should support Industry standard CLI			
		Switch should support telemetry from day 1			
		(C) Layer 2 features			
		Shall support up to 250K MAC.			
		Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)			
		Switch should support VLAN Trunking (802.1q) and should support 4096 VLAN			
		Switch should support basic Multicast IGMP v1, v2, v3			
		Shall support Rapid Per VLAN Spanning Tree (RPVST+)			
		Shall support 802.3ad Link Aggregation LACP with up to 64 ports/channel			
		Shall support 64 Link Aggregation Groups (LAG)			
		Shall support 802.1AB Link Layer Discovery Protocol (LLDP)			
		Shall support Port Mirroring			

		Shall support 802.3x Flow Control			
		Shall support Jumbo Frames 9216 Bytes			
		Shall support active/active layer-2 topology without STP where host are dual homed to switch using vPC or MLAG			
		Switch should provide gateway level of redundancy in Ip V.4 and IP V.6 using VRRP or equivalent			
		(D)Layer 3 features			
		Shall support upto 200K IPv4/v6 Routes.			
		Shall support upto 20K IPv4 Multicast entries.			
		Shall support minimum 10K or more ACL			
		Shall support basic Layer-3 Routing			
		Shall support OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2,			
		Shall support PIM-SM and SSM multicast routing			
		Shall support BFD			
		Shall support EVPN			
		Switch must support Precision Time Protocol/Network time protocol			
		(E) Advanced Features and Network Virtualization			
		Shall be VxLAN ready and capable of doing VxLAN			
		Switch should support Open Flow/Open Day light/Open Stack controller.			
		(F)Quality of Service (QoS) Features			
		Up to 8 queues per port			
		802.1p based classification			
		DSCP based classification and remarking			
		Rate limiting			
		Switch should support for different type of QoS features for real time traffic differential treatment using Strict Priority Queuing			
		Switch should support to trust the QoS marking/priority settings of the end points as per the defined policy			
		Switch should support control plane policing to protect switch CPU from DoS attack			
		(G) Security and Network Management features			
		Shall Support security ACLs			
		Shall Support TACACS+/RADIUS			
		Switch should support IP Source guard, ARP inspection, DHCP Snooping			
		Shall Support SNMP v2, v3			
		Shall Support Management over IPv4, IPv6			
		Switch should provide remote login for administration using:			
		a. Telnet			
		b. SSHV2			
		Shall Support Syslog			
		Shall Support AAA			

		Shall Support Port Mirroring			
		Shall Support sFlow / NetFlow			
		Switch should support for management and monitoring status using different type of Industry standard NMS using:			
		a. SNMP V1 and V.2			
		b. SNMP V.3			
		Switch should support for basic administrative tools like:			
		a. Ping			
		b. Traceroute			
		(H) Monitoring, Provisioning			
		Shall support Advance Event Management for proactive network monitoring or equivalent			
		Shall support Restoration of Operating System & Configuration from USB			
		(I)High Hardware Availability; Air Flow and Power			
		Switch should have N+1 level of redundancy for power supply and fans			
		Switch should support in-line hot insertion and removal of different parts like modules/ power supplies/ fan tray etc and should not require switch reboot & should not disrupt the functionality of the system. Switch should be rack mountable and support side rails if required			
		(J) Misc			
		Switch should support the complete STACK of IP V4 and IP V6 services			
		The Switch and different modules used should function in line rate and should not have any port with oversubscription ratio applied.			
<u>SL No</u>	<u>Component</u>	<u>Description</u>	<u>Quantity</u>	<u>Complied</u>	<u>Remarks</u>
		(A) Performance and Scalability			
		The switch should have minimum of 48*10/100/1G Ethernet Ports and 4*1/10G or better Uplink Ports in 1 RU fixed Form Factor			
		Switch should have non-blocking architecture and should work at line rate.			
		Switch should have field replaceable & hot swappable Fan tray and should have redundant power supply			
		Shall support modern modular operating system designed for scalability and reliability			
		(B) L2 Feature			
		Shall support upto 16K MAC.			
		Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)			

03	Access Switch Non PoE 48-Port	Switch should support VLAN Trunking (802.1q) and should support 4096 VLAN	08		
		Switch should support basic Multicast IGMP v1, v2, v3			
		Shall support Rapid Per VLAN Spanning Tree (RPVST+)			
		Shall support 64 Link Aggregation Groups (LAG)			
		Shall support 64 ports active/active layer2/Layer3 multi pathing redundancy			
		Shall support Port Mirroring			
		Shall support Jumbo Frames 9216 Bytes			
		Shall support 802.1AB Link Layer Discovery Protocol (LLDP)			
		(C) Network security features			
		The switch should support IEEE 802.1x providing user authentication, authorization and CoA.			
		The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS			
		The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.			
		Switch should support Ingress ACL Scale of 4k or better.			
		Switch should support real time data collection with sflow/netflow.			
		(D) Quality of Service (QoS) & Control			
		The switch should support 8 egress queues per port to enable differentiated management			
		The switch should support Standard 802.1p CoS field classification and Differentiated services code point (DSCP) field classification			
		The switch should support Rate Limiting function to guarantee bandwidth			
		Switch should support IEEE 1588/NTP			
		(E) Operation and Management			
		Switch should have dedicated management port and USB ports to upload configuration files and image			
		(F) Management and troubleshooting			
		Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management			
		Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python			
		Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.			
		Switches need to be provided with all software license from day-1 as per RFP specification & Switch should support telemetry			

<u>SL No</u>	<u>Component</u>	<u>Description</u>	<u>Quantity</u>	<u>Complied</u>	<u>Remarks</u>
04	Access Switch PoE 24-Port	(A)Performance and Scalability	07		
		The switch should have minimum of 24*10/100/1G Ethernet Ports and 6*1/10G or better Uplink Ports in 1 RU fixed Form Factor			
		The switch should support minimum of 30W (802.11at) on all the ports			
		Switch should have non-blocking architecture and should work at line rate.			
		Switch should have field replaceable power supplies and FAN trays			
		Switch should Provide persistent/constant PoE power even when switch is under maintenance			
		Shall support modern modular operating system designed for scalability and reliability			
		(B) L2 Feature			
		Shall support upto 16K MAC.			
		Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)			
		Switch should support VLAN Trunking (802.1q) and should support 4096 VLAN			
		Switch should support basic Multicast IGMP v1, v2, v3			
		Shall support Rapid Per VLAN Spanning Tree (RPVST+)			
		Shall support 64 Link Aggregation Groups (LAG)			
		Shall support 64 ports active/active layer2/Layer3 multipathing redundancy			
		Shall support Port Mirroring			
		Shall support Jumbo Frames 9216 Bytes			
		Shall support 802.1AB Link Layer Discovery Protocol (LLDP)			
		(C) Network security features			
		The switch should support IEEE 802.1x providing user authentication, authorization and CoA.			
		The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS			
		The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.			
		Switch should support Ingress ACL Scale of 4k or better.			
		Switch should support real time data collection with sflow/netflow.			
		(D) Quality of Service (QoS) & Control			
		The switch should support 8 egress queues per port to enable differentiated management			
		The switch should support Standard 802.1p CoS field classification and Differentiated services code point			

		(DSCP) field classification			
		The switch should support Rate Limiting function to guarantee bandwidth			
		Switch should support IEEE 1588/NTP			
		(E) Operation and Management			
		Switch should have dedicated management port and USB ports to upload configuration files and image			
		(F) Management and Troubleshooting			
		Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management			
		Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python			
		Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.			
		Switches need to be provided with all software license from day-1 as per RFP specification			
		Switch should support telemetry from day 1			
SL No	Component	Description	Quantity	Complied	Remarks
05	Access Switch PoE 48-Port	(A) Performance and Scalability	03		
		The switch should have minimum of 48*10/100/1G Ethernet Ports and 6*1/10G or better Uplink Ports in 1 RU fixed Form Factor			
		The switch should support minimum of 30W (802.11at) on all the ports			
		Switch should have non-blocking architecture and should work at line rate.			
		Switch should have field replaceable power supplies and FAN trays			
		Switch should Provide persistent/constant PoE power even when switch is under maintenance			
		Shall support modern modular operating system designed for scalability and reliability			
		(B) L2 Feature			
		Shall support up to 16K MAC.			
		Spanning Tree Protocol (IEEE 802.1D, 802.1W, 802.1S)			
		Switch should support VLAN Trunking (802.1q) and should support 4096 VLAN			
		Switch should support basic Multicast IGMP v1, v2, v3			
		Shall support Rapid Per VLAN Spanning Tree (RPVST+)			
		Shall support 64 Link Aggregation Groups (LAG)			
		Shall support 64 ports active/active layer2/Layer3 multipathing redundancy			

		Shall support Port Mirroring			
		Shall support Jumbo Frames 9216 Bytes			
		Shall support 802.1AB Link Layer Discovery Protocol (LLDP)			
		(C) Network security features			
		The switch should support IEEE 802.1x providing user authentication, authorization and CoA.			
		The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS			
		The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.			
		Switch should support Ingress ACL Scale of 4k or better.			
		Switch should support real time data collection with sflow/netflow.			
		(D) Quality of Service (QoS) & Control			
		The switch should support 8 egress queues per port to enable differentiated management			
		The switch should support Standard 802.1p CoS field classification and Differentiated services code point (DSCP) field classification			
		The switch should support Rate Limiting function to guarantee bandwidth			
		Switch should support IEEE 1588/NTP			
		(E) Operation and Management			
		Switch should have dedicated management port and USB ports to upload configuration files and image			
		(F) Management and Troubleshooting			
		Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management			
		Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python			
		Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.			
		Switches need to be provided with all software license from day-1 as per RFP specification			
		Switch should support telemetry from day 1			
SL No	Component	Description	Quantity	Complied	Remarks
06	Wireless Software	(A) Solution Architecture			
		The System Architecture enlists the expectation from the "Total Solution", that are common to Wi-Fi services including, but not limited to, Access, WIDS and WIPS.			

	Solution	The proposed Wi-Fi controller(s) should be cloud based Management solution, it shall be compatible with public cloud service platforms such as Google Cloud Platform or Amazon Web Services. The Cloud services shall be hosted in India			
		Solution must support an independent intelligent edge architecture for Wi-Fi access. In case of non-reachability of the controller, all WLAN services should be delivered at the edge.			
		All Wi-Fi, WIDS, WIPS & RRM (Radio resource management) services should be functional if the link between AP/Sensor and its management controller goes down. It must also be possible to onboard new clients in such a scenario.			
		The solution must facilitate Control and Provisioning of Wireless Access Point devices and ensure data encryption between access point devices and controllers across remote WAN/LAN links			
		The solution should support deployment of set policies across the WiFi AP devices placed on different network segments over LAN and WAN.			
		(B) Management Controller			
		The Controller must provide centralized Wi-Fi and WIPS management system			
		The controller must have AP Group based policy management and administration.			
		The Controller should have role based admin rights to manage the controller.			
		The controller should support open API's for integration with 3rd party configuration management, inventory management, performance management, process automation, reporting, WLAN monitoring tools etc.			
		The controller should enable application visibility and control. It should display list of applications with their data usage for a specific SSID.			
		The Solution should allow blocking traffic based on IP address, port, URI, hostname, application etc. and QoS (for example: bandwidth restriction for the SSID, QoS tagging of special traffic like Voice) at the edge (AP).			
		The solution should locate wireless devices (APs and Clients) on floor maps			
		The solution must provide location tracking of a DoS attacker			
		Controller should support SNMP v1, v2c, v3			
		The controller should provide remote packet capture for troubleshooting			
		The system should support remote packet captures on AP radio and Ethernet ports without disrupting the client connectivity of any of the APs.			

		The solution should maintain controller user action logs which should include all activities performed by the user like login, any configuration changes made on the system, device deletion, device authorization, log out etc., for at least 90 days.			
		The solution should enable wireless client association analytics logs which should record client MAC address, AP connected to, data transfer, data rate, session duration, content - domain (http, https, IP address), for at least 30 days			
		The solution must allow VLAN segmentation at the edge.			
		Time Schedules - the solution must allow configuration of time schedules when WLAN is /isn't available (For example: SSIDs can be active from 9 am to 5 pm and then automatically disabled)			
		Solution should support External Splash Page			
		The solution should support RADIUS and OTP-based authentication mechanisms (SMS gateway to be provided by Customer in case of OTP based authentication) for Guest users			
		Solution should support “Walled Garden” or equivalent feature for Guest Network			
		Solution should support URL redirection			
		(C) Management and Monitoring			
		The solution should have all locations consolidated dashboard and location-specific dashboard as well.			
		The solution must send notifications based on location and alarm type			
		The solution must provide a device summary (for APs, and clients) report per location			
		The solution must allow automatic schedules for report generation and distribution of reports to Specific users via email.			
		The solution should provide alerts for impact on LAN performance such as: a) High client associations b) Drop in Signal of an access point c) Inadequate coverage depicted by excessive probe requests / responses			
		The controller and Wi-Fi AP devices management should support command line (ssh / telnet)and as well as web based (https) administration			
		The solution shall support Location tracking of any particular client and AP			
		The solution should support automated root cause analysis of WiFi issues such as low RSSI, low data rate, Authentication related issue.			

		The solution should highlight client connection failures during association, authentication and network entry. It should also identify the cause of failure.			
		(D) Software & System Management			
		The system should support manual and scheduled automatic system backup.			
		The controller and AP can be on different software versions.			
		The controller should be able to rollback all APs/group of APs to previous version.			
		The Controller Upgrade should not disrupt Wi-Fi and WIPS services.			
		The AP Upgrade to controller version should be flexible and be scheduled on per AP/AP group or site basis as required.			
		For management and monitoring operations, the controller must provide a web interface, command-line interface, and APIs.			
		The Solution shall support Hitless AP upgrade feature			
		(E) WIPS			
		The Threat detection in the solution must be based on behavioral model and should be independent on signatures and threshold tuning (resilience against Zero-day attacks)			
		The solution must auto-classify APs precisely in different categories as managed / authorized (ie. managed device connected to the networks), external (i.e. un-managed APs not connected to the networks, e.g. neighbors), and rogue APs (un-managed AP connected to the networks)			
		The solution must have the capability of auto classifying Wi-Fi clients as authorized (managed clients connecting to the network), guest, rogue (un-managed client attempting connection to the network) or external (unmanaged not connecting to the network eg. neighbor), in addition to manual classification			
		The solution must correctly detect smart phones connecting to the the network and classify them as approved or unapproved			
		The solution must be able to detect and automatically prevent all types of Rogue (unauthorized APs connected to the network) APs, such as: a) APs such as Bridge and NAT b) MAC-adjacent Open/Encrypted Wi-Fi routers c) Non-MAC-adjacent OPEN Wi-Fi routers d) Virtual APs on network connected laptops (e.g., Connectivity software on Windows 7/8/10) e) Non-MAC adjacent APs having MAC ACLs			
		The solution must be able to detect and automatically prevent all Wi-Fi enabled devices such as Smartphone's bridging / ICS when connected to the			

		network			
		The solution must detect mis-configured authorized APs and automatically prevent them.			
		The solution should detect and prevent outside client trying to connect to the WLAN			
		The solution must detect Honey Pot attacks including its advanced variants such as Multiport attack. It should be able to prevent the authorized client from connecting to a honeypot AP.			
		The WIPS solution should NOT affect the operation of an external (i.e. neighbors) or a managed access point while preventing a rogue AP on the same channel.			
		A single device should simultaneously block multiple threats on multiple channels			
		The solution must be able to detect wireless Denial of Service (DoS) attacks			
		Quoted Wi-Fi controllers should support quoted Wi-Fi Access point devices.			
		The solution must provide forensic data aggregated for major threat vectors like Rogue AP, Honeypot AP, Mis-Configured AP, DoS, Unauthorized Association, Ad Hoc Networks, Bridging/ICS Client, Mis-Association.			
		(F) Guest Management			
		The solution should include web based guest user creation by front office users			
		The solution should support self-registration by guest users and admin users can approve the registration.			
		The solution should allow blocking of guest user for specific time frame between two association sessions.			
		The solution should support restricted wireless connectivity (e.g., Internet only) to guest clients using portal page.			
		The solution should support portal page that can be used to display the terms and conditions of accessing the guest network as well as any other information as needed.			
		The solution should support for Login Timeout, Blackout Time, Redirect to URL and walled garden settings.			
		The solution should support multiple custom portals - separate portals can be configured for each SSID.			
		The solution should support authentication using social plugins - guest users can access WiFi using their social media account credentials.			
		The solution should support authentication using private guest book account.			

		The solution should support creating a custom portal for click-through access, portal page can also be created to ask user to fill some basic information like name, age, email to provide access to WiFi.			
		The solution should support SMS OTP-based authentication support.			
		(G) Dashboard and Analytics			
		The solution should support a dashboard that provides daily, weekly and monthly overview of the statistics related to demographic data about visitors using guest Wi-Fi, demographic data of visitors using guest Wi-Fi, dwell time.			
		The solution should display graphs representing the visitor distribution by days and locations, and visitor dwell time by days and locations.			
		The solution should provide graphical visualization of data received, transmitted, and total data exchange by days and location.			
<u>SL No</u>	<u>Component</u>	<u>Description</u>	<u>Quantity</u>	<u>Complied</u>	<u>Remarks</u>
07	Indoor Access Points	AP should support at least IEEE Wi-Fi 802.11ac Wave 2 standard.	200		
		AP should able to discover controllers on the same L2 domain.			
		AP must able to discover controller across L3 network.			
		AP must support Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP).			
		Wi-Fi AP devices and the solution must support the following protocols: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11ac (WAVE 2), IEEE 802.11h, IEEE 802.11d, 802.11i, 802.11 r/k/v			
		The Wi-Fi AP devices and the solution should support the following authentication methods: 802.1X support.			
		Wi-Fi APs and the system must support Fast Handoff between APs.			
		Wi-Fi APs and the system should have ability to set SSIDs as bridge or NAT.			
		Wi-Fi APs and the system should have support for 802.1Q VLANs.			
		Wi-Fi AP devices should support configurable management VLAN.			
		Supply should include ceiling/wall mountable units equal to the no. of APs quoted.			
		APs shall be compliant with all applicable national regulations.			
		AP should support integration with cloud-based and standalone on-prem controller.			
		AP must support SSH protocol for local or remote access to device through CLI.			

	At least 8 SSIDs shall be supported in each of the 2.4GHz and 5GHz bands, with the ability to map each SSID to a separate VLAN.			
	The SSID profiles/configurations of 2.4GHz and 5GHz radios should be independent.			
	APs shall support Hotspot 2.0 Release 2.			
	The device must be capable of providing Wi-Fi access with 24/7 wireless intrusion prevention (WIPS) in a single device both operating simultaneously.			
	The device should be remotely upgradeable from the controller, so that new features / upgrades can be added.			
	AP Should support 2 X Gigabit Ethernet Port.			
	AP must support minimum 4X4 multi user, multiple-input multiple-output (MU-MIMO)			
	Security mechanisms should be in place to protect the communication between the controller and the APs.			
	AP must support simultaneous 802.11n on the 2.4GHz and 802.11ac Wave 2 on the 5GHz radios.			
	AP shall support up to 800 Mbps for 2.4 GHz radio and 1.7 Gbps on 5GHz radio.			
	AP shall support 20/40/80 MHz channel width in 5GHz band.			
	Must support 802.11 dynamic frequency selection (DFS).			
	Must support up to 24dBm Tx power.			
	Antenna gain should be minimum 4dBi for 2.4 GHz and 5 GHz.			
	AP must able to handle RF interference from other WiFi and non-WiFi sources and automatically assign channel and power so as to deliver high performance and reliable communication.			
	The AP should support 802.1q VLAN tagging.			
	The AP must support the following authentication methods: WPA2-AES, PSK, authentication and AES encryption and 802.1x/EAP and unauthenticated (open) mode.			
	The AP must support 802.11ac beam forming (transmit beam forming).			
	AP must support AP load-balance between 2.4GHz and 5GHz band.			
	AP must incorporate radio resource management for power, channel, coverage hole detection and performance optimization. These features should work even if the link to controller is down.			
	The AP must support IPv4 and IPv6 for management and data traffic.			
	The AP must be capable of receiving IP address via DHCP for IPv4/IPv6 and SLAAC for IPv6.			
	The AP shall support operating temperature of 0° C to +40° C.			

		The AP must support EoGRE for L2 tunneling.			
		The AP shall support third party analytics integration for real-time data transfer.			
		AP shall support self-healing wireless mesh networking.			
		Must support POE+ to power up the AP.			
		In case Cloud license expires all the services on Access point should keep working, AP should continue to radiate SSID			
08	SFP 10G-SR	Quoted SFP should be compatible from day 1 and should be from the same OEM. SFP Should be hot swappable to simplify serviceability.	60		
09	SFP10G-LR	Quoted SFP should be compatible from day 1 and should be from the same OEM. SFP Should be hot swappable to simplify serviceability.	32		
10	Installation	Installation, Testing, Training and Implementation cost for all above mentioned solution. (Should be done by certified engineer)			
11	Guarantee & Warranty	Five years guarantee including device replacement and repair. All active components need to be from single OEM and End of support from OEM for Five Years. Minimum 5years comprehensive warranty, Next Business day support with 24x7x365 by OEM. If required engineer should be available on-site on next business day. Post installation, 5-year support and warranty for both device and software directly by OEM for above solution and should reflect in the support web site of the OEM. No Third-party support will be accepted. OEM Should provide contact number of support centers along with the support email I'd. In case of HARDWARE breakdown, service calls must be attended by OEM engineer directly. All deployment must be done by the bidder.			