
	सामग्री प्रबंधन अनुभाग भारतीय प्रौद्योगिकी संस्थान, रुडकी रुडकी-247667, हरिद्वार, उत्तराखण्ड, भारत Phone-(O) 01332-28-4293, 4693 E-mail: mmiitr@iitr.ac.in	Material Management Section Indian Institute of Technology Roorkee-247667(Haridwar) (Uttarakhand) (India) Phone-(O) 01332-28-4293, 4693 E-mail: mmiitr@iitr.ac.in	
	GSTIN-05AAALI0033R422		
	PAN-AAALI0033R		

निविदा प्रलेख / Tender Document

No. 2024250271/MM-4/IITR/2024-25/Supply and Commissioning /ICC/RT-1/892

Date of Uploading of Tender -<https://eprocure.gov.in/eprocure/app>

13-Dec-2024

Bids under two bid systems (Technical and Commercial) are invited Online at CPP Portal (<https://eprocure.gov.in/eprocure/app>) from the reputed manufacturer/authorized supplier/dealer for the following items. **Manual bids will not be accepted.**

वस्तु की तकनीकी विशिष्टताएँ / Technical Specifications of item:

Sr. No	Name of item / Specifications	QTY	UOM
1	Supply and Commissioning of active passive material for the networking of New academic block for chemistry department	Please refer Annexure-V	
(For Detailed Technical Specification Plz refer Annexure-V)			
नोट-1: कृपया वस्तु का मूल्य एवं कर अलग-अलग दर्शाए।			
Note-1: Please quote the Rate & Taxes of the item separately.			
Note-2: E-way bill is to be issued by the Venders/Transporter			
Note-3: The HSN / SAC Code of the item must be mentioned.			
For Reasonability of Rates, The firm must enclose the last two supply orders for the same item with Financial Bid (Annexure-III) only.			
Critical Date Sheet			
1	Published Date	13-Dec-2024	(17:00)
2	Bid Document Download / Sale Start Date	13-Dec-2024	(17:30)
3	Seek Clarification Start Date	13-Dec-2024	(18:00)
4	Seek Clarification End Date	18-Dec-2024	(16:00)
5	Pre Bid Meeting Date	Not Required	Not Required
6	Bid Submission Start Date	19-Dec-2024	(15:00)
7	Bid Submission End Date	3-Jan-2025	(15:00)
8	Bid Opening Date	3-Jan-2025	(15:30)

Chapter-1 : Instruction to bidders

- A. The Tender should be enclosed with proper certifications like Agency Certification, Authorization certificate and/or Proprietary Certificate, as the case may be, in support of your offer.
- B. बोली का जमा किया जाना / **Submission of Bids:**
The bids should be submitted online in two parts –
 - 1 (i) **The Technical Bid (Annexure-I, II, IV & V) with EMD and Tender Acceptance Letter**
 - (ii) **The Financial Bid (Annexure-III) & Price Bid in .XLS Format****Rates in .xls format will only be considered for Financial evaluation & further processing.**

- 2 The bids should be on official pad preferably with GST Number of the firm
- 3 The quotations should bear full details and where possible may be duly supported with catalogues, pamphlets, literature, samples of the item/items as the case may be for comparing the quality and rates of the item(s).
- 4 The transportation cost, insurance charge etc., if any, percentage/ rate of GST or all other taxes and duties should be clearly mentioned.
- 5 The bids / rates / tenders should remain valid for a minimum period of 90 days from the date of financial opening.
- 6 The rates shall not be subject to escalation of any nature.
- 7 The rates quoted should be applicable to educational institutions and any cost advantage received in lieu thereof should be passed on the Institution.
- 8 While quoting / sending rates, the firm shall give an undertaking as per Annexure-II.

C. विधि निक्षेप / Earnest Money Deposit (EMD):

The Technical Bid should accompany an EMD of value Rs. 12,00,000/- (Rupees Twelve Lac only) which should be deposited online into below mentioned account.

Details of IIT Roorkee Bank Account:

Account Name: NON MHRD GOVERNMENT FUND IIT ROORKEE

Account No.: 00000032685865515

Bank Name: STATE BANK OF INDIA

Branch Address: IIT ROORKEE, ROORKEE

IFSC Code: SBIN0001069

MICR: 247002094

The Bidder will have to fill EMD details & provide the tender reference number in the narration/remarks while doing the payment as per quoted items and share the receipt of the same in pdf on CPP Portal (<https://eprocure.gov.in/eprocure/app>). The qualification in Technical bid will be subject to the submission of EMD in above mentioned account within schedule date and time as mentioned in the NIT. IITR shall not be responsible for any delay in submission of EMD.

In case the EMD is not received in above mentioned account within the aforesaid period, the bid will be out rightly rejected.

Exemption on submission of EMD will be given against valid MSME/NSIC certificate under goods (manufacturing) category.

The earnest money shall be refunded to all the unsuccessful firms, without any interest after finalization of the contract. EMD shall be refunded to the successful firms on receipt of PBG/Security Deposit. No interest is payable on the EMD to either the successful firms or the unsuccessful firms.

D. निष्पादन बैंक प्रत्याभूति / Performance Bank Guarantee (PBG):

In case the total order value of items becomes Rs.25.00 Lakhs or above, 5% of the total order value in the form of Bank Guarantee or FDR pledged in favor of "The Registrar, IIT Roorkee" is required at the time of installation of the equipment which should remain valid at least during the warranty period plus sixty days. No interest shall be claimed by the bidder on the PBG submitted.

E. बोलियो का खोला जाना / Opening of Bids:

- 1 The Technical Bids will be opened online at CPPP Portal (<https://eprocure.gov.in/eprocure/app>)-Plz refer Critical Date Sheet
- 2 The Financial bids of only the Technically Qualified bidders will be opened. The date and time for opening the Financial Bid will be communicated to the respective firm later by the system (CPP Portal (<https://eprocure.gov.in/eprocure/app>))
- 3 Representatives of the firms(s) may be present at the time of openings, if they so desire.

Chapter-2 : Conditions of Contract

F. ठेका देना / Award of Contract:

The final selection of the bidder for the award of the contract will be made on the basis of the lowest commercial bid amongst the Technically Qualified Bidders.

Prices of optional item will not be considered to identify lowest price bid.

G. पूर्व-आपूर्ति निरीक्षण / Pre-supply Inspection:

Authorized representative of the Institute shall make the final inspection before supply of the item at site of the firm, if required.

- H.** वस्तु की आपूर्ति / Supply of Item:
The whole supply as per order shall have to be completed within the time mentioned in the order failing which the I.I.T. Roorkee shall have the right to accept or reject any quantity of items ordered. The firm will have to arrange for supply of the material in good condition.
- I.** भुगतान की शर्तें / **Payment Terms:**
- A.** **Payment in INR for supply of goods:**
80% payment will be made on receipt and acceptance of goods and balance 20% on successful installation and commissioning duly certified by the HOD/P.I.
- B.** **Payment in INR for AMC/Service:**
Quarterly/Halfyearly after satisfactory completion of work/service duly certified by the H.O.D./P.I.
- J.** **दंड/Penalty:**
A penalty of 0.5% of the total order value per week shall be levied for the delay subject to a maximum of 5% of the total order value.
In case of the non-supply of the item/service after the acceptance of the work/supply order, EMD & PBG (if submitted) will be forfeited by the Institute. Also, the firm will be debarred from any future bidding process of IIT Roorkee for a period of a minimum two year.
- K.** **अप्रत्याशित घटना/Force Majeure:**
For the purpose of and within the scope of contract by way of indication and not of limitation, the term "Force Majeure" shall mean acts of nature, strikes, Lockouts, or other industrial disturbances, act of public/enemy, wars, blockades, insurrection, riots, epidemics, landslides, earthquakes, storms lightening, flood, washouts, civil disturbances, explosion and any other similar even not within the control of either party on which by exercise of due care and diligence neither party is able to prevent or overcome.
- L.** **मध्यस्थता / Arbitration:**
If any dispute which may arise with respect to any term and condition or with respect to the interpretation of any term and condition of the Purchase Order/Work Order, which may be issued to the qualified and successful tenderer subsequently, the same shall be settled strictly in accordance with and in compliance of the Arbitration procedure which is mentioned descriptively in the Purchase Order/ Work Order.
- M.** **बोली अस्वीकृती के लिए मानदंड / Criteria for bid rejection:**
- 1 If technical bid found without the required undertaking (Annexure-II), EMD & Self Certificate (Annexure-IV)
 - 2 If it found at a later date that any information given in the bids is Incorrect/false then the bid is liable to be disqualified/rejected.
 - 3 Canvassing in any form will result to disqualification.
 - 4 If "extra, as actual" etc. are mentioned against any of the price components in the bid the bid will be rejected.
 - 5 If the firm quotes 'NIL' charges / consideration, the bid shall be treated as unresponsive and will not be considered.
 - 6 If financial bid is found along with technical bid in pdf on CPP Portal, then the bid shall be rejected outrightly.
 - 7 If any bidder submitting two/multiple bids for the same item of a tender, both/all the bids of that bidder will be outrightly rejected.

Chapter-3 : Schedules of requirements

- N.** **टिप्पणी / Note:**
- 1 If the supplier/firm is manufacturer/authorized dealer/sole distributor/of the item, the certificate to this effect should be attached.
 - 2 Please note that the firms must submit the compliance Statement in an organized and structured manner in respect of all the specifications as per Annexure-V with the supporting catalogue/leaflet of the firm. Annexure-I, II, & IV have to be submitted with Technical Bid and Annexure-III with financial bid.
 - 3 It may also be noted that the tender bids received after the stipulated date & time or found incomplete and the tender bids containing false/incorrect information shall be summarily rejected. The Institute shall not entertain any communication in this regard, whatsoever.
 - 4 The firm is required to give its Bank Account details with IFSC for the purpose of making e-payment.
 - 5 The Indian Institute of Technology (IIT) Roorkee reserves the right to reject any quotation wholly or partly without assigning any reason.
 - 6 The quantity shown in the tender can be increased or decreased to any extent depending upon the actual requirement.
 - 7 The decision of the institute in all matters relating to eligibility, acceptance, rejection of the bid will be final and binding on the applicants.
 - 8 IIT Roorkee discourages High Sea Sale purchase. All tenders with High Sea Sale will be rejected.

- 9 The firms should clearly mention (in the financial bid) the Harmonized System of Classification (HS code) defined by the Central Custom and Excise Board (Govt. of India)- for the item(s) involving import.
- 10 **If the bid opening date happens to be a holiday, then the bid will be opened at 3.30PM of the next working day followed by the holiday.**
- 11 If an agent submits bid on behalf of the Principal/OEM, the same agent can not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
- 12 Indian Agent should submit the certificate from the Foreign Principal that they are the Authorized & Registered Indian Agent.
- 13 The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order. Also, the final requirement of each line item will be decided by the Institute at the time of placing the PO.
- 14 **Any corrigendum/addendum/errata in respect of the Tender Notice/ Enquiry letter shall be made available CPP Portal (<https://eprocure.gov.in/eprocure/app>). Hence prospective bidders are advised to visit the CPP Portal (<https://eprocure.gov.in/eprocure/app>) regularly.**
- 15 Bidders shall be responsible for the correctness of the information provided in the enquiry letter/tender document. If it is found at a later date that any information given in the bid is Incorrect/false then the bid is liable to be disqualified/rejected.
- 16 Before submission of bids, bidders should read the complete enquiry letter/tender document carefully and ensure that the bidders fulfill the eligibility criteria.
- 17 In case the item/product is under rate contract with DGS&D or GeM, then Bidder should certify that the rate quoted is not over and above (higher side) the rates under RC with the DGS&D or GeM.
- 18 **In Item Wise BoQ .xls sheet, In column M, leave blank for the item/service not provided/quoted by you. If quoted 0 then it will be considered that the item/service will be provided free of cost.**
- Or**
- In Item Rate BoQ .xls sheet, If quoted 0 for the items/services in column M then it will be considered that the items/services will be provided free of cost.**
- 19 **The bidder must quote the applicable GST appropriately in the price bid format provided i.e BoQ in .xls format. In case column of GST left blank, quoted 0, or inappropriate, then total quoted amount shows in column BB would be final inclusive of GST & other charges. The difference in GST amount payable – if any will be borne by the bidder. In this case, the basic unit prices will be suitably adjusted by the bidder – if required.**
- 20 **Only 'Class-I local supplier' and 'Class-II local supplier', as defined in the Public Procurement (Preference to Make in India), Order 2017 shall be eligible to bid in tender. For more details please refer: Order No.: P-45021/2/2017-PP (BE-II), DPIIT, Ministry of Commerce and Industry issued Dated: 16th Sept. 2020.**
- Self-certificate has to be provided in this regard that the item offered meets the local content requirement for 'Class-I local supplier' & 'Class-II local supplier'. (As per annexure-IV)**
- 21 **The Institute reserves the right to rectify any discrepancy of this advertisement, if found later on. In case of any inadvertent mistake in the process which may be detected at any stage even after the issue of purchase order, the Institute reserves the right to modify/withdraw/cancel any communication made to the bidder.**

Chapter-4 : Specifications and allied Technical details

Plz. See Annexure- I, II, IV, V

Chapter-5 : Price Schedule (to be utilized by the bidders for quoting their prices online in .XLS format at CPPP Portal (<https://eprocure.gov.in/eprocure/app>))

Plz. See Annexure- III & Price Bid in .XLS Format

Chapter-6 : Contract Form

Purchase Order is used as Contract Form

Chapter-7 : Other Standard Forms, if any to be utilized by the purchaser and bidders

Tender Acceptance Letter

*उप कुलसचिव (सामग्री प्रबंधन)
Deputy Registrar (MM)

***Document Digitally Signed on <https://eprocure.gov.in/eprocure/app>**

For any Clarification regarding technical specifications of item Please Contact:

**Shri Sanjeev Shukla,
Institute Computer Center,
IIT Roorkee**

**Institute Computer Center,
Center,
IIT Roorkee**

**Ph.-01332-28-5708
Email: sanjufcc@iitr.ac.in**

तकनीकी बोली

विस्तृत विवरण अनुपालन रिपोर्ट के साथ प्रस्तुत किया जाना है (अपने आधिकारिक लेटर हेड पर विक्रेता/फर्म द्वारा प्रस्तुत करने के लिए)

Detailed specification cum compliance report to be submitted with the Technical Bid
(to be submitted by the vendor/firm on its official letter head)

(For Detailed Technical Specification Plz refer Annexure-V)

Sr.No	Name & Required Specifications of Item(s)	Qty	UOM	Offered specifications of item(s) by the firm
1	Supply and Commissioning of active passive material for the networking of New academic block for chemistry department			
	Firm's Profile :			
1	Manufacturer/Authorized Agent/Distributor/Dealer/Supplier(valid certificate must be attached)			
2	E-mail I.D. & Telephone/Mobile No. Detail of Bank A/C			
Note:	1. "offered specifications", should be filled up properly in the format provided as per Annexure-I.			
	2. Volume & Weight of the item should also be mentioned.			
	3. The HSN / SAC Code of the item must be mentioned.			

Signature: _____

Name : _____

Designation : _____

Seal of the Organisation

उपबंध / UNDERTAKING

Ref. No. No. 2024250271/MM-4/IITR/2024-25/Supply and Commissioning /ICC/RT-1/892
Dated:- 13-Dec-24

I/We hereby certify that we or Our OEM are not from such a country which shares a land border with India or, if from such a country, We are registered with the Competent Authority. [Where applicable, evidence of valid registration by the Competent Authority is attached.]" (For details Please refer Order No.: F.No. 6/18/2019-PPD Dt.: 23rd July 2020)

Link of Order: [http://mm.iitr.ac.in/mmweb/public/forms/63374_GFR%20Rule%20144%20\(xi\).pdf](http://mm.iitr.ac.in/mmweb/public/forms/63374_GFR%20Rule%20144%20(xi).pdf)

That all the terms/conditions mentioned in the enquiry letter/tender against which the rates are being given are acceptable to the firm.

It is certified that the rate quoted is not over and above (higher side) the rates under RC with the DGS&D or GeM.

It is certified that the firm has never been black-listed from any Government Department. (State/Central Govt./ Autonomous/ PSU) in the last three years.

Signature_____

Name_____

Designation_____

Seal of the Firm/Agency

Financial Bid

(to be submitted by the vendor/firm on its official letter head)

Ref. No. No. 2024250271/MM-4/IITR/2024-25/Supply and Commissioning /ICC/RT-1/892
 Date: 13-Dec-24

Rates :

Sr. No	Name of item / Specifications	Qty	UOM	Rate	Amount (INR Only)
					To be filled in .XLS sheet (attached)
Total					
Grand Total Rs.					

1) Price of the items should be clearly mentioned if supplied Free of Cost.

Terms & Conditions:

- 1 Prices (quoted in Rs.): FOR Institute Computer Center,
IIT Roorkee
- 2 **Payment:** **Should be clearly mentioned, As per clause-I of tender document.**
- 3 Validity:
- 4 Delivery period:
- 5 Other charges:
- 6 **Warranty:**
- 7 Rejection: Equipment if found not as per the required specification would be rejected.
- 8 Penalty Clause: As per clause-J of tender document.
In case of the non-supply of the item/service after the acceptance of the work/supply order, EMD & PBG (if submitted) will be forfeited by the Institute. Also, the firm will be debarred from any future bidding process of IIT Roorkee for a period of a minimum two year.
- 9 PBG: In case the total order value of items becomes Rs.25.00 Lakhs or above, 5% of the total order value in the form of Bank Guarantee or FDR pledged in favor of "The Registrar, IIT Roorkee" is required at the time of installation of the equipment which should remain valid at least during the warranty period plus sixty days. No interest shall be claimed by the bidder on the PBG submitted.

It is certified that the rate quoted is not over and above (higher side) the rates under RC with the DGS&D or GeM.

Signature _____
 Name _____
 Designation _____
 Seal Of the Firm/Organization _____

Details of Institute :

IEC CODE	0100000011	
AD CODE	0001069-2770325	S.B.I., IIT ROORKEE
	0303974-2770324	P.N.B. IIT ROORKEE

(to be submitted by the vendor/firm on its official letter head)

Self-Certificate for Local Content

Tender No.: **No. 2024250271/MM-4/IITR/2024-25/Supply and Commissioning /ICC/RT-1/892**

Date: 13-Dec-24

We hereby certify that the items quoted by us against above mentioned tender no. has the local content as per below:

Local Content (in %):.....

Local Supplier Class:.....

The details of the Make in India items/parts used in the quoted products is/are as under:

- 1
- 2
- 3

The details of the location(s) at which the local value addition made/manufactured is/are as under:

- 1
- 2
- 3

We also understand, false declarations will be in breach of the code of integrity under rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law.

Signature:

Name:

Designation:

Seal of the Firm/Organization:

Instructions for Online Bid Submission

Instructions to the Bidders to submit the bids online through the Central Public Procurement Portal for e-Procurement at <https://eprocure.gov.in/eprocure/app>. Also, any modification on CPP portal in reference to below will be applicable. Therefore, for more details and update please refer CPP Portal (<https://eprocure.gov.in/eprocure/app>).

- 1 Possession of valid Digital Signature Certificate (DSC) and enrollment/registration of the contractors/bidders on the e-Procurement/e-tender portal are prerequisite for etendering.
- 2 Bidder should register for the enrollment in the e-Procurement site using the "Online Bidder Enrollment" option available on the home page. Portal enrollment is generally free of charge. During enrollment/registration, the bidders should provide only valid and true information including valid email id. All the correspondence shall be made directly with the contractors/bidders through email id as registered.
- 3 Bidder need to login to the site through their user ID/ password chosen during enrollment/registration.
- 4 Then the Digital Signature Certificate (Class III Certificates with signing key usage) issued by SIFY/nCode/eMudra etc. recognized by Controller of Certifying Authorities (CCA) India on eToken/SmartCard, should be registered.
- 5 The registered DSC only should be used by the bidder in the transactions and should ensure safety of the same.
- 6 Contractor/Bidder may go through the tenders published on the site and download the tender documents/ schedules for the tenders.
- 7 After downloading/getting the tender document/schedules, the Bidder should go through them carefully and then submit the documents as required, otherwise bid will be rejected.
- 8 Any clarifications may be sought online through the tender site, through the contact details or during pre-bid meeting if any. Bidder should take into account the corrigendum if any published before submitting the bids online.
- 9 Bidder may log in to the site through the secured login by the user id/ password chosen during enrolment/registration and then by submitting the password of the e-Token/Smartcard to access DSC.
- 10 Bidder may select the tender in which he/she is interested in by using the search option and then move it to the 'my tenders' folder.
- 11 From my tender folder, he may select the tender to view all the details uploaded there.
- 12 It shall be deemed that the bidder has read and understood all the terms and conditions before submitting the offer. Bidder should go through the tender schedules carefully and upload the documents as asked; otherwise, the incomplete bid shall stand rejected.
- 13 Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/ schedule and ordinarily it shall be in PDF/xls/rar/jpg/dwf formats. If there is more than one document, all may be clubbed together and provided in the requested format. Bidders Bid documents may be scanned with 100 dpi with black and white option. It is advisable that each document to be uploaded through online for the tenders should be less than 2 MB. If any document is more than 2MB, it can be reduced through zip/rar and the same if permitted may be uploaded. The file size being less than 1 MB the transaction uploading time will be very fast.
- 14 The Bidders can update well in advance, the documents such as certificates, annual report details etc., under "My Space option" and these can be selected as per tender requirements and then send along with bid documents during bid submission. This will facilitate the bid submission process faster by reducing upload time of bids.
- 15 Bidder should submit the Tender Fee/ EMD as specified in the tender. Scanned copy of the same should be uploaded as part of the offer. (if applicable)
- 16 While submitting the bids online, the bidder shall read the terms and conditions and may accept the same to proceed further to submit the bid packets.
- 17 The bidder has to select the payment option as offline to pay the Tender FEE/ EMD as applicable and enter details of the same. (if applicable)
- 18 The details of the DD/any other accepted instrument, physically delivered, should tally with the details available in the scanned copy and the data entered during bid submission time, otherwise submitted bid shall not be acceptable or liable for rejection. (If applicable)
- 19 The bidder has to digitally sign and upload the required bid documents one by one as indicated. Every act of using DSC for downloading the bids and uploading their offers shall be deemed to be a confirmation that they have read, understood and agreed with all clauses of the bid document including General conditions of contract without any exception.
- 20 The bidder has to upload the relevant files required as indicated in the cover content. In case of any irrelevant files, the bid may be rejected.

- 21 If the price bid format is provided in a spread sheet file like BoQ_XXXX.xls, the rates offered should be entered in the allotted space only and uploaded after filling the relevant columns. The Priced-bid/BOQ template shall not be modified / replaced by the bidder; else the bid submitted is liable to be rejected for the tender.
- 22 The bidders are advised to submit the bids through online e-tendering system to the Tender Inviting Authority (TIA) well before the bid submission due date and time (as per Server System Clock). The TIA shall not be held responsible for any delay or the difficulties faced during the submission of bids online by the bidders.
- 23 After the bid submission (i.e. after Clicking "Freeze Bid Submission" in the portal), the acknowledgement number indicated by the system should be printed by the bidder and kept as a record of evidence for online submission of bid for the particular tender and also be used as entry pass to participate in the bid opening.
- 24 The time settings fixed in the server side and displayed at the top of the tender site, shall remain valid for all actions of requesting, bid submission, bid opening etc., in the e- Tender system. The bidders should follow such time during bid submission.
- 25 All the data being entered by the bidders would be encrypted using Public Key Infrastructure (PKI) encryption techniques to ensure the secrecy of the data. The data entered is not retrievable by unauthorized persons during the bid submission and until the time of bid opening by any person.
- 26 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 openers' public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 27 The confidentiality of the bids is maintained with the use of Secured Socket Layer (SSL) 128 bit encryption technology. Data storage encryption of sensitive fields is done.
- 28 The bidder should logout of the tendering system using the normal logout option available at the top right hand corner and not by selecting the (X) exit option in the browser.
- 29 For any queries regarding e-Tendering process, the bidders may contact at address as provided in the tender document. Parallely for any further queries, the bidders are advised to contact over phone: **0120-4001005** or send an e-mail to – cppp-nic@nic.in.

Prequalification

- 1 An undertaking by the firm that it has never been black-listed in the last three years must be attached along with the Bid, failing which the Bid shall be rejected. (As per Annexure-II)
- 2 True copy of Permanent Account Number.
- 3 Details of GST along with a copy of certificate to be attached.
- 4 Submission of samples if required, for all items indicated in the NIT. The make of items proposed to be supplied should be indicated and submitted along with the techno commercial unpriced bid without indicating the pricing components.
- 5 Willingness to execute all orders which are placed to meet emergency requirement on priority basis. The Bidder shall note that standards for workmanship, material and equipment, and references to brand names designated by the Purchaser in the tender document are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in his bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

Tender Acceptance Letter
(To be given on Company Letter Head)

Date:

Sub: Acceptance of Terms & Conditions of Tender.

Tender No. 2024250271/MM-4/IITR/2024-25/Supply and Commissioning /ICC/RT-1/892

Tender description:

Dear Sir,

- 1 I/We have downloaded/ obtained the tender document(s) for the above mentioned 'Tender No.' from the web site(s) namely:

as per your advertisement, given in the above mentioned website(s).
- 2 I/We hereby certify that I/We have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like section(s), schedules(s) etc.), which form part of the contract agreement and I/we shall abide hereby by the terms/conditions/ clauses contained therein.
- 3 The corrigendum(s) issued from time to time by your department/ organisation too have also been taken into consideration, while submitting this acceptance letter.
- 4 I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s)/ corrigendum(s) in its totality/entirety.
- 5 In case any provisions of this tender are found violated, then your department/organisation shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

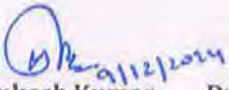
Item Specifications & Compliance Statement:

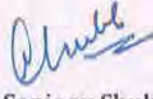
Terms & Conditions (if any) as per requirement of the Indenter (for warranty, training/technical support, service after sale, packing, hinding etc.)	
1.	Any tax to be mentioned in the quote.
2.	Quotation should be valid for at least 3 months.
3.	Price should be FOR IIT Roorkec.
4.	80% payment shall be made on delivery of all the materials duly certified by HOD/PI. Balance 20% payment will be made after satisfactory installation & commissioning of the project duly certified by HOD/PI. The warranty amount will be paid on annual basis in advance (for RMA & LI.W). The bidder should quote the price of product and warranty separately.
5.	Bidder should not be banned by any Indian Govt. Organization in any case in last two years (self-declaration to be submitted).
6.	Copy of GSTIN and PAN number allotted.
7.	Bidder's must not offload maintenance of network equipment to any third party (Undertaking must be provided)
8.	Bidder should submit the single proposal for supply, installation, integration, commissioning and management of active and passive network components (inclusive of both wired and wireless network solution with security).
9.	Last 10 years means since 2013 & last 15 years means since 2008.
10.	The complete project should have the warranty of 5 years from the date of Commissioning (except passive items that is having 25 years warranty), duly certified by HOD/PI
11.	The price of services mentioned in BOQ will be billed as per actuals, duly certified by HOD/PI.

We hereby certify that the above mentioned products/items/services are not available on GeM (Government e-Marketplace) (GFR-20017-Rule-149)

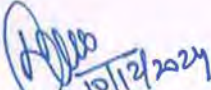
Signature of Special Purchase Committee Members:

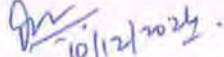

9/12/24
Mr. Kaushik Chattopadhyay
Member



9/12/2024
Mr. Mukesh Kumar
Member


Dr. Sanjeev Shukla
Member


10.12.2024
Mr. Anil K. Barnwal
Member



10/12/2024
Mr. Lokesh Verma
Member


10/12/2024
for
Prof. Sateesh Kumar
Member


Prof. R.K Peddinti
Member

Prof. Barjeev Tyagi,
DOSW, Ex Officio Member


Prof. D S Arya,
Dean Administration,
Ex Officio Member


12.12.24
Prof. U P Singh,
Deputy Director, Ex

BILL OF MATERIAL IIT ROORKEE			
Name of the Project: Supply and commissioning of active passive material for the networking of New Academic block for Chemistry Department.			
Sr. No.	Item Description	Qty.	UoM
PRODUCTS			
1.	Distribution Switches 24 x 1/10/25G SFP28 Interfaces with Redundant Power Supply and have an 40G Uplink port.	1	Number
2.	Access Switch L2 24x 10G Multigigabit (10G/5G/2.5G/1G/100M) Ports, POE and additional option for modular UL ports Supports 10G or 25G	15	Number
3.	Access Switch 48 nos. 10/100/1000 Base-T PoE ports and additional 4 nos. of 10G with Stack cable and stack module	50	Number
4.	Indoor Wireless Access Point 4x4 MIMO on both radio interfaces and MU-MIMO technology	150	Number
5.	Fibre Module, 10 G SM (LC)	50	Number
6.	Fibre Module, 40 G SM (LC)	4	Number
7.	CAT-6A Cable S/FTP (305/500 Meters Box)	150000	Mtrs
8.	CAT-6A I/O (1 x RJ45), for Face Plate	2500	Number
9.	Faceplate with Gang Box	2500	Number
10.	CAT-6A Patch Cord, S/FTP, 2 Meter	2500	Number
11.	CAT-6A Patch Cord, S/FTP, 1 Meter	2500	Number
12.	CAT6A 24-port Patch Panel (loaded)	120	Number
13.	Fibre Cable, OS2 9/125 SM,12-core, Armoured	1000	Mtr
14.	Fibre Cable, OS2 9/125 SM, 6-core, Armoured	1000	Mtr
15.	Fibre LIU, 24-Fibre with splice tray, Rack Mount fully loaded	5	Number
16.	Fibre LIU, 12-Fibre with splice tray, Rack Mount fully loaded	20	Number
17.	Fibre Patch Cord, LC-LC SM, Duplex 3 meter	50	Number
18.	Fibre Patch Cord, SC APC – SC APC SM, Simplex 2 meter	10	Number
19.	Fibre Pigtail, SC APC Single mode	20	Number
20.	Fibre Patch Cord, LC APC – LC UPC SM, Duplex 3 meter	20	Number
21.	Outside plant dome Fiber optic splice enclosure IP 68 rating	4	Number
22.	Rack, 15U, Minimum 600mm Depth, Wall Mount with Accessories	20	Number
23.	SITC of 60 KVA Online UPS with 30 Min Backup .	1	Number
24.	Supply of 32 mm PVC Conduit with accessories (ISI marked)	16000	Mtr
25.	Supply of 40 mm HDPE Pipe	1000	Mtr
SERVICES			
26.	Laying of UTP Cable in Raceway/Conduit/Casing/HDPE	150000	Mtr
27.	Installation & Termination of I/O User Side (including I/O punching, labelling and testing)	2500	Number
28.	Installation of Jack Panel (including I/O punching, labelling and testing)	120	Number
29.	Installation of Face Plate and Gang Box (including I/O punching, labelling and testing)	2500	Number
30.	Laying of Fibre Cable in HDPE pipes as per laying instructions (including HDR drilling, HDPE pipe, fibre pulling, route markers, pits etc.)	2000	Mtr
31.	Installation of Rack	20	Number
32.	Installation of LIU (including Splicing)	25	Number
33.	Integration, Testing & Documentation	1	Number

(Scope of work, requirements and required specifications/features)

Scope of Work: IIT Roorkee plans to create a secured ultra-high-speed Wi-Fi and wired network for the newly constructed Chemistry Department, which must be integrated seamlessly with existing infrastructure of IITR. Institute is also interested to upgrade the existing network to state-of-the-art enterprise grade network to accomplish the above. This will be implemented on turnkey basis along with Path Redundancy, High Availability and Centralized Network Admission control. The scope includes supply, installation, integration, commissioning and management. Interested OEMs/ System Integrators/ Vendors can visit the IITR campus for understanding the actual requirement and clarifications.

Other Scope of Work:

- (i) Physical installation of equipment.
- (ii) POST (Power on self-test) of the device.
- (iii) Product Installation Report Sign-off from Customer.
- (iv) Design document for implementation
- (v) Project milestone report signoff from customer for Passive devices implementation.
- (vi) Installation and configuration of Devices.
- (vii) User Acceptance Testing
- (viii) Any other task (s) necessary for successful commissioning and Operation of the complete project.
- (ix) Project Documentation with as-build configuration.
- (x) Project Milestone Report Sign-Off from Customer for Active devices.
- (xi) Training to Customer IT Support Engineers for five days on the component of structured cabling, LAN, WAN, Security basic trouble shooting and maintenance.
- (xii) Project Closure and handover to IITR Support Team.
- (xiii) Project Closure Signoff from customer.

Requirements: As follows:

- 1) Proposed wired and wireless solution should integrate with existing AAA.
- 2) Proposed wired and wireless solution should integrate with existing NMS solution including managing and monitoring network infrastructure.
- 3) Access and Distribution switches should be running secure VTP with MD5 protocol to reduce administrative burden of configuring VLANs on multiple switches in turn eliminating the configuration errors and troubleshooting in secure manner.
- 4) The Switches should be supplied with default limited life warranty. Bidder should submit OEMLLW policy document for the same. Any changes in LLW policy will be applicable. Access point should be supplied with 5 year NBD warranty. Both must be covered during the entire project duration.
- 5) Full compatibility between existing and quoted equipment's is mandatory.
- 6) Proposed switches must be integrated seamlessly with existing Core and security devices which are already deployed in IITR.
- 7) Switches to be quoted in the RFP should be fully compatible and configurable with existing management console so that homogeneous policy implementation can be pushed.
- 8) Wireless system to be deployed should be fully integrable with the centrally controlled wireless system already deployed at IIT Roorkee so as to make use of the investment made by the institute on acquiring a state-of-the-art wireless network.



- 9) The solution must be optimized and must make best use of the existing infrastructures and resources while addressing our advanced requirements (for active, passive and security for both Wi-Fi and wired)
- 10) All the components related to passive cabling must be from a single OEM only. All the active devices must be from the single OEM only. This applies to both wired and wireless network.
- 11) Passive wiring & conduiting must maintain the existing aesthetics of the building.
- 12) The OEM of active network components to be quoted by the bidder should be present-in-India for at least past 10 years (Details must be provided)
- 13) The OEM of passive components is required to provide the performance warranty of minimum 25 years from the date of commissioning (Details must be provided)
- 14) This project is to be executed on turnkey basis in fast track mode (within 5 months). The institute may consider the request of extension in time for completing the project under very exceptional circumstances and under the conditions of Force Majeure provided such a request is made well in time.
- 15) Penalty for delayed supply and installation - Time is the essence of the contract and the supplier shall pay or allow the Institute to realize the sum equivalent to .5 % of the total order value per week, subject to a maximum limit of 5% of the order value, as agreed compensation for delay for the period during which the supply and installation shall remain incomplete beyond the offered time of completion/execution or beyond the time duly extended in writing by the Institute. The Institute may deduct such damages from any money due to the supplier.
- 16) The Vendor shall respond to any service request within 24 hours during the warranty period. Failure to provide the required service within the stipulated time frame may result in a penalty of 0.01% of the total order value per week for each instance of non-compliance.

The progress of the project will be monitored periodically and bidder's authorized officers/ engineers are expected to make presentation of work completed and future planning and strategy to overcome the obstacles (if any) for timely completion of the project.

Besides, the bidder should regularly submit progress report to the Head, ICC during the implementation of the Project.

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Specifications of the required material with compliance:

Active Items OEM's Should have:

Sr. No.	Description	Compliance (Y/N)	Remarks
1.	The OEM of the equipment's quoted for should have RMA center in India to support failure of equipment's and better resolution.		
2.	The OEM should support next business day delivery against defective spares in major locations in India. OEM should have 24x7x365 support for India with a direct TAC support in the country.		
3.	The OEM should have a registered office in India from last 15 years.		
4.	OEM should be ISO 9001:2015 certified.		
5.	The OEM should not be blacklisted by the Central/State Government, the subordinate organizations, public sector undertakings of government or a statutory authority from participating in any project as on the date of proposal.		

Passive Items OEM's should have:

Passive Items OEM's should have:			
Sr. No.	General :	Compliance Yes/No	Remarks
1	The OEM must be a legal entity registered in India under the Companies Act, 1956, having registered office and operations in India. (Certificate of Incorporation and Memorandum / Articles of Association) The OEM of Passive Network Components should be present in the India for last 15 Years. (Document proof Required- Proof of Incorporation should be attached)		
2	OEM shall have ISO 9001:2015 & ISO 14001:2015		
3	All passive components should be RoHS complied. Declaration of – ROHS compliant should clearly be mentioned on data sheets of each Passive Components.		
4	The OEM must have their own manufacturing Unit, Product design and development facility in India to promote make in India initiative.		
5	OEM should be a member of ANSI/TIA & BICSI (Proof must be available on public platform).		
6	OEM shall have a RCDD certified person in their organization based at India whose services can be utilized in the project as and when required.		
7	The entire passive components Copper and Fiber should be from single OEM and one make.		
8	25-year Performance warranty must be provided; Warranty to cover performance assurance, application assurance and Bandwidth of the specified and installed cabling system.		



9	Quoted product part numbers must be available on OEM's official website.		
10	Factory Test report must be provided for the product during supply.		
11	Should have Technical / Telephonic support center in India		
12	Only Premium Brand and No Class B Products should be quoted		
13	The OEM should not be blacklisted by the Central / State Government, the subordinate organizations, public sector undertakings of government or a statutory authority from participating in any project as on the date of proposal.		

Eligibility Criteria for the Bidder:

Sr. No.	Description	Compliance (Y/N)	Remarks
1.	The OEM of the equipment's quoted for should have a minimum of eight or more spare depots in India (atleast one in northern region) & support next business day delivery against defective spares. OEM should have 24x7x365 support for India with a direct TAC.		
2.	The bidder must be a reputed manufacturer (OEM) or his authorized System Integrator of the type of products offered. In case of System Integrator, a Letter of Authorization from OEM, specific to the tender should be enclosed. Signed Back-to-Back agreement is needed. The bids received without Letter of Authorization and Back-to-Back Agreement from OEM are liable to be rejected.		
3.	The bidder should have minimum 10 years of experience for supply, installation, integration, commissioning and management of LAN project (Certified copies of Successful Work Completion Certificates on the letter head of concerned Institution clearly stating the nature of work to be submitted as proof). Out of 10 years at-least 7 Years' experience in the field Switching & Access Point in IIT's/ Central University, Central Government & PSU's Documentary proof in this regard should be submitted.		
4.	Bidder should have one similar work order of value not less than Rs. 5.0 Crore or two similar works order of value not less than Rs. 4 Cr and three similar works order of value not less than Rs. 3 Cr each during the Five years (2019-20, 2020-21, 2021-22, 2022-23 and 2023-24). Similar work means "Supply and Installation of Network infra solution".		
5.	The Bidder claiming LAN Project should have at-least one Experience of single order for campus where the following Active & Passive Device is installed Access Switches (100 Nos.), Access Point (200 Nos), IP Phone (200), Passive Node 2500 & Fiber Cable 10000 Mtr.		
6.	For after sales services the agency shall be available at all times and communication by Tele/E-Mail/Fax to agency shall be acknowledged immediately on the same day.		
7.	The bidder should be ISO 9001, ISO20000-1, ISO 270001 and CMMI-Level 3 (Certified copies of currently valid certificates to be submitted as proof)		
8.	The Bidder shall provide the Registration number GSTIN.		
9.	Bidder should have minimum 10 years presence in India. (Attach Company Registration Certificate)		

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10.	Bidder should have minimum Rs. 10 Cr. Annual Turnover for last 3 years 2021-22, 2022-23 & 2023-2024. (Attach CA certificate and Balance sheet & P&L Account).		
11.	Bidder should not be blacklisted by any Indian Govt. Organization in any case in last two years (self-declaration to be submitted).		
12.	The bidder should be a single entity /individual organization and should be actively doing business for last 10 years. Consortium shall not be allowed. (Undertaking signed by authorized signatory must be provided along with certificate of Incorporation).		
13.	Bidder should be a certified Gold Partner for the OEM supplying Active components and Authorized System Integrator of passive OEM's and shall submit a letter of Authorization from the OEM for this specific Tender.		

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COMPLIANCE SHEET TECHNICAL COMPLIANCE

TECHNICAL COMPLIANCE		
1. DISTRIBUTION SWITCHES		
Make:		
Sr. No.	General Specifications	Compliance (Yes/No)
1.1	General Features:	
1.1.1	Switch shall be 1U and rack mountable in standard 19" rack.	
1.1.2	Switch shall have 16GB RAM and 16GB Flash	
1.1.3	Switch should support optional SSD to host 3rd party container based application.	
1.1.4	Switch shall have hot swappable 1:1 redundant internal power supply and redundant fan .	
1.1.5	Switch must have dedicated port, in addition to asked uplink ports. Should support for minimum 480 Gbps of stacking throughput.	
1.1.6	Shall support In Service Software Upgrade (ISSU) or equivalent to provide an upgrade of the entire platform or an Individual task/process without impacting hardware forwarding. ISSU supports upgrades, downgrades, and rollbacks.	
1.2	Performance:	
1.2.1	Switch must have non-blocking switch fabric and forwarding rate.	
1.2.2	Switching system shall have minimum 32K MAC Addresses and 4000 VLAN IDs.	
1.2.3	Switch should support minimum 4K ACLs, 8K Multicast and 30K IPv4, 16K IPv6 Routes	
1.2.4	Switch shall support application visibility and traffic monitoring with minimum 60 K sflow/jflow/netFlow entries.	
1.2.5	Packet buffer : 16MB	
1.2.6	The offer product series should be IPv6 logo certified from day one	
1.3	Functionality :	
1.3.1	Should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.1ae (256-bit and 128-bit AES), 802.3x, 802.1p, 802.1Q, 1588v2	
1.3.2	Should support AES-256 support with MACSEC-256 encryption algorithm on hardware	
1.3.3	Support BGP, MPLS, IS-IS, VRF, VXLAN, NAT, OSPF Routed Access, Policy-Based Routing (PBR), PIM SM, and Virtual Router Redundancy Protocol (VRRP) from day 1.	
1.3.4	Shall have 802.1p class of service, marking, classification, policing and shaping. Should support strict priority queuing.	
1.3.5	Switch should support management features like SSHv2,SNMPv2c, SNMPv3, IGMP, Netconf/YANG.	
1.3.6	Switch should support port security, DHCP snooping, Spanning tree root guard, First Hop Security.	
1.3.7	IPv6 support in hardware, providing wire rate forwarding for IPv6 network	
1.3.8	Should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and dynamic VLAN assignment.	

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1.3.9	Eight egress queues per port for different types.	
1.3.10	During system boots, the system's software signatures should be checked for integrity. System should be capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.	
1.4	Interface	
1.4.1	24 x 1/10/25G SFP28 Interfaces and have an 4x 40G Uplink port.	
1.5	Certification:	
1.5.1	Switch shall conform to UL 60950, IEC 60950, CSA 60950, EN 60950 Standards	
1.5.2	Switch / Switch's Operating System should be tested for EAL2/NDPP or above under Common Criteria Certification.	
2. L2 Multigigabit Switch for Access Point:		
Make:		
Sr. No.	General Specifications	Compliance (Yes/No)
1.1	General Features:	
1.1.1	Switch shall be 1U and rack mountable in standard 19" rack.	
1.1.2	Switch should support internal hot-swappable Redundant Power supply.	
1.1.3	Switch should have redundant hot swappable fans.	
1.1.4	Switch should have minimum 8GB RAM and 16GB Flash.	
1.1.5	Switch should have dedicated slot or ports for stacking, in addition to asked uplink ports. Should support for minimum 400 Gbps of stacking throughput with 8 switch in single stack.	
1.2	Performance:	
1.2.1	Switch shall have minimum 640 Gbps of switching fabric and 476 Mbps of forwarding rate.	
1.2.2	Switch shall have minimum 32K MAC Addresses and 4000 VLAN IDs.	
1.2.3	Should support minimum 32K IPv4 routes or more and 16K IPv6 routes or more	
1.2.4	Switch shall have 8K or more multicast routes.	
1.2.5	Switch should support atleast 64K flow entries	
1.2.6	Switch should support 16 or more STP Instances.	
1.2.7	Switch should have 16 MB or more packet buffer.	
1.3	Functionality :	
1.3.1	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.1ae, 802.3z & 1588v2.	
1.3.2	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1	
1.3.3	Should support advance Layer 3 protocol like BGPv4, BGPv6, MPLS, VRF, VXLAN, IS-ISv4, OSPFv3, MP-BGP From day 1	
1.3.4	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.	
1.3.5	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .	
1.3.6	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery inspection and IPv6 Source Guard.	
1.3.7	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment.	

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1.3.8	Switch must be POE supported and have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.	
1.3.9	During system boots, the system's software signatures should be checked for integrity. System should be capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.	
1.3.10	Switch Should support MACsec-256.	
1.3.11	Switch shall have modular OS to support application 3rd party application hosting	
1.4	Interface	
1.4.1	Switch shall have 24 port Data, 24x 10G Multigigabit (10G/5G/2.5G/1G/100M)Ports, POE and additional option for modular UL ports Supports 10G or 25G.	
1.5	Certification:	
1.5.1	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.	
1.5.2	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.	
1.5.3	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.	
3. Access Switch		
Make:		
Sr. No.	General Specifications	Compliance (Yes/No)
1.1	General Features:	
1.1.1	Switch should be 1U and rack mountable in standard 19" rack.	
1.1.2	Switch should support internal field replaceable unit redundant power supply	
1.1.3	Switch should have minimum 2 GB RAM and 2 GB Flash.	
1.1.4	Switch should have dedicated slot/Ports for modular stacking, in addition to uplink ports. Should support for minimum 80 Gbps of stacking throughput with 8 switch in single stack.	
1.2	Performance:	
1.2.1	Switch shall have minimum 176 Gbps of switching fabric and 130 Mbps of forwarding rate.	
1.2.2	Switch shall have minimum 16K MAC Addresses and 4000 VLAN IDs	
1.2.3	Should support minimum 10K IPv4 routes or more	
1.2.4	Switch shall have 1K or more multicast routes.	
1.2.5	Switch should support atleast 16K flow entries.	
1.2.6	Switch should support 32 or more STP Instances.	
1.2.7	Switch should have 6MB or more packet buffer.	
1.3	Functionality :	
1.3.1	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.	
1.3.2	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day 1.	
1.3.3	Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs from day 1	

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1.3.4	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.	
1.3.5	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .	
1.3.6	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.	
1.3.7	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.	
1.3.8	Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.	
1.4	Interface	
1.4.1	Switch shall have 48 nos. 10/100/1000 Base-T PoE ports and additional 4 nos. of 10G SFP+ uplinks ports.	
1.4.2	All 48 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power budget of 740 W from day 1, Switch should capable to increase power budget upto 1440W with additional Power Supply.	
1.5	Certification:	
1.5.1	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.	
1.5.2	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.	
1.5.3	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.	

4. Access Point Indoor

Make:

Sr. No.	Wi-Fi 6 Access Points 4x4 on 2.4 & 5 GHz Technical Specification	Compliance (Yes/No)
1	Access Point shall support 4x4 MIMO on both radio interfaces and MU-MIMO technology	
2	Access Point shall be able to support Multigigabit Ethernet, support up to 2.5 Gbps PHY speed using single Cat5e or above (Cat6, Cat6a, Cat7) cable	
3	Access Point shall be able to support full features at 802.11at can deliver up to 30 watts of power per port	
4	Access Point shall be able to powered up using PoE 802.11af provides up to 15.4 watts of power per port	
5	Access Point shall support Dual 5GHz radios	
6	Access Point shall have dedicated radio/chipset for spectrum monitoring capabilities, WIPS and off channel RRM without compromising and using the client serving radios, and WIPS functionality license is included from day 1.	
7	Access Point shall support beamforming technology	
8	Access Point shall be IoT ready (Zig bee) and container support for IoT applications.	
9	Access Point should have Bluetooth5 radio to support use cases of location, asset tracking and analytics.	
10	Access Point should have 1x 100, 1000, 2500 Multigigabit Ethernet (RJ-45) - IEEE 802 .3bz	
11	Access Point should have USB port for future requirement.	

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12	Must have atleast 4 dbi Antenna gain on each radios	
13	Must Support data rate upto 5Gbps.	
14	Must support minimum of 23dbm of transmit power in both 2.4Ghz and 5Ghz radios. Should follow the local regulatory Norms.	
15	Must support AP enforced load-balance between 2.4Ghz and 5Ghz band.	
16	Must incorporate radio resource management for power, channel and performance optimization	
17	Must have -97 dB or better Receiver Sensitivity.	
18	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.	
19	Must support Management Frame Protection.	
20	Should support locally-significant certificates on the Aps using a Public key Infrastructure (PKI).	
21	Must support the ability to serve clients and monitor the RF environment concurrently.	
22	Same model AP that serves clients must be able to be dedicated to monitoring the RF environment.	
23	Must be plenum-rated (UL2043).	
24	Must support 16 WLANs per AP for SSID deployment flexibility.	
25	Access Point Must continue serving clients when link to controller is down. It should also have option to authenticate user through Radius server directly from Access Point during link unavailability to controller.	
26	Must support telnet and/or SSH login to APs directly for troubleshooting flexibility.	
27	802.11e and WMM	
28	Must support QoS and Video Call Admission Control capabilities.	
29	Access point should be Wi-Fi 6 certified	
5. Single Mode Fiber Module:		
Make:		
Sr. No.	Specifications	Compliance (Yes/No)
1	Single Mode Fiber 10G /40G Module	
2	Fiber Single Mode Module SFP 10GBASE-LR SFP	

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PASSIVE ITEMS

PASSIVE ITEMS:		
I	Specification for CAT 6A LSZH S/FTP based Complete Cabling System	
	Technical Requirements & Standards Compliance	Compliance Yes/No
	Channel Performance	
1.1	The Category 6A/ Class EA S/FTP SCS shall comply with the following standards: ISO/IEC 11801:2010, ANSI/TIA-568.2-D & IEC 60603-7-1.	
1.2	The Category 6A/ Class EA S/FTP system should support the following IEEE Ethernet applications upto IEEE 802.3bt (Type 4)	
1.3	It is critical that guaranteed worst-case values are provided to ensure the SCS can support 10G transmissions without risk. "Average value" or "Typical Value" is not acceptable as they do not account for lower performance channels. The proposed Category 6A S/FTP SCS, when configured as a worst-case 100-meter channel shall provide performance headroom over limits specified by Cat 6A	
1.4	NEXT - Minimum 4 dB above the standards; Should support a minimum of 4 connector Channel with a minimum 4 dB guaranteed NEXT, 3rd Party Intertek (ETL) reports for verification of performance parameters is required.	
1.5	The Structured Cabling System with respect to CAT6A Cabling System must consist of individual components provided by the same manufacture. "Mix and Match" products are not allowed as there is no guarantee that the overall channel will meet Category 6A Channel requirements if constructed with components from different vendors.	
1.6	The Category 6A cable and Category 6A channel components shall be manufactured by a single manufacturer. The manufacturer shall warrant the Category 6A channel cable, components, and applications for a period of 25 years.	
1.7	The SCS must be tested by UL/ETL to ANSI/TIA 568.2-D, ISO/IEC 11801 Amendment 1 and certificates or reports for the channel testing must be provided.	
II	Specification for Copper Cat 6A LSZH S/FTP Horizontal Cable	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	The Cable should meet ANSI/TIA 568.2-D Category 6A Specifications.	
2	Cable Reel/box should have unique number to track the test report of cable in the reel/box containing 305 meters (or 1000 feet) or 500 meters (or 1640 feet) of cable as per OEM.	
3	The cable should consist of Eight 23 AWG bare copper conductors. Copper Clad Aluminum or any other combinations are not allowed.	
4	The Cable should be round shape.	
5	Insulator material should be Polyethylene/Polyolefin.	
6	Screen tape material should be aluminum/polyester shield with screen braid material should be tinned copper.	
7	Nominal cable diameter shall not exceed 7.4 mm.	
8	The cable should support the installation temperature: 0 degree to +50 degree C	

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9	It should support Operating temperature of -20 degree to +60 degree C	
10	The cable shall be available in Low-Smoke, Zero Halogen (LSZH) and must comply with the following Fire Safety standards as per ISO/IEC 60332-3-22, ISO/IEC 60754-2 for Acidity, ISO/IEC 61034-2 for Smoke Density and EN50575 CPR Cable EuroClass Fire Performance - B2ca.	
11	Shall be RoHS Compliant	
III	Specification for S/FTP CAT 6A Patch Panel/Jack Panel loaded	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	It shall be a S/FTP 24 (1U size) or 48 (2U size) Port Patch Panel	
2	The ganged adapter style patch panel will utilize increments of six or one RJ-45 style jacks in a common moulded component.	
3	The ganged adapters shall have RJ45 jack in the front and Insulation Displacement Connector (IDC) at the rear of the module.	
4	Termination managers must be provided with the panel. These termination managers provide proper pair positioning, control, and strain relief features to the rear termination area of the panel.	
5	When configured in worst-case 100-meter channels with full cross-connects and consolidation points with the other products proposed in this tender, the panel shall be capable of delivering the minimum guaranteed channel performance	
6	The panel shall be available in 24-port and 48-port configurations with universal A/B labelling and 110 connector terminations on rear of panel allowing for quick and easy installation of 22 to 24 AWG cable	
7	The panel shall be equipped with a removable or fixed rear mounted cable management bar and front labels	
8	The panel shall be UL or cUL Listed	
9	Operating Temperature Range = 10°C to +60°C	
10	Storage Temperature Range = 0°C to +70°C	
11	Humidity = 95% (noncondensing) maximum	
12	Nominal Solid Conductor & Stranded Conductor Gauge Diameter: 22 AWG to 24 AWG	
13	Insertion Life = 750 minimum insertions	
14	Shall be RoHS Compliant	
IV	Specification for Category 6A S/FTP Information Outlets	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	The 8-pin modular (RJ-45) jacks shall comply with IEC 60603-7-4	
2	The Category 6A outlets shall be backward compatible with Category 6 and 5E cords and cables.	
3	The Category 6A outlets shall be of a universal design supporting T568 A & B wiring.	
4	The information outlet shall have a Current Rating of 1.5 A at 20°C	

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5	The information outlet must support 90 degree or 180 cable termination. As some mounting hardware does not allow for cable entry directly from the rear, this capability is necessary.	
6	The information outlet will have insertion life of 750 cycles minimum.	
7	I/O Should support POE i.e IEEE 802.3bt from Type 1 to Type 4.	
V	Specification for 1, 2 & 4 Port Shuttered Face Plate	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be available in 1 port, 2 port and 4 port square versions.	
2	Size of Faceplate: 86 x 86 mm or 3 x 3 inches	
3	Material shall be high impact, flame retardant, UL-rated 94 V-0, thermoplastic.	
4	Flammability Rating: UL 94 V-0	
5	Safety Standard: UL Listed	
6	Shall be compatible with CAT 5e/CAT 6/CAT 6A information outlets.	
7	Shall have inbuilt shutter or hinged dust cover to prevent dust to accumulate on the information outlets which are not in use.	
VI	Specification for CAT 6A LSZH S/FTP RJ45 Patch Cords (1/2/3/5 Mtr)	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Category 6A Equipment cords (Length – 1/2/3/5 Mtr)	
2	Conductors Should be of 4 twisted pairs of 26 AWG stranded copper for better flexibility	
3	SCS must support patch cord lengths of 1 meter, 2 meters, 3 meters and 5 meters variants. The Patch cords shall be available in Stranded and solid core construction variants.	
4	Cords shall be equipped with 8-pin modular plugs on each end.	
5	All cords shall be round, and consist of copper conductors, tightly twisted into individual pairs.	
6	Nominal cordage diameter shall not exceed 7.24 mm.	
7	The LSZH version must comply with the following Fire Safety standards as per ISO/IEC 60332-1, ISO/IEC 60754-2 for Acidity & ISO/IEC 61034-2 for Smoke Density	
8	The patch cords will have insertion life of 750 cycles minimum.	
VII	Specification for OFC Single Mode Solution	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
	Technical Specifications for SM Fiber Optic Cable - 6 core	
1	Single Mode fiber 6 core: -Armoured Uni-Tube/Multi-tube, Gel Free 9/125µm, OS2 Type Optical Fiber Cable (fully compatible with ITU G.652.D fibers & ITU G.657.A1)	
2	Outer sheath FRLSZH (as per IEC 60332-3) & UV Resistance, Indoor/Outdoor	
3	Shall be 9µ (micron), 6-core Single mode steel armoured cable as per Telcordia GR-409 (Indoor) and Telcordia GR-20 (Outdoor), Fiber Type G.652.D, G.657.A1, (OS2), Zero/Low Water Peak	
4	The Crush Resistance of the fiber cable shall be 2500 to 2700N/100MMX100MM.	

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5	Shall be suitable for using in the building shaft, outdoor buried and Aerial laying	
6	Shall be Gel- free with loose tube construction and water blocked construction to prevent water absorption and consequent damages.	
7	Optical Parameters SM, (these value are after jacketing of cables) a) Attenuation @ 1310nm (max) \leq 0.34 dB/Km b) Attenuation @ 1550nm (max) \leq 0.22 dB/Km	
8	Fiber cable shall be RoHS Compliant.	
9	Mechanical Test specifications shall comply with IEC 60794-1.	
10	Tensile strength should be 2400 to 2700 Newton	
11	The Installation Temperature shall be -20 degree Celsius to +70-degree Celsius, Operating Temperature shall be -20 degree Celsius to +70 degree Celsius and Storage Temperature shall be -20 degree Celsius to +70 degree Celsius.	
12	Maximum Cable Diameter shall be Diameter: 14.00 mm \pm 5 % with a Cable Weight of 160 kg/km \pm 20 kg/km.	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
	Technical Specifications for SM Fiber Optic Cable - 12 core	
1	Single Mode fiber 12 core: -Armoured Uni-Tube/Multi-tube, Gel Free 9/125 μ m, OS2 Type Optical Fiber Cable (fully compatible with ITU G.652.D fibers & ITU G.657.A1)	
2	Outer sheath FRLSZH (as per IEC 60332-3) & UV Resistance, Indoor/Outdoor	
3	Shall be 9 μ (micron), 12-core Single mode steel armoured cable as per Telcordia GR-409 (Indoor) and Telcordia GR-20 (Outdoor), Fiber Type G.652.D, G.657.A1, (OS2), Zero/Low Water Peak	
4	The Crush Resistance of the fiber cable shall be 2500 to 2700N/100MMX100MM.	
5	Shall be suitable for using in the building shaft, outdoor buried and Aerial laying	
6	Shall be Gel- free with loose tube construction and water blocked construction to prevent water absorption and consequent damages.	
7	Optical Parameters SM, (these value are after jacketing of cables) a) Attenuation @ 1310nm (max) \leq 0.34 dB/Km b) Attenuation @ 1550nm (max) \leq 0.22 dB/Km	
8	Fiber cable shall be RoHS Compliant.	
9	Mechanical Test specifications shall comply with IEC 60794-1.	
10	Tensile strength should be 2400 to 2700 Newton	
11	The Installation Temperature shall be -20 degree Celsius to +70-degree Celsius, Operating Temperature shall be -20 degree Celsius to +70 degree Celsius and Storage Temperature shall be -20 degree Celsius to +70 degree Celsius.	
12	Maximum Cable Diameter shall be Diameter: 14.00 mm \pm 5 % with a Cable Weight of 180 kg/km \pm 20 kg/km.	
VIII	Specification for 12/24/48 Core Fiber Optic Rack Mount LIU with Adaptors Plates, Splice Tray and Pigtails:-	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No

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1	The same Panel shall accommodate 4 x 12F coupler plates or adapter plates for a total of 48 Fiber Termination.	
2	The width shall be 19 inches and height of 1U (1.75 inches).	
3	Shall have an inbuilt fiber patch cord management trough in the front so that horizontal cable managers are not required.	
4	The shelf/LIU shall be sliding.	
5	The Shelf shall be able to Support splice trays to splice Stackable tray for 48 Splices.	
6	Shall be RoHS Compliant	
IX	Specification for 12/24 Fiber LC Single mode Adapter Module for Fiber Optic Panel: -	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Each module shall accommodate 12/24 fibers, with 12/24 LC adapters with inbuilt shutter for dust protection.	
2	The adapter color shall be blue for Single mode.	
3	Shall be RoHS Compliant.	
4	Shall come with 12/24 (fibers), 6/12 duplex.	
X	Specification for Single mode LC Fiber Pigtail, length 3 Feet or 5 Feet for Fiber Optic Panel: -	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be Single mode OS2, fiber	
2	Standards Compliance: G.652.D, G.657.A1 and OS2	
3	Regulatory Compliance: RoHS	
4	Jacket flame test method: Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-3, IEC 60754-2, IEC 61034-2, UL 1666	
5	Optical Performance: Insertion Loss, maximum 0.34 dB Return Loss, minimum 50.0 dB	
6	Interface, Front: LC	
7	Ferrule Material: Zirconia/Ceramic	
8	Cable Qualification Standards: ANSI/ICEA S-83-596 or Telcordia GR-409	
9	Pigtail Environmental Specifications: Environmental Space: Low Smoke Zero Halogen (LSZH)/Riser Operating Temperature: -10 degree Celsius to +60 degree Celsius. Optical Components Standard: ANSI/TIA-568-C.3 or latest.	
XI	Specification for Single mode LC-LC Type 9/125 μm Single mode OS2 Optical Fiber Patch Cords: -	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be Single mode (OS2), Zero/Low water peak, LC to LC, Fiber Duplex patch cords, length 3 meter.	
2	Standards Compliance: G.652.D, G.657.A1 and OS2	
3	Regulatory Compliance: RoHS	
4	Jacket: Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-3, IEC 60754-2, IEC 61034-2, UL 1666, UL 1685	
5	Ferrule Material: Zirconia/Ceramic	
6	Flame Test Listing: NEC OFNR-LS (ETL) and c(ETL)	

7	Cable Qualification Standards: ANSI/ICEA S-83-596 or Telcordia GR-409	
8	Optical Components Standard: ANSI/TIA-568-C.3 or latest	
9	Connector Interface: LC	
10	Operating Temperature: -10 degree Celsius to +60 degree Celsius	
11	Lengths shall be available in lengths of 1 meter, 2 meters, 3 meters or 5 meters	
12	Optical Performance: Insertion Loss, maximum 0.34 dB Return Loss, minimum 50.0 dB	
XII	Specification for Single mode SC-APC SC-APC Single Mode Simplex Optical Fiber Patch Cords: -	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be Single mode (OS2), SC APC to SC APC, Simplex Fiber patch cords, Length 2 meter.	
2	Standards Compliance: G.652.D, G.657.A1 and OS2	
3	Regulatory Compliance: RoHS	
4	Jacket: Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-3, IEC 60754-2, IEC 61034-2, UL 1666, UL 1685	
5	Cable Qualification Standards: ANSI/ICEA S-83-596 and Telcordia GR-409	
6	Optical Components Standard: ANSI/TIA-568-C.3 or latest	
7	Ferrule geometry: Angled	
8	Ferrule Material: Zirconia/Ceramic	
9	Connector Interface: SC APC & SC APC	
10	Operating Temperature: -10 degree Celsius to +60 degree Celsius	
11	Length Shall be 1/2/3/5/10 meters	
12	Connector Optical Performance: Insertion Loss, Typical: 0.30 dB Return Loss, minimum: 65.0 dB	
XIII	Specification for Single mode SC APC Single Mode Tight buffer Fiber Pigtailed, length 5 Feet : -	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be Single mode (OS2), SC APC, Tight/Reinforced Buffer Fiber pigtailed.	
2	Standards Compliance: G.652.D, G.657.A1 and OS2	
3	Regulatory Compliance: RoHS	
4	Jacket: Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-3, IEC 60754-2, IEC 61034-2, UL 1666, UL 1685	
5	Cable Qualification Standards: ANSI/ICEA S-83-596 and Telcordia GR-409	
6	Optical Components Standard: ANSI/TIA-568-C.3 or latest	
7	Ferrule Material: Zirconia/Ceramic	
8	Connector Interface A: SC APC	
9	Operating Temperature: -10 degree Celsius to +60 degree Celsius	
10	Length Shall be 3 Feet/1 meter or 5 Feet/1.5 meter	
11	Connector Optical Performance: Insertion Loss, Typical: 0.30 dB Return Loss, minimum: 65.0 dB	

XIV	Specification for Single mode Single mode LC-APC LC-UPC Single Mode Duplex Optical Fiber Patch Cords :-	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be Single mode (OS2), LC APC to LC UPC, Duplex Fiber patch cords, length 3 meter.	
2	Standards Compliance: G.652.D, G.657.A1 and OS2	
3	Regulatory Compliance: RoHS	
4	Jacket: Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-3, IEC 60754-2, IEC 61034-2, UL 1666, UL 1685	
5	Flame Test Listing: NEC OFNR (ETL) and c(ETL)	
6	Cable Qualification Standards: ANSI/ICEA S-83-596 and Telcordia GR-409	
7	Optical Components Standard: ANSI/TIA-568-C.3 or latest	
8	Ferrule Material: Zirconia/Ceramic	
9	Connector Interface: LC APC & LC UPC	
10	Operating Temperature: -10 degree Celsius to +60 degree Celsius	
11	Length Shall be 1/2/3/5/10 meters	
12	Connector Optical Performance: Insertion Loss, Typical: 0.25 dB Return Loss, minimum: 50.0 dB	
XV	Specification for Outside plant dome type outdoor Fiber optic splice enclosure IP 68 rated :-	
Sl. No.	Technical Requirements & Standards Compliance	Compliance Yes/No
1	Shall be a butt type enclosure with a dome and base	
2	The Cable entries should be through the cable ports located in the base.	
3	The dome and base should be sealed using a clamp with O-ring system. The cable entry ports should be sealed mechanically instead of heat shrink.	
4	General Specifications: a) IP68 Rated b) No. of Splice trays: 2 nos. c) Splice Tray Capacity: 24 Fibers d) No. of cable entry ports: 4 round ports and 1 oval port.	
5	The mechanical sealing unit should have a rotary mechanism which can used for sealing, no special tools should be used for sealing.	
6	The closure should have the capability to accommodate loop cables (uncut loose tube cables),	
7	The cables should be secured to the closure using hose clamps and a cable attachment device.	
8	The closure should have a basket for storing loose tubes.	

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NETWORK RACKS :

Technical Specification for 19" 15U Rack 500mm (Depth)

Make: Rittal / APW / MTS

Specifications	Compliance (Yes/No)
19" 15U Rack 500mm (Depth)	
Make :	
15 U WALL MOUNT RACKS (500 mm x 500 mm)	
Usable Height : 15 U	
Actual Depth / Usable Depth : 500 mm / 375 mm (max)	
Actual Width / Usable Width : 500 mm / 19"	
Front : Glass Door on hinges with locking arrangement	
Material Used for Fabrication	
CRCA steel sheet	
Bend Test (3 times) 45	
Thickness of Material	
1 mm for Racks, 1.2mm for Vertical equipment angles or Can be customized as per requirement.	
Powder Coating	
Coat Thickness =80-90 Microns	
Coating Shade-Cabinet=Light Grey (RAL 7035) or BLACK	
Steel Door/Glass trims=Light Grey /Dark Grey (RAL 7035) or BLACK	
Standards	
Rack As per DIN 41494 & IEC 297 Standard	
Manufacturing process confirms to ISO 9001-2015 Standards	

ONLINE UPS 60KVA Modular with 30 Min Backup.

Make : VERTIV / APC / EATON

Sl. No.	Minimum Functional and Technical Specifications	Compliance (Yes / No)
1	General Requirement	
1.1	The vendor shall provide 1x60 KVA modular live/Hot Swappable UPS . The power cabinet must be of 100 KVA each. Also, each power cabinet shall be consisting of multiple numbers of live/hot-swappable power modules.	
2	Standard	
2.1	The UPS shall be designed in accordance with the applicable sections of the current revision of the following documents. Where a conflict arises between these documents and statements made herein, the statements in this specification shall govern the following: General and safety requirements for UPS used in operator access area: IEC/EN 62040- 1-1 Electromagnetic compatibility (EMC) requirements for UPS: IEC/EN 62040-2 C2 UL RP 2986 - "Incident Arc Energy in front of product with top cover bolted and power module inserted or removed is <1.2 cal/cm²"	

Sl. No.	Minimum Functional and Technical Specifications	Compliance (Yes / No)
	OEM Standards: ISO 9001, ISO 14001, ISO 45001, ISO 50001	
3	DESIGN REQUIREMENTS: -	
3.1	Transformer less, IGBT Rectifier & IGBT Inverter Modular Scalable Hot Swappable UPS System UPS Modules must be of 40-50 KW Rating in each 100 KW power cabinet.	
3.2	Input Voltage 380/400/415(Minimum) VAC, three-phase	
3.3	Input Voltage Range 331 to 477 V	
3.4	Input Frequency and tolerance 50HZ +/- 10Hz (40 to 60Hz)	
3.5	Input Total Harmonics Distortion <5% at 100% load	
3.6	Input Power factor ≥0.99 at full load	
3.7	Overload capability: 150% for 1 minute (normal operation). 125% for 10 minutes (normal operation)	
3.8	Overall UPS efficiency: Greater than 97 % i.e. > 97 % at 50% load	
3.9	Output Voltage 380/400/415 (Minimum) VAC, 3 Phase.	
3.10	Voltage Regulation /Stability ±1%	
3.11	Output Power Factor: Unity	
3.12	Rated Frequency: 50 Hz +/-0.1%	
3.13	Acoustic Noise (At 1 meter from UPS) at 100% load: Less than 75 dB	
3.14	Output Voltage distortion (THDv)(100% Load):Linear load: <1(%) Non-Linear load: <5(%)	
3.15	Maximum input short circuit protection – 65kA	
3.16	Networking Protocol – SNMP, Modbus TCP/IP	
3.17	Operating Temperature: 0 to 40 Deg C	
3.18	Humidity 0 to <95%	
3.19	The UPS shall be provided with Phase Sequence Correction at Input i.e., In case of Phase reversal at Input, UPS shall continue to operate in Double Conversion Mode of operation without going to battery mode.	
3.20	The UPS shall be provided with oscilloscope for measuring and recording input/output voltage & current waveforms in the event of any abnormal or alarming situation arises. In case it is not available within the UPS, then two numbers of 3 Phase Power Meters (one at Input & one at Output) shall be provided along with the UPS system which can capture the Waveforms Triggered during the failure event.	
3.21	AC/DC capacitor service life shall be minimum 10 years. If less than 10 years capacitors replacement cost must be considered in the final commercial offer	
3.22	UPS shall have built-in feature to test UPS at 100% Load without the need of any external Load Bank. In case this feature is not available within the UPS, Vendor shall provide an External Load Bank equal to UPS Capacity which will be kept at the site till the end of Warranty period.	

Sl. No.	Minimum Functional and Technical Specifications	Compliance (Yes / No)
4	Mechanical	
4.1	Dust filter & Rodent Mesh shall be provided with each UPS Frame	
4.2	Built In / External Energy Meter shall be provided to display kWh consumption at input & output.	
4.3	Conformal Coating: Critical components like PCBs in UPS shall be conformal coated for protection against dust and other environmental harsh conditions.	
4.4	Ingress Protection – IP 20	
4.5	Cable Entry: Top Cable Entry Provision shall be provided.	
5.	Battery	
5.1	Back up time 30 Mins on 0.8 load pf	
5.2	Battery Make: Exide / Quanta/ Panasonic/Leoch	
5.3	Battery type SMF VRLA	
5.4	No of Battery Blocks - 40-48	
5.5	Cable Entry Top as well as Bottom Cable Entry Provision shall be provided.	
5.6	ECV 1.7	
5.7	Remote Monitoring UPS, SNMP and Remote monitoring software should be from same OEM for better integration. UPS Should be With SNMP Card & With data-driven digital monitoring service for your critical equipment, increasing resiliency and transparency through live sensor data. predictive analytics and smart alarming delivered directly to your Smartphone. Health Insights and cybersecurity analysis of your Devices with Centralized Inventory of your critical devices.	

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