	भारतीय प्रौद्योगिकीसंस्थानमद्रासचेन्नै **600 036**	
	INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036	
	भंडार एवं क्रय अनुभाग	
	STORES & PURCHASE SECTION	
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	दूरभाष / Telephone : (044) 2257 8285/8286/8287/8288 फैक्स / FAX: (044) 2257 8292	
	GSTIN: 33AAAAI3615G1Z6	

Booma Sowrirajan   **Dated : 07.04.2021**
Assistant Registrar (Stores & Purchase)

Tender No. IITM/SPS/AV System/001/2021-22   **Due Date: 20.04.2021**
                                                                                                         Before 2.00 p.m.

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system from C**lass-I local suppliers and Class II local suppliers**, namely technical and financial bids for

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"SUPPLY, INSTALLATION AND COMMISSIONING OF AUDIO AND VIDEO CONFERENCING SYSTEM IN BOARD ROOM of IIT MADRAS AS PER DESIGN"

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conforming to the specifications enclosed.

Tender Documents may be downloaded from Central Public Procurement Portal https://etenders.gov.in/eprocure/app. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website https://etenders.gov.in/eprocure/app. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at **"Help for contractors".** [Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal"].

Bidders can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type 'IIT'. Thereafter, Click on "GO" button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://etenders.gov.in/eprocure/app as per the schedule attached.

No manual bids will be accepted. All tender documents including pre-qualification, Technical and Financial bids should be submitted in the E-procurement portal.

Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be placed in the technical part of the bid, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.

1	**LAST DATE for receipt of Tender**	:	**20.04.2021 before 02.00 p.m**
	Date & Time of opening of Tender	:	**21.04.2021 @ 03.00 p.m**
	GUIDELINES, TERMS AND CONDITIONS OF TENDER		
A	**Submission of Tender**	:	As per the directives of Department of Expenditure, this tender document has been published on the Central Public Procurement Portal URL: https://etenders.gov.in/eprocure/app The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal More information useful for submitting online bids on the CPP Portal may be obtained at: https://etenders.gov.in/eprocure/app All tender documents including Technical Bid & Financial Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. **No manual bid submission will be entertained.**

B	Instructions for online bid submission	:	**REGISTRATION**
			• Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal URL: https://etenders.gov.in/eprocure/app by clicking on "Online Bidder Enrollment". Enrolment on the CPP Portal is free of charge.
			• As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
			• 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 from the CPP Portal.
			• Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.) https://eprocure.gov.in/eprocure/app with their profile.
			• 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 DSCs to others which may lead to misuse.
			• Bidder then may log in to the site through the secured log-in by entering their user ID / password and the password of the DSC / eToken.
C	Searching for tender documents	:	• There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.
			• Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective **"My Tender"** folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document.
			• The bidder should make a note of the **unique Tender ID** assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.
D	Preparation of bids	:	• Bidder should take into account any corrigendum published on the tender document before submitting their bids.
			• 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.
			• Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option.
			• 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, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use **"My Documents"** area available to them to upload such documents. 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.

E	Submission of bids	:	• Bidder should log into the site well in advance for bid submission so that he/she can upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues.
			• The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
			• **Bid Security Declaration has to be submitted in the Technical Bid** as per prescribed format given in **Annexure-8. Otherwise, the tender will be summarily rejected.**
			• A standard BOQ format has been provided in Annexure-5 with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective financial quotes and other details (such as name of the bidder). If the BOQ file is found to be modified by the bidder, the bid will be rejected.
			• 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.
			• The **Tender Inviting Authority (TIA)** will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.
			• The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
			• Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
			• Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.
F	Assistance to bidders	:	• Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
			• Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]
G	General Instructions to the Bidders	:	• The tenders will be received online through portal https://etenders.gov.in/eprocure/app. In the Technical Bids, the bidders are required to upload all the documents in pdf format.
			• Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through https://etenders.gov.in/eprocure/app
			• Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/eprocure/app under the "Information about DSC".
H	Bid Security Declaration & Performance Guarantee	:	**As per OM No.F.9/4/2020 – PPD dated 12.11.2020. In lieu of EMD,** the bidder may submit "Bid Security Declaration in the proforma given in **Annexure – 8.**
			The successful bidder shall submit a Performance Guarantee of 3% of the purchase order value by way of DD/ Bank Guarantee obtained from any commercial bank, which would be released on expiry/termination of the contract after adjustment of dues, if any. The security deposit should be valid for two months beyond the duration of the contract.

2	Marking on Technical Bid	:	i. The vendor eligibility criteria, scope of work and technical Specification along with bill of materials details for this tender is given in **Annexure 1 to 3**.
			ii. The tenderer shall go through the Annexures and submit the technical bid.
			iii. The Floor plan of Board room is given in **Annexure -2**
			iv. The AV Line Diagram is given in **Annexure -3.**
			v. The Technical bid should be submitted in the proforma given as per **Annexure -4**
			vi. All technical bids should have the page-wise **heading as "Technical Bid" and page no.** in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.
			The technical bid should consist of all technical details along with catalogue/brochure, model number and other technical, commercial terms and conditions. The technical bid should contain only technical details called for in the prescribed proforma along with the supporting documents. No other details apart from the technical details should be submitted in the technical bid. If any deviation in this regard if found in the technical bid submitted, the tender will be summarily rejected.
3	Marking on Financial Bid	:	i. Financial bid should be submitted in the prescribed proforma format as per **Annexure-5** in **xls format (BOQ)** through e-tender only. **No manual or other form of submission of Financial Bid will not be entertained**.
			ii. Financial bid should indicate item-wise price <u>for all the items</u> mentioned in the technical bid.
			iii. Total value in the financial bid should be indicated in figures & words clearly.
4	**Preparation of Tender:**		
	a) You should quote your product as per our specification by mentioning our requirements and your offer side by side and the rate should be in total as per our requirements. We will not make any calculation if you have mentioned the rates of items separately. b) The offer/bids should be submitted in two bid system i.e. Technical Bid and Financial Bid separately.		
5	**Signing of Tender:**		
	The Tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the schedule to the Tender are not fully filled in or not duly signed/authenticated. Specific attention is drawn to the delivery dates and terms and conditions enclosed herewith. **Each page of the technical bid required to be signed and bears the official seal of the tenderers.** If the application is made by a firm in partnership, it shall be signed (with seal)by all the partners of the firm above their full typewritten names and current addresses or alternatively by a partner holding power of attorney for the firm in which case a certified copy of the power of attorney shall accompany the application. A certified copy of the partnership deed along with current addresses of all the partners of the firm shall also accompany the application. If a limited company or a corporation makes the application, it shall be signed by a duly authorized person holding power of attorney for signing the application, in which case a certified copy of the power of attorney shall accompany the application. Such limited company or corporation may be required to furnish satisfactory evidence of its existence. The applicant shall also furnish a copy of the Memorandum of Articles of association duly attested by a Public notary.		
6	**Period for which the offer will remain open:**		
	The Tender shall remain open for acceptance/validity till: **120 days from the date of opening of the tender.** However, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day.		

7	**Prices:**
	i. The prices quoted must be Nett considering all scope of work, terms & conditions and as per the technical specification mentioned in **Annexures 1 -3**. **The prices quoted by the bidders should be inclusive of GST and other statutory levies.**
	ii. **The percentage of tax etc. included in the price should be indicated in clear terms**. **If the inclusive price is not given, we will treat your offered rate as inclusive rate and comparison be made with others.** If at the time of comparison of your offer without taxes etc. is happen to be lowest, you are bound to supply as per the offered rate, i.e. without taxes etc.
	iii. Prices should be quoted in INR only.
	iv. **All conditional tenders will be summarily rejected.**
8	**Public Procurement – Preference to Make in India:**
	This tender will be evaluated based on Public Procurement (Preference to Make in India) DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020 and other subsequent orders issued therein. Accordingly, preference will be given to the Make in India products while evaluating the bids, however, it is the sole responsibility of the bidder(s) to specify the product quoted by them is of Make in India product along with respective documentary evidence as stipulated in the aforesaid order in the technical bid itself. Necessary self-certification about the classification of the supplier/bidder as per the above order should be submitted by the bidder in **Annexure-6A and 6B.** Non-submission of self-certification will lead to rejection of bid out rightly and the bidder will be treated as non-local supplier. The bidder offering imported products will fall under the category of Non-local suppliers. They can't claim themselves as Class-I Local Suppliers/Class-II Local Suppliers by claiming services such as transportation, insurance, installation, commissioning, training and after sales service support like AMC/CAMC etc. as local value addition.
9	**PRE-QUALIFICATION CRITERIA**
	Bidder Eligibility Criteria I:
	1. Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I and Class-II local suppliers should be submitted in the prescribed proforma format as per **Annexure-6A and 6B.**
	2. Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at **Annexure-7**. The bidder should submit Certificate for "Bidder from/ Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 as mentioned.
	3. The firm should submit "Bid Security Declaration" as per format given in **Annexure-8**
	Bidder Eligibility Criteria II:
	1. The firm should not have been blacklisted / debarred by any Government/ regulatory bodies in India. A self-declaration format given in **Annexure – 9**
	2. The bidder should submit OEM authorization for all Make/brand of item for which they are submitting the bid (format is given in **Annexure-10**)
	3. The bidder should have similar experience in the last 3 years (2018, 2019 and 2020) in Govt. Institutions/any of Central PSU's / any of central Government/ autonomous bodies/reputed firms in executing the following works (any one category).
	i) Two (2) similar contracts each costing not less than Rs. 20 Lakhs
	(Or)
	ii) One (1) similar contract costing not less than Rs. 40 Lakhs
	Copies of the documents listed below should be submitted as a proof for the above work experience:
	i) Purchase Order
	ii) Work Completion Certificates
	iii) User Performance Certificate from End User
	4. The bidder shall have an annual financial turnover of not less than Rs. 2 Crores (Rupees two Crores only) during any two of the last three financial years i.e. 2018-19, 2019-20 and 2020-2021. (**Financial statements / certificates issued by Chartered Accountant should be submitted as proof).**

9	**Number of Bids and their Submission :**
	The bidders should submit the bids in two bid system as detailed below:-
	Bid I **Technical Bid**
	The technical bid should consist of Pre-Qualification Criteria (Bidder Eligibility Criteria - I & II) and technical specification compliance sheet as per Annexure 4.
	Bid II **Financial Bid**
	The financial bid should be submitted in excel format (BoQ) as per the proforma (Annexure 5) uploaded in the e-Tender web site. The Quoted price should be for supply and installation of the item and inclusive of all cost and statutory levies at IIT Madras.
10	**Evaluation of Bids:**
	Bid evaluation will take place in two stages.
	Stage I: **Technical Bid evaluation**
	1. Bidder Eligibility Criteria-I will be evaluated first and those bidders who have complied with this criteria alone be evaluated for the Bidder Eligibility Criteria-II and technical Specification evaluation.
	2. In the 2nd stage, the Bidder Eligibility Criteria-II and the technical specification offered by the bidders will be evaluated by the technical committee for compliance. The proposed technical specification offered by the bidder should be equivalent or higher to the specifications mentioned in the technical bid.
	3. All bidders who have fully complied with Bidder Eligibility Criteria I, II and technical evaluation will only be considered for opening of financial bid.
	Stage II: Financial Bid Evaluation
	The financial bid evaluation will be based on price quoted by the bidder (BoQ). The tender will be awarded to the overall L1 bidder for the total work (Comprising all items).
11	**Selection of successful bidder and Award of Order**
	The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020.
12	**Delivery Period:** The Items should be delivered within 4-6 weeks of issue of Purchase Order. Please indicate the actual delivery period clearly. No further extension of time will be allowed.
13	**Payment:**
	• **No Advance Payment will be made for Indigenous purchase.**
	• Payment will be made only after supply and satisfactory installation.
14	**Warranty:** 3 Years.
15	**Terms and conditions :**
	Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers.
16	**Right of Acceptance:** IIT MADRAS reserves the right to reject the whole or any part of the Tender without assigning any reason or to accept them in part or full.
17	**Communication of Acceptance:** Letter of Intimation and acceptance will be communicated by post/email to the successful bidder to the address indicated in the bid.
18	**Transit Insurance:** The Purchaser will not pay separately for Transit Insurance.
19	In terms of Rule 173 (iv) of General Financial Rules, 2017 the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of its bid.
20	**Conditions of contract:**
	Tenderer should quote on the basis of the conditions referred to in Para of the invitation to tender and tender papers. In case these terms and conditions are not acceptable to the tenderer, he should specifically state the deviation(s) there from in the body of the tender.
21	**Tenderer shall submit along with this Tender:**
	Name and full address of the Banker and their swift code and PAN No. and GSTIN number.
23	**Jurisdiction:**
	All questions, disputes, or differences arising under, out of or in connection with the contract, if concluded, shall be subject to the exclusive jurisdiction at the place from which the acceptance of Tender is issued.

24	**Force Majeure:**
	The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
	For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
	If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
25	**Risk Purchase Clause:** In event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from the other source on the total risk of the supplier under risk purchase clause
26	The tenderer shall certify that the tender document submitted by him / her are of the same replica of the tender document as published by IIT Madras and no corrections, additions and alterations made to the same. If any deviation found in the same at any stage and date, the bid / contract will be rejected / terminated and actions will be initiated as per the terms and conditions of the contract.
27	Due to Covid-19 pandemic the bidders will not be entertained to participate in opening of Bids. Since the tender is e-tender, the opening of the bids may be checked using the respective logins of the bidders.

Sd/-
(Booma Sowrirajan)
Assistant Registrar
Stores and Purchase Section

ACKNOWLEDGEMENT

It is hereby acknowledged that I/We have gone through all the points listed under "Specification, Guidelines, Terms and Conditions" of tender document. I/We totally understand the terms and conditions and agree to abide by the same.

**SIGNATURE OF TENDERER ALONG WITH
SEAL OF THE COMPANY WITH DATE**

SUPPLY, INSTALLATION AND COMMISSIONING OF AUDIO AND VIDEO CONFERENCING SYSTEM IN BOARD ROOM

(A) PRE-QUALIFICATION CRITERIA

I   Bidder Eligibility Criteria I:

1. Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I and Class-II local suppliers should be submitted in the prescribed proforma format as per **Annexure-6A and 6B**

2. Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at **Annexure-7**. The bidder should submit Certificate for "Bidder from/ Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 as mentioned.

3. The firm should submit "Bid Security Declaration" as per format given in **Annexure-8**

II   Bidder Eligibility Criteria II:

1. The firm should not have been blacklisted / debarred by any Government/ regulatory bodies in India. A self-declaration format given in **Annexure – 9**

2. The bidder should submit OEM authorization for all Make/brand of item for which they are submitting the bid (format is given in **Annexure-10**).

3. The bidder should have similar experience in the last 3 years (2018, 2019 and 2020) in Govt. Institutions/any of Central PSU's / any of central Government/ autonomous bodies/reputed firms in executing the following works (any one category).

> i) Two (2) similar contracts each costing not less Rs. 20 Lakhs
> (Or)
> ii) One (1) similar contract costing not less than Rs. 40 Lakhs

Copies of the documents listed below should be submitted as a proof for the above work experience:
> i)   Purchase Order
> ii)   Work Completion Certificates
> iii) User Performance Certificate from End User

4. The bidder shall have an annual financial turnover of not less than Rs. 2 Crores (Rupees two Crores only) during any two of the last three financial years i.e. 2018-19, 2019-20 and 2020-2021. (Financial statements / certificates issued by Chartered Accountant should be submitted as proof)

(B) SCOPE OF WORK

1. The tender is called for supply, installation and commissioning of Audio and Video conference system in Board Room.

2. The bidder is required to commission the Audio and Video conference system as per our design (Annexure 2 and 3) and specification given below:

   i)   Board room should have one 98" main display and two 65" side display

   ii)   The 65" two side displays should operate for rear participant Viewing comfort

   iii)   The speakers and the array microphones should be placed in the false ceiling

   iv)   Each array microphone should have eight separate lobes

   v)   The speakers and the microphones in the break area should be enabled only when sliding folding partition is opened

   vi)   The Chairman chair should have the separate monitor for content viewing and should be able to enable / disable the lobes of the array microphones using iPAD

   vii)   The operator in the control room also should be able to enable / disable the lobes of the array microphones using iPad

   viii)   Any participant in the board room should be able to connect wirelessly their electronic gadgets like laptops for the presentation.

   ix)   Board room main table should have seven access ports (HDMI) for the electronic gadget's connections and one access port should be enabled for USB connectivity for UC calls other than Microsoft Teams

   x)   Board room should be enabled with Soft conferencing facility with camera covering the participants

3. Any change in the above design is not permitted

4. The bidder can be an OEM or an authorized dealer (format is given in **Annexure-10**)

5. The floor plan of the board room is given in **Annexure – 2.**

6. The AV Line Diagram is given in **Annexure -3.**

7. The desired brand of materials required to be used by the successful bidder with quantity in the proposed audio, video system is given in the list of Bill of Materials. The vendor should not alter the Quantity mentioned in the BOM.

8. The bidder should use the Quantity mentioned in the Bill of Material for designing and should choose any of one of the mentioned brand/make of items as per BOM.

9. Any other brand other than what mentioned in BOM will not be accepted.

10. The audio and video conferencing system should be commissioned with acoustics and the whole system should be fine-tuned for excellent output.

(C) BILL OF MATERIAL

Sl.No.	Description	Make	UoM	Qty
1	98" UHD display	LG/ SAMSUNG/PANASONIC	No.	1
2	65" UHD Display	LG/ SAMSUNG/PANASONIC	Nos.	2
3	Wireless Presenter	CRESTRON/EXTRON/BARCO	No.	1
4	AV Over IP Decoder	CRESTRON/EXTRON/KRAMER	Nos.	5
5	AV over IP encoder	CRESTRON/EXTRON/KRAMER	Nos.	9
6	Layer 3 Managed Gigabit Switch	CISCO/EXTREME	No.	1
7	USB 2.0 Extender	ICRON/CRESTRON	No.	2
8	Unified Conference Bundle	CRESTRON/POLY	No.	1
9	PTZ camera with Ultra-HD imaging system	LOGITECH/LUMENS	No.	1
10	24" Ceiling Digital Array Microphone	SHURE/SENNHEISER	Nos.	3
11	Digital Signal Processor	QSC/BIAMP/BSS	Nos.	2
12	Networked Ceiling Loudspeaker, 5.25 inch	SHURE/BIAMP	Nos.	10
13	PoE up to 30W output power per port	TENDA/CISCO	Nos.	10
14	Cable Cubby with 1x HDMI, 2 x Power , 2 x LAN and 2 x USB Charging Connectivity and 1 x USB	EXTRON/CRESTRON/ INTEGRATOR	Nos.	7
15	Control Processor	CRESTRON/EXTRON/KRAMER	No.	1
16	10.2" Ipad 32 GB with Wifi	APPLE	Nos.	2
17	iPad Base Station	LAUNCH PORT/HECKLER	Nos.	2
18	iPad Sleeve	LAUNCH PORT/HECKLER	Nos.	2
19	Wifi Access Point	CISCO/TP LINK/D-LINK	No.	1
20	Lighting Controller	CRESTRON/LUTRON	No.	1
21	Keypad	CRESTRON/LUTRON/EXTRON/ KRAMER	No.	1
22	High-Voltage Relay Control – 8 channel	CRESTRON/LUTRON	No.	1
23	Partition Sensor	CRESTRON/EXTRON	No.	1
24	High–Speed HDMI Cable 1.80m (6ft)	EXTRON/KRAMER	Nos.	9
25	HDBaset Cable	EXTRON/KRAMER	Meter	60
26	Crimp Style RJ45 Connectors	EXTRON/KRAMER	Nos.	10
27	Twisted pair cable for Signal & Control (Cat - 6/7)	COMMSCOPE/KRAMER	Meter	500
28	Audio Shielded Pair Cable	KRAMER/EXTRON	Meter	150
29	24 Port Patch Panel	COMMSCOPE/KRAMER	No.	1
30	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	EXTRON/KRAMER	Nos.	2
31	AV Connectors	NEUTRICK/AMPHENOL	Lot	1
32	17U AV Rack with 600mm Depth	VALRACK/VERO PRESIDENT	No.	1
	Power Distribution Unit Vertical		No.	1
	Rack Shelf		Nos.	3
	1U - Blank Spacer		Nos.	3
	Rack Equipment Cooling Fan		Nos.	2
	Castor Wheels with Lock		Nos.	2
33	Swivel Wall Mount for 65" Display	B-TECH/CHIEF	Nos.	2

Sl.No.	Description	Make	UoM	Qty
34	Heavy Duty Wall Mount for 98" Display	B-TECH/CHIEF	No.	1
35	Interactive monitor for Chair Person	Wacom/QUMO	No.	1
36	Supply, Installation, Commissioning, Cabling, Termination, Programming and coordination with other contractors & Project management as per Design	Integrator	Lot	1

(D) DETAILED TECHNICAL SPECIFICATIONS

1.   98" UHD Display

Item Reference	1
Item Description	98" UHD display
Make/Brand	SAMSUNG/LG/PANASONIC
Minimum Performance Parameters	
Panel	
Diagonal Size	98"
Type	Edge LED BLU
OS	Tizen
Resolution	3840*2160 (4K UHD)
Pixel Pitch(mm)	0.562 x 0.562 (mm)
Active Display Area(mm)	2158.848(H) x 1214.352(V)
Brightness(Typ.)	350 nits
Contrast Ratio	4000:1
Viewing Angle(H/V)	178/178
Response Time(G-to-G)	6ms(Typ.)
Display Colors	16.7M
Color Gamut	0.72
Operation Hour	24/7
Panel	Anti-Glare Panel
Display	
Dynamic C/R	Mega
H-Scanning Frequency	30 ~ 81kHz
V-Scanning Frequency	48 ~ 75Hz
Maximum Pixel Frequency	≥594MHz
Input Connectivity	
RGB	DVI-D, Display Port 1.2 (1)
Video	HDMI 2.0 (2)
HDCP	HDCP2.2
Audio	Stereo mini Jack, DVI, HDMI
USB	USB 2.0 x 2
Output Connectivity	
RGB	HDMI 2.0 (Loop-out)
Audio	Stereo mini Jack
External Control	RS232C(in/out) thru stereo jack, RJ45
External Sensor	IR
Power	
Powersupply	AC 100 - 240 V~ (+/- 10 %), 50 Hz

2.   65" UHD Display

Item Reference	2
Item Description	65" UHD display
Make/Brand	SAMSUNG/LG/PANASONIC
Minimum Performance Parameters	
Panel	
Diagonal Size	65"
Type	Edge LED BLU
Resolution	3840*2160 (4K UHD)

OS	Tizen
Pixel Pitch(mm)	0.372 x 0.372 (mm)
Active Display Area(mm)	2158.848(H) x 1214.352(V)
Brightness(Typ.)	350 nits
Contrast Ratio	4000:1
Viewing Angle(H/V)	178/178
Response Time(G-to-G)	8ms(Typ.)
Display Colors	16.7M
Color Gamut	0.92
Operation Hour	16/7
Panel	Anti-Glare Panel
Display	
Dynamic C/R	Mega
H-Scanning Frequency	30 ~ 81kHz
V-Scanning Frequency	48 ~ 75Hz
Maximum Pixel Frequency	≥594MHz
Input Connectivity	
RGB	DVI-D
Video	HDMI 2.0 (2)
HDCP	HDCP2.2
Audio	Stereo Mini Jack, DVI/HDMI/Audio(Common)
USB	USB 2.0 x 2
Output Connectivity	
RGB	HDMI 2.0 (Loop-out)
Audio	Stereo mini Jack
External Control	RS232C(in/out) thru stereo jack, RJ45
External Sensor	IR
Power	
Powersupply	AC 100 - 240 V~ (+/- 10 %), 50 Hz

3.   **Wireless Presenter**

Item Reference	3
Item Description	**Wireless Presenter**
Make/Brand	**CRESTRON/EXTRON/BARCO**
Minimum Performance Parameters	
Ethernet	100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1x, Active Directory authentication, HTTPS web browser setup, 802.3af and 802.3at Type 1 compliant
RS-232	2-way display device control up to 115.2k baud with hardware and software handshaking
IR/Serial	1-way display device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5V) up to 19.2k baud
HDMI Input	HDCP 1.4, EDID; Should supports management of HDCP and EDID
OS Support	Apple® iOS®, Android™, Windows® 7, Windows 8, Windows 10, macOS®, Chrome OS™
Video Frame Rate	Up to 30 fps, audio supported
Output Resolutions	640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz, 1366x768@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60)
Bitrate Peak	0.25 to 8.5 Mbps, variable depending on content complexity
Bitrate Average	1.4 Mbps typical
Audio Format	Stereo
Input Signal Types	"Wireless Input, HDMI (DVI & Dual-Mode DisplayPort™ compatible3);

Output Signal Types	Simultaneous display of two sources, Should be able to adjust the screen orientation when present from mobile device
Maximum Input Resolution	HDMI (DVI compatible3)
Background & Logo File Support	"1920x1080@60Hz (HD 1080p60), 4:4:4,
Output Signal Type	36 bit color depth"
Connection	
Console	Micro-USB Type B connector, female; USB 2.0 device port for computer console (installer setup)
IR	4-pin 3.5 mm detachable terminal block; IR/Serial output port for display device control; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud
COM	5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port for display device control; Up to 115.2k baud, hardware and software handshaking support
HDMI INPUT	HDMI Type A connector, female; HDMI digital video/audio input; (DVI & Dual-Mode DisplayPort compatible3)
HDMI OUTPUT	HDMI Type A connector, female; HDMI digital video/audio output; (DVI compatible3)
USB	USB Type A connector, female
LAN PoE	8-pin RJ-45 connector, female; 100Base-TX Ethernet port and PoE PD port
24VDC 0.75A	2.1 x 5.5 mm DC power connector; 24VDC power input (Should Included in the Box, If not can be added separate)
Ground	6-32 screw; Chassis ground lug

4. **AV Over IP Decoder**

Item Reference	4
Item Description	**AV Over IP Decoder**
Make/Brand	CRESTRON/EXTRON/KRAMER
Minimum Performance Parameters	
Decoding	
Video Codec	Pixel Perfect Processing
Video Resolutions	Up to 4096x2160@60Hz (DCI 4K60), 4:4:4 color sampling, HDR10, HDR10+, Dolby Vision®, and Deep Color support
Audio Formats	Primary multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
Bit Rates	200 to 950 Mbps
Streaming Protocols	RTP, SDP
Container	MPEG-2 transport stream (.ts)
Session Initiation	Multicast via secure RTSP
Copy Protection	HDCP 2.2, AES-128, PKI
Video	
Output Signal Types	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support1 (DVI compatible6)
Copy Protection	HDCP 2.2
Audio	
Input Signal Types	HDMI (Dual-Mode DisplayPort interface compatible7

Digital Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels
Analog Formats	Stereo 2-channel
Digital-To-Analog Conversion	24-bit 48 kHz
AES67	24-bit 48 kHz
Analog Performance	Frequency Response: 20 Hz to 20 kHz ±0.5 dB; S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted; THD+N: <0.005% @ 1 kHz; Stereo Separation: >90 dB
Analog Output Volume Adjustment	−80 to +20 dB
Communications	
Ethernet	8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port;2 PoE+ PD (powered device) port, IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant;
HDMI OUTPUT	HDMI Type A connector, female; HDMI digital video/audio output1 (DVI compatible6)
AUDIO	5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output3; Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced
CONSOLE, USB	Micro USB connector, female; USB 2.0 computer console port (for setup)
IR 1 – 2	4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 V) up to 19200 baud;
COM	5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
24VDC 2.0A	2.1 x 5.5 mm DC power connector; 24 VDC power input (Should Included in the Box, If not can be added separate)
Ground	6-32 screw; Chassis ground lug

5.   **AV Over IP encoder**

Item Reference	5
Item Description	**AV Over IP Encoder**
Make/Brand	CRESTRON/EXTRON/KRAMER
Minimum Performance Parameters	
Encoding	
Video Codec	Pixel Perfect Processing
Video Resolutions	Up to 4096x2160@60Hz (DCI 4K60), 4:4:4 color sampling, HDR10, HDR10+, Dolby Vision®, and Deep Color support
Audio Formats	Primary multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
Bit Rates	200 to 950 Mbps
Streaming Protocols	RTP, SDP
Container	MPEG-2 transport stream (.ts)
Session Initiation	Multicast via secure RTSP
Copy Protection	HDCP 2.2, AES-128, PKI

Video	
Output Signal Types	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support1 (DVI compatible6)
Copy Protection	HDCP 2.2
Audio	
Input Signal Types	HDMI (Dual-Mode DisplayPort interface compatible7
Digital Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels
Analog Formats	Stereo 2-channel
Digital-To-Analog Conversion	24-bit 48 kHz
AES67	24-bit 48 kHz
Analog Performance	Frequency Response: 20 Hz to 20 kHz ±0.5 dB; S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted; THD+N: <0.005% @ 1 kHz; Stereo Separation: >90 dB
Analog Output Volume Adjustment	−80 to +20 dB
Communications	
Ethernet	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port;2 PoE+ PD (powered device) port, IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant;
HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output1 (DVI compatible6)
AUDIO	100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, IPv4, Active Directory authentication, variable Multicast TTL, HTTPS web browser setup and control, Crestron 3-Series or later control system integration
CONSOLE, USB	USB 2.0 computer console (for setup)
RS-232	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); computer console (for setup)
IR/Serial	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 V) up to 19200 baud;
COM	1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 V) up to 19.2k baud (via control system)
HDMI	HDCP 2.2, EDID, CEC

6. **Layer 3 Managed Gigabit Switch**

Item Reference	6
Item Description	**Layer 3 Managed Gigabit Switch**
Make/Brand	CISCO/EXTREME
Minimum Performance Parameters	
USB slot	
Spanning Tree Protocol	Standard 802.1d Spanning Tree support; Fast convergence using 802.1w (Rapid Spanning Tree [RSTP]), enabled by default; 8 instances should be supported; Multiple Spanning Tree instances using 802.1s (MSTP)
Port grouping	Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP) ● Up to 8 groups ● Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation

Multicast TV VLAN	Multicast TV VLAN allows the single multicast VLAN to be shared in the network while subscribers remain in separate VLANs (also known as MVR)
Secure Shell (SSH) Protocol	SSH is a secure replacement for Telnet traffic. SCP also uses SSH. SSH v1 and v2 are supported
Web user interface	Built-in switch configuration utility for easy browser-based device configuration (HTTP/HTTPS). Supports configuration, system dashboard, system maintenance, and monitoring.
Power	740 W Dedicated PoE Power

7.   USB 2.0 Extender

Item Reference	7
Item Description	**USB 2.0 Extender**
Make/Brand	CRESTRON/ICRON
Minimum Performance Parameters	
Communications	
Link	USB extension up to 100 m (330 ft) over solid-core CAT5e (or better) unshielded twisted pair (UTP) cable2
USB Device Support	USB 1.0/1.1 and 2.0 compatible including mass storage and isochronous devices1
USB Hub Support	Any signal chain may include up to 4 USB hubs plus
Maximum USB Devices	30 USB devices, or 4 USB hubs with 26 USB devices
Host Computer OS Support	Windows®, macOS®, and Linux® operating systems
USB Throughput	USB 2.0 up to 480 Mbps, USB 1.1 up to 12 Mbps
Connectors – Local endpoint	
Power	2.1 x 5.5 mm DC power connector; 24 V, 1A DC power input (power supply included)
Link	8-pin RJ45 connector, female; Connects directly to a Remote extender2
USB	USB Type B connector, female; USB 2.0 device port for connection to the USB host computer, media server, game console, annotator, codec, etc.
Connectors – Remote endpoint	
Power	2.1 x 5.5 mm DC power connector; 24 V, 1A DC power input
Link	8-pin RJ45 connector, female; Should connects to Link port on the Local endpoint
USB	USB Type A connectors, female; USB 2.0 host ports for connection of USB devices such as mice, keyboards, and other USB devices Available USB Power: 1 A maximum per port, 1.5 A maximum total

8.   Unified Conference Bundle

Item Reference	8
Item Description	Unified Conference Bundle
Make/Brand	CRESTRON/POLY
Minimum Performance Parameters	
Tabletop Touch Screen	
Touch Screen	10.1 in. (257 mm) diagonal capacitive multi-touch TFT active matrix color LCD, 1920 x 1200 pixels, 400 nits Brightness, 1000:1 Contrast Ratio, 24 bit and 16.7M Color depth,5 Point Multi Touch Capable
UI	Microsoft Teams UI plus optional Smart Graphics room control
Ethernet	100 Mbps, auto switching, auto negotiating, auto discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, SNMP, IPv4 or IPv6, Active Directory® service authentication, HTTPS web browser setup

Power over Ethernet	IEEE 802.3at Type 2 compliant PoE+ PD (Powered Device); Should provide 15 W from an 802.3at Type 2 PSE with LLDP advanced power management; Should provide 18 W from an 802.3at Type 2 PSE with LLDP; Should provide 30 W (PoE+ Class 4) from an 802.3at Type 2 PSE without LLDP; Should provide 15.4 W (PoE Class 0) from an 802.3af (or 802.3at Type 1) PSE
PoE Injector	A PoE injector should be included to power the touch screen if network PoE is not available
UC Bracket Assembly	
Mini PC	Intel Core® processor with Windows® 10 IOT Edition OS
UC Client	Microsoft Teams Rooms with Skype® for Business software functionality with USB pass through for other UC calls
Content Ingest	HDMI input via HDMI to USB 3.0 converter
Display Output	Single display support
Display Output Resolution	1080p
Power	65 W via external 100-240 VAC, 50 Hz adapter (included)
Construction	Metal mounting bracket, black, preassembled
Mounting	Surface wall mount behind the display device, or attach to the rear of the display device via the bolts attaching the display to a display mount; Bracket includes mounting holes on both side edges, spaced 100, 200, and 300 mm vertically, to allow for attachment to either side of the display mounting plate

9. **PTZ camera with Ultra-HD imaging system**

Item Reference	9
Item Description	PTZ camera with Ultra-HD imaging system
Make/Brand	LOGITECH/LUMENS
Minimum Performance Parameters.	
Ultra-HD imaging system	4K, 1440p, 1080p, 900p, 720p, and most SD Resolutions: 1080p at 30 fps, 720p at 30 fps and 60 fps
Smooth motorized pan, tilt and zoom	Pan: ±90° Tilt: +50°/ -90° 15x HD zoom 90° field of view
Additional Features	Auto frame 3 camera presets Kensington security slot Video mute/unmute LED indicator Standard tripod thread

10. **24" Ceiling Digital Array Microphone**

Item Reference	10
Item Description	24" Ceiling Digital Array Microphone
Make/Brand	SHURE/SENNHEISER
Minimum Performance Parameters	
Connector Type	RJ45
Power Requirements	Power over Ethernet (PoE), Class 0
Power Consumption	9W, maximum
Control application	HTML5 Browser-based or Shure Designer
Plenum Rating	UL2043 (Suitable for Air Handling Spaces)
Dust Protection	IEC 60529 IP5X Dust Protected
Operating Temperature Range	5°C to 40°C
Storage Temperature Range	5°C to 70°C
Frequency Response	180 to 17,000 Hz

AES67 or Dante Digital Output	10 total channels (8 independent transmit channels, 1 Automatic mixing transmit channel, 1 AEC reference in channel)
Sensitivity	0.75 dBFS/Pa
Maximum SPL	93.25 dB SPL
Signal-To-Noise Ratio	83 dB A-weighted
Self Noise	11 dB SPL-A
Dynamic Range	82.25 dB
Feature	Should has 8 Independent Output Channel

11. **Digital Signal Processor**

Item Reference	11
Item Description	**Digital Signal Processor**
Make/Brand	QSC/BIAMP/BSS
Minimum Performance Parameters	
Input Frequency Response	20Hz to 20kHz @ +21dBu +0.05% / -0.5%
Input Impedance (balanced)	5K ohms nominal
Sampling Rate	48kHz
A/D – D/A Converters	24-bit
Output Frequency Response	20Hz to 20kHz @ all settings (+0.2 / -0.5 dB)
Output THD	0.003%, +10 dBu max output level
Output Crosstalk @1kHz	> 100dB typical, 90dB max
Output Dynamic Range	> 108dB
Output Impedance (balanced)	220 ohms
Output Level Range: (1dB Steps)	-39 dBu min to +21 dBu max
USB Inputs & Outputs	Bit Depth : 16-bit Number of Channels :up to 16x16 Sample Rate : 48kHz
BTU/Heat load:	205 BTU/Hour
Features	• 128 x 128 channels of network audio in single channel streams • Up to 24 configurable analog audio I/O • 8 mic/line level analog audio inputs • 8 line level analog audio outputs • 8 Flex Channel mic/line level analog audio inputs or outputs • Up to 16 assignable and routable AEC processor instances • Dual Gigabit Ethernet ports with assignable application resources offering any combination of VoIP, Control or network redundancy • Up to 16x16 channels of digital audio in and out via software definable USB instances advertised to the host operating system • 16 General Purpose Inputs (GPI) x 16 General Purpose Outputs (GPO) • Internal Universal Power Supply plus 12 Volt DC External Power Supply input for redundancy or non-mains power supply sources • POTS telephone interface via a standard RJ-11 connector • Should support up to 4 VoIP Softphone instances in addition to the onboard POTS telephone interface • Fully integrated audio, video and control solution

12. **Networked Ceiling Loudspeaker, 5.25 inch**

Item Reference	12
Item Description	**Networked Ceiling Loudspeaker, 5.25 inch**
Make/Brand	SHURE/BIAMP
Minimum performance parameters	
Loud Speaker Details	
Connector Type	RJ45
Power Requirements	Power over Ethernet (PoE Class 0) or PoE Plus (Class 4)
Plenum Rating	UL 2043 (Suitable for Air Handling Spaces)

Operating Temperature Range	5°C to 40°C
Storage Temperature Range	5°C to 70°C
Frequency Response (-3 dB)	120 Hz to 20 kHz
Digital Signal Processing	Delay, Limiter, Signal Generator, Equalizer (4-band Parametric)
Latency	1.5 ms (Not including Dante latency)
Power Details	
Power over Ethernet (PoE)	12 W
PoE Plus	24 W

13. **PoE up to 30W output power per port**

Item Reference	13
Item Description	**PoE up to 30W output power per port**
Make/Brand	TENDA/CISCO
Minimum Performance Parameters	
Standard&Protocol	Compatible with IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af , IEEE802.3 at Standard CSMA/CD, TCP/IP
Features	Support the powered devices compatible with IEEE802.3af、IEEE802.3at Standard Transmission range up to 100M Plug and play
Port	1 GE port 1 data & power output port supporting PoE
Indicator	PWR, PoE
Operation Temperature	5°C~40°C
Operating Humidity	10%~90% Rh(noncondensing)
Storage Humidity	5%~90% Rh (noncondensing)
Certification	CE\FCC\ROHS

14. **Cable Cubby with 1x HDMI, 2 x Power , 2 x LAN and 2 x USB Charging Connectivity and 1 x USB**

Item Reference	14
Item Description	**Cable Cubby**
Make/Brand	EXTRON/CRESTRON/INTEGRATOR
Minimum performance parameters	
Cable Cubby	1x HDMI, 2 x Power , 2 x LAN and 2 x USB Charging Connectivity and 1 x USB

15. **Control Processor**

Item Reference	15
Item Description	**Control Processor**
Make/Brand	CRESTRON/EXTRON/KRAMER
Minimum performance parameters	
Communications	
Ethernet	100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, industry-standard TCP/IP stack, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), FIPS 140-2 compliant encryption, IEEE 802.1xX, SNMP, BACnet™ and IP1, IPv4 or IPv6, Active Directory® service authentication, HTTPS web server, HTTPS web browser setup
USB	Should Support USB mass storage class devices via the rear panel USB 2.0 host port, supports computer console via the front panel USB 2.0 device port
RS-232/422/485	For 2-way device control and monitoring, COM port should support RS-232 up to 115.2k baud with software handshaking, one port also should support RS-422 or RS-485 and hardware handshaking
IR/Serial	Should support 1-way device control via infrared up to 1.2 MHz or serial TTL/RS-232 (0–5 V) up to 115.2k baud

Memory	
SDRAM	2 GB
Flash	8 GB
Memory Card	Should support SD and SDHC cards up to 32 GB
External Storage	Should Support USB mass storage devices up to 1 TB

Connectors	
RELAY OUTPUT 1–8	4-pin 3.5 mm detachable terminal block; Should comprise (8) normally open, isolated relays; Rated 1 A, 30 VAC/VDC; MOV arc suppression across contacts
I/O 1–8	9-pin 3.5 mm detachable terminal block; Should comprises (8) Versiport digital input/output or analog input ports (referenced to GND); Digital Input: Rated for 0–24 VDC, input impedance 20k Ω, logic threshold >3.125 V low/0 and <1.875 V high/1; Digital Output: 250 mA sink from maximum 24 VDC, catch diodes for use with real world loads; Analog Input: Rated for 0–10 VDC, protected to 24 VDC maximum, input impedance 21k Ω with pull-up resistor disabled; Programmable 5 V, 2k Ω pull-up resistor per pin
IR - SERIAL OUTPUT 1–8	8-pin 3.5 mm detachable terminal blocks; Should comprises (8) IR output ports; IR output up to 1.2 MHz; 1-way serial TTL/RS-232 (0–5 V) up to 115.2k baud
COM 1	5-pin 3.5 mm detachable terminal block; Bidirectional RS-232/422/485 port; Up to 115.2k baud; hardware and software handshaking support
COM 2–3	3-pin 3.5 mm detachable terminal blocks; Bidirectional RS-232 ports; Up to 115.2k baud; software handshaking support
MEMORY	SD memory card slot; Accepts one SD or SDHC card up to 32 GB for storage of log files
USB	USB Type A connector, female; USB 2.0 port for storage devices
LAN	8-pin RJ45 connector, female; 100/1000Base-TX Ethernet port
CONTROL SUBNET	8-pin RJ45 connector, female; 100/1000Base-TX Ethernet port; Provides a dedicated local network for Crestron devices
COMMUNICATION BUS	4-pin 3.5 mm detachable terminal block; Network master port; Outputs power to Network devices only if the included power pack is connected to the 24 VDC power input jack; Alternately functions as a Network power input to power the unit from a Network power supply;
Power	2.1 x 5.5 mm DC power connector; 24 V, 2A DC power input; Passes through to the NET port to power Network devices;
Ground	6-32 screw; Chassis ground lug
COMPUTER (front)	USB Type B connector, female; USB 2.0 computer console port;
Features	Should be able to run 10 Programs simultaneously

16. 10.2" Ipad 32 GB with Wifi

Item Reference	16
Item Description	**10.2" Ipad 32 GB with Wifi**
Make/Brand	APPLE
Minimum performance parameters	
Display	Min 10.2 inch (diagonal) IPS LED-backlit Multi-Touch display with IPS Technology
Resolution	2160x1620
Processor Chip	A12
Memory	Min 32 GB

17. iPad Base Station

Item Reference	17
Item Description	**iPad Base Station**
Make/Brand	LAUNCH PORT/HECKLER
Minimum performance parameters	
AC Socket Types	A, C, G
Installation Application	Table
Mounting Enclosure	Enclosure & Stand for I Pad
Mount & Charger	Magnetic table mount and inductive charger
Power Handling	INPUT: 15V 2A DC via 2.1mm ID OUTPUT
Power Supply	INPUT: 100-240V 1A AC OUTPUT: 15V 2A DC via Barrel Connector ID 2.1mm, OD 5.5mm

18. iPad Sleeve

Item Reference	18
Item Description	**iPad Sleeve**
Make/Brand	LAUNCH PORT/HECKLER
Minimum performance parameters	
Compatible Tablets	iPad (8th gen) 10.2-inch, iPad (7th gen) 10.2-inch, iPad Air (3rd gen) 10.5-inch, iPad Pro 10.5-inch
Installation Application	Table, Wall
Power Handling	INPUT: Inductive Charging OUTPUT: 5V 2A DC via MFi Lightning Connector

19. Wifi Access Point

Item Reference	19
Item Description	**Wifi Access Point**
Make/Brand	CISCO/TP LINK/D-LINK
Minimum performance parameters	
HARDWARE FEATURES	
Interface	4 × 10/100Mbps LAN Ports 1 × 10/100Mbps WAN Port
Button	WPS/Reset Button Wireless On/Off Switch Power On/Off Button
External Power Supply	12VDC/1A
Antenna	3 × 2.4GHz Antennas 2 × 5GHz Antennas

WIRELESS FEATURES	
Wireless Standards	IEEE 802.11ac/n/a 5GHz IEEE 802.11b/g/n 2.4GHz
Wireless Speeds	450Mbps(2.4GHz) 867Mbps(5GHz)
Frequency	2.4-2.5GHz 5.15-5.25GHz
Transmit Power	≤20dBm （2.4GHz） ≤23dBm （5GHz）
Wireless Modes	Wireless Router WDS(Four Address) WDS(AP+APC)
Wireless Security	WEP WPA\WPA2 WPA-PSK\WPA2-PSK

20. **Lighting Controller**

Item Reference	**20**
Item Description	**Lighting Controller**
Make/Brand	CRESTRON/LUTRON
Minimum Performance Parameters	
Connectors	
COMMUNICATION BUS	4-pin 3.5mm detachable terminal blocks, paralleled; Network slave port
OVERRIDE	2-pin 3.5mm detachable terminal blocks, paralleled; Sensing input for external low-voltage contact closure; Activates override mode when a closure is present, forces each ballast into its defined "System Failure Level"; Minimum Closure Rating: 10mA (per module) at 24 Volts
LAN PoE	8-wire RJ45 with 2 LED indicators; 10BaseT/100BaseTX Ethernet port; 802.3af Power over Ethernet compliant; Green LED indicates link status; Yellow LED indicates Ethernet activity
DALI® 1, 2	2-pin 5mm terminal blocks; Each set of (+) and (-) is paralleled with the adjacent like ports on the same channel; Each channel controls a single DALI loop (up to 64 ballasts); 3kVAC isolation between Ethernet ports; Wire Gauge: 28 AWG to 12 AWG
COMPUTER	USB Type B female, USB 1.1 computer console port
Power Requirements	
PoE Power Usage	IEEE 802.3af (802.3at Type 1) Class 0 PoE Powered Device; capable of powering up to 128 DALI ballast controllers
Network Power Usage	9 watts (0.375 Amps @ 24 Volts DC), DALI POWER switch set to "INT"; 2 Watts (0.08 Amps @ 24 Volts DC), DALI POWER switch set to "EXT"; capable of powering up to 128 DALI ballast controllers
Features	Should be able to control individual DALI Ballast separately

21. **Keypad**

Item Reference	**21**
Item Description	**Keypad**
Make/Brand	CRESTRON/LUTRON/EXTRON/KRAMER
Minimum Performance Parameters.	
Controls	
Pushbutton	5 blank single pushbuttons; Should include 5 blank button caps
Setup	1 Hidden pushbutton should be located behind faceplate's top trim piece; Should configure the LED backlight and calibrates the light sensor

LED Indicator and Light Sensor	
Feedback	5 Color-adjustable LEDs; Should Provide button backlighting
Light Sensor	Photosensor with adjustable sensitivity; Should detect the ambient room light level to activate day or night mode
Keypad Color	Black
Communication Bus	4 Port (2 Nos)
Button Caps	Field Replaceable

22. High-Voltage Relay Control – 8 channel

Item Reference	22
Item Description	**High-Voltage Relay Control – 8 channel**
Make/Brand	CRESTRON/LUTRON
Minimum Performance Parameters	
Load Ratings	
Switch Channels	8
Maximum Current / Power Per Channel	10 Amps incandescent, 5 Amps fluorescent, 0.5 HP at 120 to 240 Volts AC, 50 Hz; 5 Amps at 30 Volts DC; 16 Amps Resistive load
Module Total	80 Amps incandescent, 40 Amps fluorescent at 120 to 240 Volts AC, 50 Hz
Load Types	Incandescent, magnetic low-voltage, electronic low-voltage, neon/cold cathode, fluorescent, motor
Connections	
1 – 8	Eight Sets of (2) captive screw terminals; Isolated Class 1 SPST relay switch circuits 1 – 8; Relay Rating: 10 Amps incandescent, 5 Amps fluorescent, 16 Amps resistive, 0.5 HP at 240 Volts AC (per channel); Maximum Wire Size: 12 AWG (2.5 mm²)
INPUTS 1-8	Nine 3.5 mm detachable terminal blocks (inputs 1-8, common); Rated for 12-24 Volts DC; Input Impedance: 6.8k Ohms
COMMUNICATION BUS	Two 4-pin 3.5 mm detachable terminal blocks, paralleled; Network slave port
OVERRIDE	Two 2-pin 3.5 mm detachable terminal blocks, paralleled; Sensing input for external low-voltage contact closure; Activates override mode when a closure is present; Minimum Closure Rating: 10 mA (per module) at 24 Volts

23. Partition Sensor

Item Reference	23
Item Description	**Partition Sensor**
Make/Brand	CRESTRON/EXTRON
Minimum Performance Parameters	
Sensing	
Method of Detection	Diffuse Reflective
Light Source	Pulse modulated infrared LED
IR Sensitivity	Adjustable
Sensing Distance	122 cm
Connectors	
NET/EXT	5-pin 3.5mm detachable terminal block; Network slave port and digital output port; Digital Output should Provide either 24 Volts DC, 10 mA (default) or a closure to ground when partition is detected
Controls & Indicators	
PWR	LED should indicate power is supplied to device; flashes to indicate sensitivity level

NET	LED should indicate Network communication status
ALIGN	LED should indicate partition detection
PUSH BUTTON +	Pushbutton used to increase sensitivity of IR beam; also used for touch–settable ID (TSID)
PUSH BUTTON -	Pushbutton used to decrease sensitivity of IR beam; also used for touch–settable ID (TSID)

24. **High–Speed HDMI Cable 1.80m (6ft)**

Item Reference	24
Item Description	**High–Speed HDMI Cable 1.80m (6ft)**
Make/Brand	KRAMER/EXTRON
Minimum Performance Parameters	
VIDEO	Max Resolution 4K@60Hz (4:4:4) Max Data Rate 18 Gbps Supported Color Spaces: RGB, YCbCr, xvYCC, Adobe sRGB, sYCC601, BT.2020 HDMI Compliance: HDR,HDCP 2.2, EDID and CEC"
AUDIO	Supported Audio Formats: Dolby Digital Plus™, Dolby TrueHD™, DTS–HD Master Audio™, DVD Audio, SA–CD
PHYSICAL	HDMI Source: On a male HDMI type A, 24K gold–plated K–Lock connector HDMI Display: On a male HDMI type A, 24K gold–plated K–Lock connector
CONDUCTORS	Material: Tinned Copper/Bare Copper 28AWG (7/0.127)
SCREENING	Type: Triple shielding
JACKET	Material: PVC Diameter 6.50 ± 0.15mm
MECHANICAL	Cable Bending Radius 60mm
ELECTRICAL	Temperature Rating: 80°C Voltage Rating: 30V Conductor Resistance – 28AWG: 237.25Ω/km
STANDARDS COMPLIANCE	Safety: Flammability Rating — CL3/FT4 Environmental: RoHS 2011/65/ EU

25. **HDBaseT Cable**

Item Reference	25
Item Description	**HDBaseT Cable**
Make/Brand	KRAMER/EXTRON
Minimum Performance Parameters	
CONDUCTORS	Size: 4x2x23AWG Material: Annealed copper Diameter: 0.56mm ±0.01mm
INSULATION	Material: Skin/Foam/Skin HDPE Diameter: 1.33mm ±0.10mm Color Code: White/Blue, White/Orange, White/Green, White/Brown
SCREENING	Material: Alu/PET per pair (Alu side out)
DRAIN WIRE	Material: Tinned copper Diameter: 0.4mm ±0.01mm
JACKET	Material: LSHF Color: Blue RAL 5012 Thickness: ≥0.5mm Diameter: 7.2mm ±0.2mm

ELECTRICAL	Impedance: 1–100MHz: 100Ω ±15Ω, 100–250MHz: 100Ω ±20Ω, 250–500MHz: 100Ω ±25Ω
	Propagation Velocity (NVP): 76%
	Voltage Rating: 60V
	Delay Skew: <45ns
	Mutual Pair Capacitance: ≤42pF/m
	Capacitance Unbalance Pair/ground: ≤1500pF/km
	Conductor DC Resistance: <79.8Ω/km
	Pair Resistance Unbalance DC: <1.5%
	Dielectric Strength: 2.5kV DC (2s)
	Insulation Resistance (500V): >5000MΩ/km
USAGE AND ENVIRONMENTAL	Storage / Transport / Installation Temperature: 0˚C to +50˚C
	Operation Temperature: 0˚C to +60˚C
MECHANICAL	Maximum Pulling Tension: : 100N
	Bending Radius - Installed: 50mm
	Bending Radius - During Installation: 60mm
STANDARDS COMPLIANCE - EC VERIFIED	Electrical: EIA/TIA 568A, ISO/IEC 11801
	Fire Performance: IEC 60332-1
	Smoke Density: IEC 61034
	Halogen Free: IEC 60754
	RoHS: 2011/65/EU
STANDARDS COMPLIANCE	Reaction to Fire Classification: Dca–s2,d1,a1

26. **Crimp Style RJ45 Connectors**

Item Reference	26
Item Description	**Crimp Style RJ45 Connectors**
Make/Brand	KRAMER/EXTRON
Minimum Performance Parameters	
Designed for 24AWG to 23AWG twisted pair cables with overall cable insulation diameter — 1.40mm to 1.50mm	

27. **Twisted pair cable for Signal & Control (Cat - 6/7)**

Item Reference	27
Item Description	**Twisted pair cable for Signal & Control (Cat - 6/7)**
Make/Brand	KRAMER/COMMSCOPE
Minimum performance parameters	
Requires Custom RJ–45 Connector for 23AWG cable	

28. **Audio Shielded Pair Cable**

Item Reference	28
Item Description	**Audio Shielded Pair Cable**
Make/Brand	KRAMER/EXTRON
Minimum performance parameters	
CONDUCTORS	Material: Tinned Copper; Size: 2x20AWG; Diameter: 0.916mm
INSULATION	Material: PP; Diameter: 1.8±0.09mm ; Average Thickness: 0.442mm
DRAIN WIRE	Size: 20AWG; Material: Tinned Copper
SCREENING	Material: AL–foil/mylar; Overlap: 25% min
JACKET	Material: PVC; Diameter: 5.4 ± 0.19mm
ELECTRICAL	Temperature rating: 75˚C
	Insulation resistance: DC - 500V, 100MΩ/km
	Conductor resistance: 20AWG - 34.6Ω/km
	Impedance: 40~100Ω
STANDARDS COMPLIANCE	UL: CM; RoHS: 2011/65/ EU

29.   24 Port Patch Panel

Item Reference	29
Item Description	24 Port Patch Panel
Make/Brand	COMMSCOPE/KRAMER
Minimum performance parameters	
Cable Type	Unshielded
"Intelligence Type	Passive
Rack Type	EIA 19 in
Rack Units	1
Total Ports, quantity	24

30. USB 2.0 A (M) to B (M) Cable 1.80m (6ft)

Item Reference	30
Item Description	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)
Make/Brand	KRAMER/EXTRON
Minimum performance parameters	
Conductor Gauge	24 AWG
Insulation / outer jacket material	PVC
Outer shield	Bare Copper
Voltage	100V RMS
No of pairs	1

31. AV Connectors

Item Reference	31
Item Description	AV Connectors
Make/Brand	NEUTRICK/AMPHENOL
Minimum performance parameters	
Required AV Connectors	

32. AV Rack

Item Reference	32
Item Description	AV Rack
Make/Brand	VALRACK/VERO PRESIDENT
Minimum performance parameters	
17U AV Rack with 600mm Depth	
Power Distribution Unit Vertical	
3 Rack Shelf	
3 1U - Blank Spacer	
2 Rack Equipment Cooling Fan	
2 Castor Wheels with Lock	

33. Swivel Wall Mount for 65" Display

Item Reference	33
Item Description	Swivel Wall Mount for 65" Display
Make/Brand	B-TECH/CHIEF
Minimum Performance Parameters	
"Recommended screen size: up to 65""	
Max load: 36kg	
VESA® compatibility: up to 600 x 400 mm	
Universal fixings: up to 600 x 400mm	
Tilt: +/-15°	
Swivel: 180° at wall, 360° at central pivot & 180° at interface	
Distance from wall: Min: 37mm - Max: 560mm	

34. Swivel Wall Mount for 98" Display

Item Reference	34
Item Description	Swivel Wall Mount for 98" Display
Make/Brand	B-TECH/CHIEF
Minimum Performance Parameters	
"Recommended screen size: 65" up to 120""	
Max load: 200kg*	
VESA® and non-VESA Fixings: up to 1000 x 600mm	
Distance from wall: 35mm"	

35. Interactive Monitor

Item Reference	35
Item Description	Interactive Monitor for Chair person
Make/Brand	Wacom/QUMO
Minimum Performance Parameters	
Recommended screen size: 24	
Aspect ratio 16:9	
Native resolution 1920 x 1080 pixels	
Video input DVI-I	
Video Loop Output DVI-I	
Viewing angles (horizontal/vertical) 178° / 178°	
Cover glass surface - Tempered AG etched glass	
Luminance (brightness) 0.13 cd/in² / 210 cd/m² (typical)	
Contrast ratio 1000:1 (typical)	
Response time 16 ms (typical)	
Technology: Electromagenetic Resonance (EMR) PEN For Interactivity	
Stand inclination 11° - 73° adjustable stand	

36. Supply, Installation, Commissioning, Cabling, Termination, Programming and coordination with other contractors & Project management as per Design

Item Reference	36
Item Description	Supply, Installation, Commissioning, Cabling, Termination, Programming and coordination with other contractors & Project management as per Design
Minimum performance parameters requirement for Integrator	
The integrator shall have a full-fledged qualified team to execute the project	

BOARD ROOM PLAN
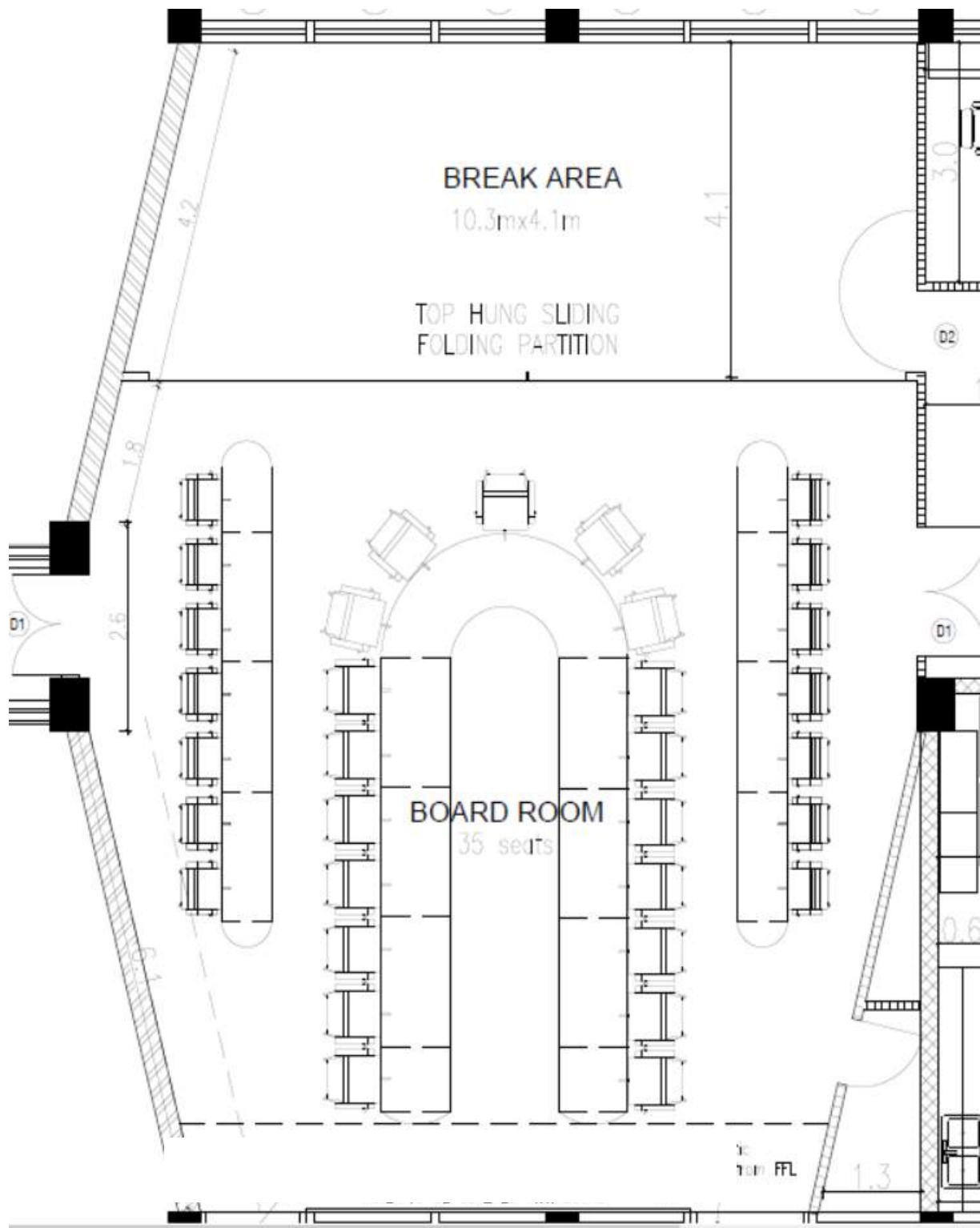
AV LINE DIAGRAM FOR BOARD ROOM

**SUPPLY, INSTALLATION AND COMMISSIONING OF AUDIO AND VIDEO CONFERENCING SYSTEM
IN BOARD ROOM of IIT MADRAS AS PER DESIGN**

TECHNICAL BID COMPLIANCE STATEMENT
Tender No. IITM/SPS/AV System/001/2021-22

(A) PRE-QUALIFICATION CRITERIA

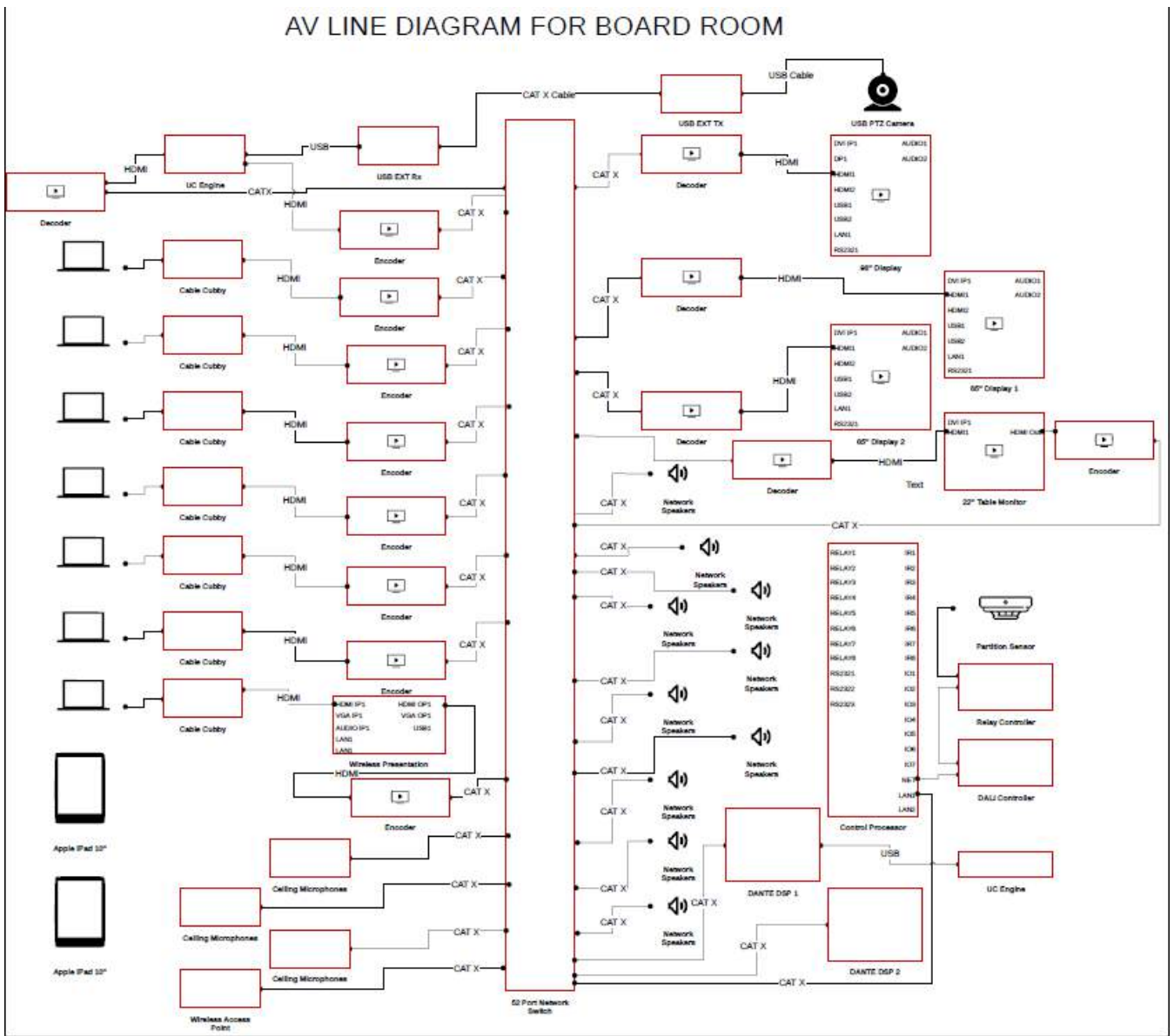| Sl.No.	Description	Compliance (Yes/ No)	Proof with Page No.
I	**Bidder Eligibility Criteria I:**		
1	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I and Class-II local suppliers should be submitted in the prescribed proforma format as per **Annexure-6A and 6B**		
2	Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at **Annexure-7.** Bidder should also submit the required certificates as mentioned.		
3	The firm should submit "Bid Security Declaration" as per format given in **Annexure-8**		
II	**Bidder Eligibility Criteria II:**		
1	The firm should not have been blacklisted / debarred by any Government/ regulatory bodies in India. A self-declaration format given in **Annexure – 9**		
2	The bidder should submit OEM authorization for all Make/brand of item for which they are submitting the bid (format is given **in Annexure-10**).		

3	The bidder should have similar experience in the last 3 years in Govt. Institutions/ any of Central PSU's / any of central Government/ autonomous bodies/reputed firms in executing the following works (any one category).
	
	 i) Two (2) similar contracts each costing not less than Rs. 20 Lakhs
	     (Or)
	 ii) One (1) similar contracts costing not less than Rs. 40 Lakhs
	
	Copies of the documents listed below should be submitted as a proof for the above work experience:
	   a) Purchase Order
	   b) Work Completion Certificates
	   c) User Performance Certificate from End		

5	The bidder shall have an annual financial turnover of not less than Rs.2 Crores (Rupees Two Crores only) during the last three financial years i.e. 2018-19, 2019-20 and 2020-2021 (Financial statements / certificates issued by Chartered Accountant should be submitted as proof).		

(B) TECHNICAL SPECIFICATION SHEET FOR AUDIO AND VIDEO CONFERENCING SYSTEM

1. 98" UHD display

98" UHD display			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
		(Yes/ No)	
Minimum Performance Parameters			
Panel			
Diagonal Size	98"		
Type	Edge LED BLU		
OS	Tizen		
Resolution	3840*2160 (4K UHD)		
Pixel Pitch(mm)	0.562 x 0.562 (mm)		
Active Display Area(mm)	2158.848(H) x 1214.352(V)		
Brightness(Typ.)	350 nits		
Contrast Ratio	4000:1		
Viewing Angle(H/V)	178/178		
Response Time(G-to-G)	6ms(Typ.)		
Display Colors	16.7M		
Color Gamut	0.72		
Operation Hour	24/7		
Panel	Anti-Glare Panel		
Display			
Dynamic C/R	Mega		
H-Scanning Frequency	30 ~ 81kHz		
V-Scanning Frequency	48 ~ 75Hz		
Maximum Pixel Frequency	≥594MHz		
Input Connectivity			
RGB	DVI-D, Display Port 1.2 (1)		
Video	HDMI 2.0 (2)		
HDCP	HDCP2.2		
Audio	Stereo mini Jack, DVI, HDMI		
USB	USB 2.0 x 2		
Output Connectivity			
RGB	HDMI 2.0 (Loop-out)		
Audio	Stereo mini Jack		
External Control	RS232C(in/out) thru stereo jack, RJ45		
External Sensor	IR		
Power			
Power supply	AC 100 - 240 V~ (+/- 10 %), 50 Hz		

2. 65" UHD display

65" UHD display			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
		(Yes/ No)	
Minimum Performance Parameters			
Panel			
Diagonal Size	65"		
Type	Edge LED BLU		
OS	Tizen		
Resolution	3840*2160 (4K UHD)		
Pixel Pitch(mm)	0.372 x 0.372 (mm)		
Active Display Area(mm)	2158.848(H) x 1214.352(V)		

Brightness(Typ.)	350 nits		
Contrast Ratio	4000:1		
Viewing Angle(H/V)	178/178		
Response Time(G-to-G)	8ms(Typ.)		
Display Colors	16.7M		
Color Gamut	0.92		
Operation Hour	16/7		
Panel	Anti-Glare Panel		
Display			
Dynamic C/R	Mega		
H-Scanning Frequency	30 ~ 81kHz		
V-Scanning Frequency	48 ~ 75Hz		
Maximum Pixel Frequency	≥594MHz		
Input Connectivity			
RGB	DVI-D		
Video	HDMI 2.0 (2)		
HDCP	HDCP2.2		
Audio	Stereo Mini Jack, DVI/HDMI/Audio(Common)		
USB	USB 2.0 x 2		
Output Connectivity			
RGB	HDMI 2.0 (Loop-out)		
Audio	Stereo mini Jack		
External Control	RS232C(in/out) thru stereo jack, RJ45		
External Sensor	IR		
Power			
Powersupply	AC 100 - 240 V~ (+/- 10 %), 50 Hz		

3. **Wireless Presenter**

Wireless Presenter			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		**Compliance** **(Yes/ No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters			
Ethernet	100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1x, Active Directory authentication, HTTPS web browser setup and XiO Cloud service, 802.3af and 802.3at Type 1 compliant		
RS-232	2-way display device control up to 115.2k baud with hardware and software handshaking		
IR/Serial	1-way display device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5V) up to 19.2k baud		
HDMI Input	HDCP 1.4, EDID; Should supports management of HDCP and EDID		
OS Support	Apple® iOS®, Android™, Windows® 7, Windows 8, Windows 10, macOS®, Chrome OS™		
Video Frame Rate	Up to 30 fps, audio supported		

Output Resolutions	640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz, 1366x768@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60)		
Bitrate Peak	0.25 to 8.5 Mbps, variable depending on content complexity		
Bitrate Average	1.4 Mbps typical		
Audio Format	Stereo		
Input Signal Types	Wireless Input, HDMI (DVI & Dual-Mode DisplayPort™ compatible3)		
Output Signal Types	Simultaneous display of two sources, should be able to adjust the screen orientation when present from mobile device		
Maximum Input Resolution	HDMI (DVI compatible3)		
Background & Logo File Support	"1920x1080@60Hz (HD 1080p60), 4:4:4,		
Output Signal Type	36 bit color depth"		
Connection			
Console	Micro-USB Type B connector, female; USB 2.0 device port for computer console (installer setup)		
IR	4-pin 3.5 mm detachable terminal block; IR/Serial output port for display device control; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud		
COM	5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port for display device control; Up to 115.2k baud, hardware and software handshaking support		
HDMI INPUT	HDMI Type A connector, female; HDMI digital video/audio input; (DVI & Dual-Mode DisplayPort compatible3)		
HDMI OUTPUT	HDMI Type A connector, female; HDMI digital video/audio output; (DVI compatible3)		
USB	USB Type A connector, female		
LAN PoE	8-pin RJ-45 connector, female; 100Base-TX Ethernet port and PoE PD port		
24VDC 0.75A	2.1 x 5.5 mm DC power connector; 24VDC power input; (Should Included in the Box, If not can be added separate)		
Ground	6-32 screw; Chassis ground lug		

4.   AV Over IP Decoder

AV Over IP Decoder			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
		(Yes/ No)	
Minimum Performance Parameters.			
Decoding			
Video Codec	Pixel Perfect Processing		
Video Resolutions	Up to 4096x2160@60Hz (DCI 4K60), 4:4:4 color sampling, HDR10, HDR10+, Dolby Vision®, and Deep Color support		
Audio Formats	Primary multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)		
Bit Rates	200 to 950 Mbps		
Streaming Protocols	RTP, SDP		
Container	MPEG-2 transport stream (.ts)		
Session Initiation	Multicast via secure RTSP		
Copy Protection	HDCP 2.2, AES-128, PKI		
Video			
Output Signal Types	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support1 (DVI compatible6)		
Copy Protection	HDCP 2.2		
Audio			
Input Signal Types	HDMI (Dual-Mode DisplayPort interface compatible7		
Digital Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels		
Analog Formats	Stereo 2-channel		
Digital-To-Analog Conversion	24-bit 48 kHz		
AES67	24-bit 48 kHz		
Analog Performance	Frequency Response: 20 Hz to 20 kHz ±0.5 dB; S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted; THD+N: <0.005% @ 1 kHz; Stereo Separation: >90 dB		
Analog Output Volume Adjustment	−80 to +20 dB		
Communications			
Ethernet	8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port;2 PoE+ PD (powered device) port, IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant;		
HDMI OUTPUT	HDMI Type A connector, female; HDMI digital video/audio output1 (DVI compatible6)		
AUDIO	5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output3; Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced		
CONSOLE, USB	Micro USB connector, female; USB 2.0 computer console port (for setup)		

IR 1 – 2	4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 V) up to 19200 baud;		
COM	5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support		
24VDC 2.0A	2.1 x 5.5 mm DC power connector; 24 VDC power input; (Should Included in the Box, If not can be added separate)		
Ground	6-32 screw; Chassis ground lug		

5.   **AV Over IP encoder**

AV Over IP Encoder			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Encoding			
Video Codec	Pixel Perfect Processing		
Video Resolutions	Up to 4096x2160@60Hz (DCI 4K60), 4:4:4 color sampling, HDR10, HDR10+, Dolby Vision®, and Deep Color support		
Audio Formats	Primary multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)		
Bit Rates	200 to 950 Mbps		
Streaming Protocols	RTP, SDP		
Container	MPEG-2 transport stream (.ts)		
Session Initiation	Multicast via secure RTSP		
Copy Protection	HDCP 2.2, AES-128, PKI		
Video			
Output Signal Types	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support1 (DVI compatible6)		
Copy Protection	HDCP 2.2		
Audio			
Input Signal Types	HDMI (Dual-Mode DisplayPort interface compatible)		
Digital Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels		
Analog Formats	Stereo 2-channel		
Digital-To-Analog Conversion	24-bit 48 kHz		
AES67	24-bit 48 kHz		
Analog Performance	Frequency Response: 20 Hz to 20 kHz ±0.5 dB; S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted; THD+N: <0.005% @ 1 kHz; Stereo Separation: >90 dB		
Analog Output Volume Adjustment	−80 to +20 dB		

	Communications		
Ethernet	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port;2 PoE+ PD (powered device) port, IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant;		
HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output1 (DVI compatible6)		
AUDIO	100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, IPv4, Active Directory authentication, variable Multicast TTL, HTTPS web browser setup and control, Crestron 3-Series or later control system integration		
CONSOLE, USB	USB 2.0 computer console (for setup)		
RS-232	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); computer console (for setup)		
IR/Serial	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 V) up to 19200 baud;		
COM	1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 V) up to 19.2k baud (via control system)		
HDMI	HDCP 2.2, EDID, CEC		

6. **Layer 3 Managed Gigabit Switch**

Layer 3 Managed Gigabit Switch			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
USB slot			
Spanning Tree Protocol	Standard 802.1d Spanning Tree support; Fast convergence using 802.1w (Rapid Spanning Tree [RSTP]), enabled by default; 8 instances should be supported; Multiple Spanning Tree instances using 802.1s (MSTP)		
Port grouping	Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP) ● Up to 8 groups ● Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation		
Multicast TV VLAN	Multicast TV VLAN allows the single multicast VLAN to be shared in the network while subscribers remain in separate VLANs (also known as MVR)		
Secure Shell (SSH) Protocol	SSH is a secure replacement for Telnet traffic. SCP also uses SSH. SSH v1 and v2 are supported		
Web user interface	Built-in switch configuration utility for easy browser-based device configuration (HTTP/HTTPS). Supports configuration, system dashboard, system maintenance, and monitoring.		
Power	740 W Dedicated PoE Power		

7.   **USB 2.0 Extender**

USB 2.0 Extender		Make /Brand Name :	
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Communications			
Link	USB extension up to 100 m (330 ft) over solid-core CAT5e (or better) unshielded twisted pair (UTP) cable2		
USB Device Support	USB 1.0/1.1 and 2.0 compatible including mass storage and isochronous devices1		
USB Hub Support	Any signal chain may include up to 4 USB hubs plus		
Maximum USB Devices	30 USB devices, or 4 USB hubs with 26 USB devices		
Host Computer OS Support	Windows®, macOS®, and Linux® operating systems		
USB Throughput	USB 2.0 up to 480 Mbps, USB 1.1 up to 12 Mbps		
Connectors – Local endpoint			
Power	2.1 x 5.5 mm DC power connector; 24 V, 1A DC power input (power supply included)		
Link	8-pin RJ45 connector, female; Connects directly to a Remote extender2		
USB	USB Type B connector, female; USB 2.0 device port for connection to the USB host computer, media server, game console, annotator, codec, etc.		
Connectors – Remote endpoint			
Power	2.1 x 5.5 mm DC power connector; 24 V, 1A DC power input		
Link	8-pin RJ45 connector, female; Should connects to Link port on the Local endpoint		
USB	USB Type A connectors, female; USB 2.0 host ports for connection of USB devices such as mice, keyboards, and other USB devices Available USB Power: 1 A maximum per port, 1.5 A maximum total		

8.   **Unified Conference Bundle**

Unified Conference Bundle		Make /Brand Name :	
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Tabletop Touch Screen			
Touch Screen	10.1 in. (257 mm) diagonal capacitive multi-touch TFT active matrix color LCD, 1920 x 1200 pixels, 400 nits Brightness, 1000:1 Contrast Ratio, 24 bit and 16.7M Color depth,5 Point Multi Touch Capable		
UI	Microsoft Teams UI plus optional Smart Graphics room control		
Ethernet	100 Mbps, auto switching, auto negotiating, auto discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, SNMP, IPv4 or IPv6, Active Directory® service		

	authentication, HTTPS web browser setup		
Power over Ethernet	IEEE 802.3at Type 2 compliant PoE+ PD (Powered Device); Should provide 15 W from an 802.3at Type 2 PSE with LLDP advanced power management; Should provide 18 W from an 802.3at Type 2 PSE with LLDP; Should provide 30 W (PoE+ Class 4) from an 802.3at Type 2 PSE without LLDP; Should provide 15.4 W (PoE Class 0) from an 802.3af (or 802.3at Type 1) PSE		
PoE Injector	A PoE injector should be included to power the touch screen if network PoE is not available		
UC Bracket Assembly			
Mini PC	Intel Core® processor with Windows® 10 IOT Edition OS		
UC Client	Microsoft Teams Rooms with Skype® for Business software functionality		
Management Client	XiO Cloud Service		
Content Ingest	HDMI input via HDMI to USB 3.0 converter		
Display Output	Single display support		
Display Output Resolution	1080p		
Power	65 W via external 100-240 VAC, 50 Hz adapter (included)		
Construction	Metal mounting bracket, black, preassembled		
Mounting	Surface wall mount behind the display device, or attach to the rear of the display device via the bolts attaching the display to a display mount; Bracket includes mounting holes on both side edges, spaced 100, 200, and 300 mm vertically, to allow for attachment to either side of the display mounting plate		

9. **PTZ camera with Ultra-HD imaging system**

PTZ camera with Ultra-HD imaging system			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Ultra-HD imaging system	4K, 1440p, 1080p, 900p, 720p, and most SD Resolutions: 1080p at 30 fps, 720p at 30 fps and 60 fps		
Smooth motorized pan, tilt and zoom	Pan: ±90° Tilt: +50°/ -90° 15x HD zoom 90° field of view		
Additional Features	Auto frame 3 camera presets Kensington security slot Video mute/unmute LED indicator Standard tripod thread		

10. 24" Ceiling Digital Array Microphone

24" Ceiling Digital Array Microphone			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Connector Type	RJ45		
Power Requirements	Power over Ethernet (PoE), Class 0		
Power Consumption	9W, maximum		
Control application	HTML5 Browser-based or Shure Designer		
Plenum Rating	UL2043 (Suitable for Air Handling Spaces)		
Dust Protection	IEC 60529 IP5X Dust Protected		
Operating Temperature Range	5°C to 40°C		
Storage Temperature Range	5°C to 70°C		
Frequency Response	180 to 17,000 Hz		
AES67 or Dante Digital Output	10 total channels (8 independent transmit channels, 1 Automatic mixing transmit channel, 1 AEC reference in channel)		
Sensitivity	0.75 dBFS/Pa		
Maximum SPL	93.25 dB SPL		
Signal-To-Noise Ratio	83 dB A-weighted		
Self Noise	11 dB SPL-A		
Dynamic Range	82.25 dB		
Feature	Should has 8 Independent Output Channel		

11. Digital Signal Processor

Digital Signal Processor			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Input Frequency Response	20Hz to 20kHz @ +21dBu +0.05% / -0.5%		
Input Impedance (balanced)	5K ohms nominal		
Sampling Rate	48kHz		
A/D – D/A Converters	24-bit		
Output Frequency Response	20Hz to 20kHz @ all settings (+0.2 / -0.5 dB)		
Output THD	0.003%, +10 dBu max output level		
Output Crosstalk @1kHz	> 100dB typical, 90dB max		
Output Dynamic Range	> 108dB		
Output Impedance (balanced)	220 ohms		
Output Level Range: (1dB Steps)	-39 dBu min to +21 dBu max		
USB Inputs & Outputs	Bit Depth : 16-bit Number of Channels :up to 16x16 Sample Rate : 48kHz		
BTU/Heat load:	205 BTU/Hour		

Features
- 128 x 128 channels of network audio in single channel streams
- Up to 24 configurable analog audio I/O
- 8 mic/line level analog audio inputs
- 8 line level analog audio outputs
- 8 Flex Channel mic/line level analog audio inputs or outputs
- Up to 16 assignable and routable AEC processor instances
- Dual Gigabit Ethernet ports with assignable application resources offering any combination of VoIP, Control or network redundancy
- Up to 16x16 channels of digital audio in and out via software definable USB instances advertised to the host operating system
- 16 General Purpose Inputs (GPI) x 16 General Purpose Outputs (GPO)
- Internal Universal Power Supply plus 12 Volt DC External Power Supply input for redundancy or non-mains power supply sources
- POTS telephone interface via a standard RJ-11 connector
- Should support up to 4 VoIP Softphone instances in addition to the onboard POTS telephone interface
- Fully integrated audio, video and control solution

12. Networked Ceiling Loudspeaker, 5.25 inch

Networked Ceiling Loudspeaker, 5.25 inch			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum performance parameters			
Loud Speaker Details			
Connector Type	RJ45		
Power Requirements	Power over Ethernet (PoE Class 0) or PoE Plus (Class 4)		
Plenum Rating	UL 2043 (Suitable for Air Handling Spaces)		
Operating Temperature Range	5°C to 40°C		
Storage Temperature Range	5°C to 70°C		
Frequency Response (-3 dB)	120 Hz to 20 kHz		
Digital Signal Processing	Delay, Limiter, Signal Generator, Equalizer (4-band Parametric)		
Latency	1.5 ms (Not including Dante latency)		
Power Details			
Power over Ethernet (PoE)	12 W		
PoE Plus	24 W		

13. PoE up to 30W output power per port

PoE up to 30W output power per port			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Standard & Protocol	Compatible with IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3af , IEEE802.3 at Standard CSMA/CD, TCP/IP		
Features	Support the powered devices compatible with IEEE802.3af、IEEE802.3at Standard Transmission range up to 100M Plug and play		
Port	1 GE port 1 data & power output port supporting PoE		
Indicator	PWR, PoE		
Operation Temperature	5°C~40°C		

Operating Humidity	10%~90% Rh(noncondensing)		
Storage Humidity	5%~90% Rh (noncondensing)		
Certification	CE\FCC\ROHS		

14. **Cable Cubby with 1x HDMI, 2 x Power , 2 x LAN and 2 x USB Charging Connectivity and 1 x USB**

Cable Cubby			
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum performance parameters			
Cable Cubby	1x HDMI, 2 x Power , 2 x LAN and 2 x USB Charging Connectivity and 1 x USB		

15. Control Processor

Control Processor			
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum performance parameters			
Communications			
Ethernet	100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, industry-standard TCP/IP stack, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), FIPS 140-2 compliant encryption, IEEE 802.1xX, SNMP, BACnet™ and IP1, IPv4 or IPv6, Active Directory® service authentication, HTTPS web server, HTTPS web browser setup		
USB	Should Support USB mass storage class devices via the rear panel USB 2.0 host port, supports computer console via the front panel USB 2.0 device port		
RS-232/422/485	For 2-way device control and monitoring, COM port should support RS-232 up to 115.2k baud with software handshaking, one port also should support RS-422 or RS-485 and hardware handshaking		
IR/Serial	Should support 1-way device control via infrared up to 1.2 MHz or serial TTL/RS-232 (0–5 V) up to 115.2k baud		
Memory			
SDRAM	2 GB		
Flash	8 GB		
Memory Card	Should support SD and SDHC cards up to 32 GB		
External Storage	Should Support USB mass storage devices up to 1 TB		
Connectors and Card Slots			
RELAY OUTPUT 1–8	4-pin 3.5 mm detachable terminal block; Should comprise (8) normally open, isolated relays; Rated 1 A, 30 VAC/VDC; MOV arc suppression across contacts		
I/O 1–8	9-pin 3.5 mm detachable terminal block; Should comprises (8) Versiport digital input/output or analog input ports (referenced to GND); Digital Input: Rated for 0–24 VDC, input impedance 20k Ω, logic threshold >3.125 V low/0 and <1.875 V high/1; Digital Output: 250 mA sink from maximum 24 VDC, catch diodes for use with real world loads; Analog Input: Rated for 0–10 VDC, protected to 24 VDC maximum, input impedance 21k Ω with pull-up resistor disabled; Programmable 5 V, 2k Ω pull-up resistor per pin		

IR - SERIAL OUTPUT 1–8	8-pin 3.5 mm detachable terminal blocks; Should comprises (8) IR output ports; IR output up to 1.2 MHz; 1-way serial TTL/RS-232 (0–5 V) up to 115.2k baud		
COM 1	5-pin 3.5 mm detachable terminal block; Bidirectional RS-232/422/485 port; Up to 115.2k baud; hardware and software handshaking support		
COM 2–3	3-pin 3.5 mm detachable terminal blocks; Bidirectional RS-232 ports; Up to 115.2k baud; software handshaking support		
MEMORY	SD memory card slot; Accepts one SD or SDHC card up to 32 GB for storage of log files		
USB	USB Type A connector, female; USB 2.0 port for storage devices		
LAN	8-pin RJ45 connector, female; 100/1000Base-TX Ethernet port		
CONTROL SUBNET	8-pin RJ45 connector, female; 100/1000Base-TX Ethernet port; Provides a dedicated local network for Crestron devices		
COMMUNICATION BUS	4-pin 3.5 mm detachable terminal block; Network master port; Output power to Network devices only if the included power pack is connected to the 24 VDC power input jack; Alternately functions as a Network power input to power the unit from a Network power supply;		
Power	2.1 x 5.5 mm DC power connector; 24 V, 2A DC power input; Passes through to the NET port to power Network devices;		
Ground	6-32 screw; Chassis ground lug		
COMPUTER (front)	USB Type B connector, female; USB 2.0 computer console port;		
Features	Can be able to run 10 Program		

16. **10.2'' Ipad 32 GB with Wifi**

10.2" Ipad 32 GB with Wifi			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
Display	Min 10.2 inch (diagonal) IPS LED-backlit Multi-Touch display with IPS Technology		
Resolution	2160x1620		
Processor Chip	A12		
Memory	Min 32 GB		

17. iPad Base Station

iPad Base Station			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
AC Socket Types	A, C, G		
Installation Application	Table		
Mounting Enclosure	Enclosure & Stand for I Pad		
Mount & Charger	Magnetic table mount and inductive charger		
Power Handling	INPUT: 15V 2A DC via 2.1mm ID OUTPUT		
Power Supply	INPUT: 100-240V 1A AC OUTPUT: 15V 2A DC via Barrel Connector ID 2.1mm, OD 5.5mm		

18. iPad Sleeve

iPad Sleeve			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
Compatible Tablets	iPad (8th gen) 10.2-inch, iPad (7th gen) 10.2-inch, iPad Air (3rd gen) 10.5-inch, iPad Pro 10.5-inch		
Installation Application	Table, Wall		
Power Handling	INPUT: Inductive Charging OUTPUT: 5V 2A DC via MFi Lightning Connector		

19. Wifi Access Point

Wifi Access Point			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
HARDWARE FEATURES			
Interface	4 × 10/100Mbps LAN Ports 1 × 10/100Mbps WAN Port		
Button	WPS/Reset Button Wireless On/Off Switch Power On/Off Button		
External Power Supply	12VDC/1A		
Antenna	3 × 2.4GHz Antennas 2 × 5GHz Antennas		

WIRELESS FEATURES			
Wireless Standards	IEEE 802.11ac/n/a 5GHz IEEE 802.11b/g/n 2.4GHz		
Wireless Speeds	450Mbps(2.4GHz) 867Mbps(5GHz)		
Frequency	2.4-2.5GHz 5.15-5.25GHz		
Transmit Power	≤20dBm （2.4GHz） ≤23dBm （5GHz）		
Wireless Modes	Wireless Router WDS(Four Address) WDS(AP+APC)		
Wireless Security	WEP WPA\WPA2 WPA-PSK\WPA2-PSK		

20. Lighting Controller

Lighting Controller			
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description		**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters			
Connectors			
COMMUNICATION BUS	4-pin 3.5mm detachable terminal blocks, paralleled; Network slave port		
OVERRIDE	2-pin 3.5mm detachable terminal blocks, paralleled; Sensing input for external low-voltage contact closure; Activates override mode when a closure is present, forces each ballast into its defined "System Failure Level"; Minimum Closure Rating: 10mA (per module) at 24 Volts		
LAN PoE	8-wire RJ45 with 2 LED indicators; 10BaseT/100BaseTX Ethernet port; 802.3af Power over Ethernet compliant; Green LED indicates link status; Yellow LED indicates Ethernet activity		
DALI® 1, 2	2-pin 5mm terminal blocks; Each set of (+) and (-) is paralleled with the adjacent like ports on the same channel; Each channel controls a single DALI loop (up to 64 ballasts); 3kVAC isolation between Ethernet ports; Wire Gauge: 28 AWG to 12 AWG		
COMPUTER	USB Type B female, USB 1.1 computer console port		
Power Requirements			
PoE Power Usage	IEEE 802.3af (802.3at Type 1) Class 0 PoE Powered Device; capable of powering up to 128 DALI ballast controllers		
Network Power Usage	9 watts (0.375 Amps @ 24 Volts DC), DALI POWER switch set to "INT"; 2 Watts (0.08 Amps @ 24 Volts DC), DALI POWER switch set to "EXT"; capable of powering up to 128 DALI ballast controllers		
Features	Should be able to control individual DALI Ballast separately		

21. Keypad

Keypad			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Controls			
Pushbutton	5 blank single pushbuttons; Configurable with combinations of HZ-BTN-RKR1, HZ-BTNRKR3, or HZ-BTN-1 in blank or engraved models; Should include 5 blank button caps		
Setup	1 Hidden pushbutton should be located behind faceplate's top trim piece; Should configure the LED backlight and calibrates the light sensor		
LED Indicator and Light Sensor			
Feedback	5 Color-adjustable LEDs; Should Provide button backlighting		
Light Sensor	Photosensor with adjustable sensitivity; Should detect the ambient room light level to activate day or night mode		
Button Caps	Field Replaceable		

22. High-Voltage Relay Control – 8 channel

High-Voltage Relay Control – 8 channel			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
Load Ratings			
Switch Channels	8		
Maximum Current / Power Per Channel	10 Amps incandescent, 5 Amps fluorescent, 0.5 HP at 120 to 240 Volts AC, 50 Hz; 5 Amps at 30 Volts DC; 16 Amps Resistive load		
Module Total	80 Amps incandescent, 40 Amps fluorescent at 120 to 240 Volts AC, 50 Hz		
Load Types	Incandescent, magnetic low-voltage, electronic low-voltage, neon/cold cathode, fluorescent, motor		

	Connections		
1 – 8	Eight Sets of (2) captive screw terminals; Isolated Class 1 SPST relay switch circuits 1 – 8; Relay Rating: 10 Amps incandescent, 5 Amps fluorescent, 16 Amps resistive, 0.5 HP at 240 Volts AC (per channel); Maximum Wire Size: 12 AWG (2.5 mm²)		
INPUTS 1-8	Nine 3.5 mm detachable terminal blocks (inputs 1-8, common); Rated for 12-24 Volts DC; Input Impedance: 6.8k Ohms		
COMMUNICATION BUS	Two 4-pin 3.5 mm detachable terminal blocks, paralleled; Network slave port		
OVERRIDE	Two 2-pin 3.5 mm detachable terminal blocks, paralleled; Sensing input for external low-voltage contact closure; Activates override mode when a closure is present; Minimum Closure Rating: 10 mA (per module) at 24 Volts		

23.   **Partition Sensor**

Partition Sensor			
Name of the Make/Brand and Model No			**Make /Brand Name :**
			Model No
Description		**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.			
	Sensing		
Method of Detection	Diffuse Reflective		
Light Source	Pulse modulated infrared LED		
IR Sensitivity	Adjustable		
Sensing Distance	122 cm		
	Connectors		
NET/EXT	5-pin 3.5mm detachable terminal block; Network slave port and digital output port; Digital Output should Provide either 24 Volts DC, 10 mA (default) or a closure to ground when partition is detected		
	Controls & Indicators		
PWR	LED should indicate power is supplied to device; flashes to indicate sensitivity level		
NET	LED should indicate Network communication status		
ALIGN	LED should indicate partition detection		
PUSH BUTTON +	Pushbutton used to increase sensitivity of IR beam; also used for touch-settable ID (TSID)		
PUSH BUTTON -	Pushbutton used to decrease sensitivity of IR beam; also used for touch-settable ID (TSID)		

24. **High–Speed HDMI Cable 1.80m (6ft)**

High–Speed HDMI Cable 1.80m (6ft)			
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description	**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**	
Minimum Performance Parameters.			
VIDEO	Max Resolution 4K@60Hz (4:4:4) Max Data Rate 18 Gbps Supported Color Spaces: RGB, YCbCr, xvYCC, Adobe sRGB, sYCC601, BT.2020 HDMI Compliance: HDR,HDCP 2.2, EDID and CEC"		
AUDIO	Supported Audio Formats: Dolby Digital Plus™, Dolby TrueHD™, DTS–HD Master Audio™, DVD Audio, SA–CD		
PHYSICAL	HDMI Source: On a male HDMI type A, 24K gold–plated K–Lock connector HDMI Display: On a male HDMI type A, 24K gold–plated K–Lock connector		
CONDUCTORS	Material: Tinned Copper/Bare Copper 28AWG (7/0.127)		
SCREENING	Type: Triple shielding		
JACKET	Material: PVC Diameter 6.50 ± 0.15mm		
MECHANICAL	Cable Bending Radius 60mm		
ELECTRICAL	Temperature Rating: 80°C Voltage Rating: 30V Conductor Resistance – 28AWG: 237.25Ω/km		
STANDARDS COMPLIANCE	Safety: Flammability Rating — CL3/FT4 Environmental: RoHS 2011/65/ EU		

25. **HD Baset Cable**

HD Baset Cable			
Name of the Make/Brand and Model No		**Make /Brand Name :**	
		Model No	
Description	**Compliance** **(Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**	
Minimum Performance Parameters.			
CONDUCTORS	Size: 4x2x23AWG Material: Annealed copper Diameter: 0.56mm ±0.01mm		
INSULATION	Material: Skin/Foam/Skin HDPE Diameter: 1.33mm ±0.10mm Color Code: White/Blue, White/Orange, White/Green, White/Brown		
SCREENING	Material: Alu/PET per pair (Alu side out)		
DRAIN WIRE	Material: Tinned copper Diameter: 0.4mm ±0.01mm		
JACKET	Material: LSHF Color: Blue RAL 5012 Thickness: ≥0.5mm Diameter: 7.2mm ±0.2mm		

ELECTRICAL	Impedance: 1–100MHz: 100Ω ±15Ω, 100–250MHz: 100Ω ±20Ω, 250–500MHz: 100Ω ±25Ω Propagation Velocity (NVP): 76% Voltage Rating: 60V Delay Skew: <45ns Mutual Pair Capacitance: ≤42pF/m Capacitance Unbalance Pair/ground: ≤1500pF/km Conductor DC Resistance: <79.8Ω/km Pair Resistance Unbalance DC: <1.5% Dielectric Strength: 2.5kV DC (2s) Insulation Resistance (500V): >5000MΩ/km		
USAGE AND ENVIRONMENTAL	Storage / Transport / Installation Temperature: 0˚C to +50˚C Operation Temperature: 0˚C to +60˚C		
MECHANICAL	Maximum Pulling Tension: : 100N Bending Radius - Installed: 50mm Bending Radius - During Installation: 60mm		
STANDARDS COMPLIANCE - EC VERIFIED	Electrical: EIA/TIA 568A, ISO/IEC 11801 Fire Performance: IEC 60332-1 Smoke Density: IEC 61034 Halogen Free: IEC 60754 RoHS: 2011/65/EU		
STANDARDS COMPLIANCE	Reaction to Fire Classification: Dca–s2,d1,a1		

26. **Crimp Style RJ45 Connectors**

Crimp Style RJ45 Connectors		
Name of the Make/Brand and Model No		Make /Brand Name :
		Model No
Description	Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum Performance Parameters.		
Designed for 24AWG to 23AWG twisted pair cables with overall cable insulation diameter — 1.40mm to 1.50mm		

27. **Twisted pair cable for Signal & Control (Cat - 6/7)**

Twisted pair cable for Signal & Control (Cat - 6/7)		
Name of the Make/Brand and Model No		Make /Brand Name :
		Model No
Description	Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters		
Requires Custom RJ–45 Connector for 23AWG cable		

28. **Audio Shielded Pair Cable**

Audio Shielded Pair Cable			
Name of the Make/Brand and Model No			Make /Brand Name :
			Model No
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
CONDUCTORS	Material: Tinned Copper; Size: 2x20AWG; Diameter: 0.916mm		
INSULATION	Material: PP; Diameter: 1.8±0.09mm ; Average Thickness: 0.442mm		

DRAIN WIRE	Size: 20AWG; Material: Tinned Copper		
SCREENING	Material: AL–foil/mylar; Overlap: 25% min		
JACKET	Material: PVC; Diameter: 5.4 ± 0.19mm		
ELECTRICAL	Temperature rating: 75˚C Insulation resistance: DC - 500V, 100MΩ/km Conductor resistance: 20AWG - 34.6Ω/km Impedance: 40~100Ω		
STANDARDS COMPLIANCE	UL: CM; RoHS: 2011/65/ EU		

29. 24 Port Patch Panel

24 Port Patch Panel			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
Cable Type	Unshielded		
Intelligence Type	Passive		
Rack Type	EIA 19 in		
Rack Units	1		
Total Ports, quantity	24		

30. USB 2.0 A (M) to B (M) Cable 1.80m (6ft)

USB 2.0 A (M) to B (M) Cable 1.80m (6ft)			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
Conductor Gauge	24 AWG		
Insulation / outer jacket material	PVC		
Outer shield	Bare Copper		
Voltage	100V RMS		
No of pairs	1		

31. AV Connectors

AV Connectors			
Name of the Make/Brand and Model No		Make /Brand Name :	
		Model No	
Description		Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters			
Required AV Connectors			

32. AV Rack

AV Rack		
Name of the Make/Brand and Model No		**Make /Brand Name :**
		Model No
Description	**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum performance parameters		
17U AV Rack with 600mm Depth		
Power Distribution Unit Vertical		
3 Rack Shelf		
3 1U - Blank Spacer		
2 Rack Equipment Cooling Fan		
2 Castor Wheels with Lock		

33. Swivel Wall Mount for 65" Display

Swivel Wall Mount for 65" Display		
Name of the Make/Brand and Model No		**Make /Brand Name :**
		Model No
Description	**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
Minimum Performance Parameters.		
"Recommended screen size: up to 65""		
Max load: 36kg		
VESA® compatibility: up to 600 x 400 mm		
Universal fixings: up to 600 x 400mm		
Tilt: +/-15°		
Swivel: 180° at wall, 360° at central pivot & 180° at interface		
Distance from wall: Min: 37mm - Max: 560mm		

34. Swivel Wall Mount for 98" Display

Swivel Wall Mount for 98" Display		
Item Description	Swivel Wall Mount for 98" Display	
Make/Brand	B-TECH/CHIEF	
Minimum Performance Parameters.	**Compliance (Yes/No)**	**Details of Catalogue/ Data Sheet Proof with Page No in the tender document.**
"Recommended screen size: 65" up to 120""		
Max load: 200kg*		
VESA® and non-VESA Fixings: up to 1000 x 600mm		
Distance from wall: 35mm"		

35. Interactive Monitor

Interactive Monitor for Chair Person		
Name of the Make/Brand and Model No		Make /Brand Name :
		Model No
Description	Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum Performance Parameters.		
Recommended screen size: 24		
Aspect ratio 16:9		
Native resolution 1920 x 1080 pixels		
Video input DVI-I		
Video Loop Output DVI-I		
Viewing angles (horizontal/vertical) 178° / 178°		
Cover glass surface - Tempered AG etched glass		
Luminance (brightness) 0.13 cd/in² / 210 cd/m² (typical)		
Contrast ratio 1000:1 (typical)		
Response time 16 ms (typical)		
Technology: Electromagenetic Resonance (EMR) PEN For Interactivity		
Stand inclination 11° - 73° adjustable stand		

36. Supply, Installation, Commissioning, Cabling, Termination, Programming and coordination with other contractors & Project management as per Design

Supply, Installation, Commissioning, Cabling, Termination, Programming and coordination with other contractors & Project management as per Design		
Description	Compliance (Yes/No)	Details of Catalogue/ Data Sheet Proof with Page No in the tender document.
Minimum performance parameters requirement for Integrator		
The integrator shall have a full-fledged qualified team to execute the project		

**SUPPLY, INSTALLATION AND COMMISSIONING OF AUDIO AND VIDEO CONFERENCING SYSTEM
IN BOARD ROOM of IIT MADRAS AS PER DESIGN**

PROFORMA FORMAT FOR FINANCIAL BID (BOQ) FORMAT
Tender No. IITM/SPS/AV System/001/2021-22

Sl.No	Description	Qty	UoM	Rate per unit	Total cost without Tax	GST	Total cost with tax
1	98" UHD display	1	No.				
2	65" UHD Display	2	Nos.				
3	Wireless Presenter	1	No.				
4	AV Over IP Decoder	5	Nos.				
5	AV over IP encoder	9	Nos.				
6	Layer 3 Managed Gigabit Switch	1	No.				
7	USB 2.0 Extender	2	No.				
8	Unified Conference Bundle	1	No.				
9	PTZ camera with Ultra-HD imaging system	1	No.				
10	24" Ceiling Digital Array Microphone	3	Nos.				
11	Digital Signal Processor	2	Nos.				
12	Networked Ceiling Loudspeaker, 5.25 inch	10	Nos.				
13	PoE up to 30W output power per port	10	Nos.				
14	Cable Cubby with 1x HDMI, 2 x Power , 2 x LAN and 2 x USB Charging Connectivity and 1 x USB	7	Nos.				
15	Control Processor	1	No.				
16	10.2" Ipad 32 GB with Wifi	2	Nos.				
17	iPad Base Station	2	Nos.				
18	iPad Sleeve	2	Nos.				
19	Wifi Access Point	1	No.				
20	Lighting Controller	1	No.				
21	Keypad	1	No.				
22	High-Voltage Relay Control – 8 channel	1	No.				
23	Partition Sensor	1	No.				
24	High–Speed HDMI Cable 1.80m (6ft)	9	Nos.				
25	HDBaset Cable	60	Meter				
26	Crimp Style RJ45 Connectors	10	Nos.				
27	Twisted pair cable for Signal & Control (Cat-6/7)	500	Meter				
28	Audio Shielded Pair Cable	150	Meter				
29	24 Port Patch Panel	1	No.				
30	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	2	Nos.				
31	AV Connectors	1	Lot				
32	**AV Rack**						
32.01	17U AV Rack with 600mm Depth	1	No.				
32.02	Power Distribution Unit Vertical	1	No.				
32.03	Rack Shelf	3	Nos.				
32.04	1U - Blank Spacer	3	Nos.				
32.05	Rack Equipment Cooling Fan	2	Nos.				
32.06	Castor Wheels with Lock	2	Nos.				
33	Swivel Wall Mount for 65" Display	2	Nos.				
34	Heavy Duty Wall Mount for 98" Display	1	No.				
35	Interactive monitor for Chair Person	1	No.				
36	Supply, Installation, Commissioning, Cabling, Termination, Programming and coordination with other contractors & Project management as per Design	1	Lot				

SELF-CERTIFICATION FORMAT FOR CLASS-I LOCAL SUPPLIER
Tender No. IITM/SPS/AV System/001/2021-22

Date: _____

I / We _____ S/o, D/o, W/o, _____
Resident of_____ hereby solemnly affirm and declare as under:

That I/we will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (hereinafter PPP-MII order) of Government of India issued vide Notification No: P-45021/2/2017 -BE-II dated 15/06/2017, its revision dated 28/05/2018 and any subsequent modifications/Amendments, if any and

That the information furnished hereinafter is correct to the best of my knowledge and belief and I/we undertake to produce relevant records before the procuring entity/IIT Madras or any other Government authority for the purpose of assessing the local content of goods/services/works supplied by me for .... *(Enter the name of the Equipment/Item for Project).*

That the local content for all inputs which constitute the said goods/services/works has been verified by me and I am responsible for the correctness of the claims made therein.

I/We …………………………..[name of manufacturer] hereby confirm in respect of quoted item(s) that Local Content is equal to or more than 50% and come under 'Class-I Local Supplier' Category. As being 'Class-I Local Supplier', we are eligible for Purchase Preference under 'Make in India' Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020)

That the value addition for the purpose of meeting the 'Minimum Local Content 'has been made by me at .... *(Enter the details of the location(s) at which value addition is made).*

That in the event of the local content of the goods/services/works mentioned herein is found to be incorrect and not meeting the prescribed Minimum Local Content criteria, based on the assessment of procuring agency (ies)/IIT Madras/Government Authorities for the purpose of assessing the local content, action shall be taken against me in line with the PPP-MII order and provisions of the Integrity pact/ Bidding Documents.

I/We agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority.

i. Name and details of the Local Supplier (Registered Office, Manufacturing unit location, nature of legal entity)
ii. Date on which this certificate is issued
iii. Goods/services/works for which the certificate is produced
iv. Procuring entity to whom the certificate is furnished
v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed
vi. Name and contact details of the unit of the Local Supplier (s)
vii. Sale Price of the product
viii. Ex-Factory Price of the product
ix. Freight, insurance and handling
x. Total Bill of Material
xi. List and total cost value of input used to manufacture the Goods/to provide services/in construction of works
xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached
xiii. List and cost of inputs which are imported, directly or indirectly

For and on behalf of.. (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)
<Insert Name, Designation and Contact No.>

SELF-CERTIFICATION FORMAT FOR CLASS-II LOCAL SUPPLIER
Tender No. IITM/SPS/AV System/001/2021-22

Date: _____

I / We _____ S/o, D/o, W/o, _____ Resident of_____ hereby solemnly affirm and declare as under:

That I/we will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (hereinafter PPP-MII order) of Government of India issued vide Notification No: P-45021/2/2017 -BE-II dated 15/06/2017, its revision dated 28/05/2018 and any subsequent modifications/Amendments, if any and

That the information furnished hereinafter is correct to the best of my knowledge and belief and I/we undertake to produce relevant records before the procuring entity/IIT Madras or any other Government authority for the purpose of assessing the local content of goods/services/works supplied by me for .... *(Enter the name of the Equipment/Item for Project).*

That the local content for all inputs which constitute the said goods/services/works has been verified by me and I/we am/are responsible for the correctness of the claims made therein.

I/We ………………… *(name of manufacturer)* hereby confirm in respect of quoted item(s) that Local Content is more than 20% but less than 50% and come under 'Class-II Local Supplier' Category.

That the value addition for the purpose of meeting the 'Minimum Local Content 'has been made by me at .... *(Enter the details of the location(s) at which value addition is made).*

That in the event of the local content of the goods/services/works mentioned herein is found to be incorrect and not meeting the prescribed Minimum Local Content criteria, based on the assessment of procuring agency (ies)/IIT Madras/Government Authorities for the purpose of assessing the local content, action shall be taken against me in line with the PPP-MII order and provisions of the Integrity pact/ Bidding Documents.

I/We agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority.
   i. Name and details of the Local Supplier (Registered Office, Manufacturing unit location, nature of legal entity)
   ii. Date on which this certificate is issued
   iii. Goods/services/works for which the certificate is produced
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   v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed
   vi. Name and contact details of the unit of the Local Supplier (s)
   vii. Sale Price of the product
   viii. Ex-Factory Price of the product
   ix. Freight, insurance and handling
   x. Total Bill of Material
   xi. List and total cost value of input used to manufacture the Goods/to provide services/in construction of works
   xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached
   xiii. List and cost of inputs which are imported, directly or indirectly

For and on behalf of.. (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)
<Insert Name, Designation and Contact No.>

(To be given on the letter head of the bidder)

No._____   Dated: _____

CERTIFICATE

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and hereby certify that I am not from such a country.

OR *(whichever is applicable)*

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and hereby certify that I from _____ (Name of Country) and has been registered with the Competent Authority. I also certify that I fulfil all the requirements in this regard and is eligible to be considered.

(Copy/ evidence of valid registration by the Competent Authority is to be attached)

Place: Signature of the Tenderer
Date: Name & Address of the
                                                                  Tenderer with Office Stamp

(To be given on the letter head of the bidder)

BID SECURITY DECLARATION FORM

To

The Registrar,
IIT Madras

I, the authorized signatory of _____ participating in the subject Tender No.
_____ dated _____ for **"Supply, installation and commissioning of audio and video conferencing system in board room of IIT madras as per design"**.

That I have availed the benefit of waiver of EMD while submitting our offer against the subject **Tender No. IITM/SPS/AV System/001/2021-22**

That in the event we withdraw/ modify our bid during the period of validity OR we fail to execute formal contract agreement within the given timeline OR we fail to submit a performance security within the given timeline OR we commit any other breach of Tender Conditions/Contract, we will be suspended from being eligible for bidding/award of all future contract (s) of Indian Institute of Technology Madras for a period of one year from the date of committing such breach. Further, we agree that your institute is at liberty to intimate this debarment to all departments/ organizations of government and governmental organizations.

Place: Signature of the Tenderer
Date: Name & Address of the
                                                                                      Tenderer with Office Stamp

(To be given on the letter head of the bidder)

Self-Declaration that the Service Provider has not been Black listed

I …………………………………………………………………………………. S/o ……………………………………………………………

R/o …………………………………. police station ………………. District ………………………….. …………………………………….. Director

/ partner/ sole proprietor (Strike out whichever is not applicable) of ……………………………………………….…………

……………………………………………. (Firm or Company) do hereby declare and solemnly affirm:

I. That the Firm ……………………………………………………………… ……………………. has not been Blacklisted or declared insolvent by any of the Union or State Government / Organization.

II. That none of the individual / firm / Company Blacklisted or any partners or shareholder thereof has any connection directly or indirectly with or has any subsistence interest in the deponent business / firm company.

III. That neither the Firm nor any of its partner has been involved / convicted in any criminal case / economic offence nor any criminal case / economic offence is pending against firm or any partner of the Firm before any Court of Law / Police.

Place: Signature of the Tenderer
Date: Name & Address of the
                                                                Tenderer with Office Stamp

<u>**OEM CERTIFICATION FORM**</u>
(in Original Letter Head of OEM)

Tender No: ....   Dated: ....

We are Original Equipment Manufacturers (OEM) of... (Name of the company)

Ms.. (Name of the vendor) is one of our Distributors/Dealers/Resellers/Partners (tick one) for the ……….……………………………………………………………. and is participating in the above mentioned tender by offering our product model..(Name of the product with model number).

………………………………………………………………. is authorized to bid, sell and provide service support warranty for our product as mentioned above.

Name and Signature of the authorized
signatory of OEM along with
seal of the company with Date

SCHEDULE OF TENDER

Tender No. IITM/SPS/AV System/001/2021-22

SUPPLY, INSTALLATION AND COMMISSIONING OF AUDIO AND VIDEO CONFERENCING SYSTEM IN BOARD ROOM of IIT MADRAS AS PER DESIGN

Name of Organization	Indian Institute of Technology Madras
Tender Type (Open/Limited/EOI/Auction/Single)	OPEN
Tender Category (Services/Goods/Works)	Goods
Type/Form of Contract (Work/Supply/Auction/ Service/ Buy/ Empanelment/ Sell)	Supply, Installation and Commissioning
Product Category (Civil Works/Electrical Works/Fleet Management/ Computer Systems)	Supply, Installation and Commissioning of Audio and Video Conferencing System in Board Room of IIT Madras as per Design
Source of Fund (Institute/Project)	IIT Madras
Is Multi Currency Allowed	No
Date of Issue/Publishing	07.04.2021
Document Download Start Date	07.04.2021
Document Download End Date	20.04.2021
Bid Submission Start Date	08.04.2021 @ 10.00 am
Last Date and Time for Uploading of Bids	20.04.2021 before 02.00 pm
Date and Time of Tender Opening	21.04.2021 at 03.00 pm
No. of Covers (1/2/3/4)	2
Bid Validity days (180/120/90/60/30)	120 Days
Address for Communication	The Assistant Registrar Stores & Purchase Section IIT Madras Chennai – 600 036
Contact No.	For Technical Queries: 044 2257 4947 For General Queries : 044- 2257 8285/8287/8288
Email Address	adstores@iitm.ac.in