



INVITING TENDER FOR INTERACTIVE VIDEO CONFERENCING BOARDROOM / DISCUSSION ROOM AND INTERACTIVE SMART CLASS ROOM SETUP ON A TURNKEY PROJECT MODE AT ICAR- NATIONAL ACADEMY OF AGRICULTURAL RESEARCH MANAGEMENT

F.No.5-561/2019-20/Video Conferencing/PS

Date: 29.10.2019

1. Online bids are inviting for and on behalf of the Director, ICAR – NAARM, from experienced suppliers/vendors for Interactive Video Conferencing Boardroom / Discussion Room and Interactive Smart Class Room Setup on a Turnkey Project Mode at ICAR –NAARM.
2. The Earnest Money Deposit (EMD) is Rs.1,50,000/- (Rupees One Lakh fifty thousand only) to be **submitted in the form of Demand Draft drawn in favour of “ICAR Unit – NAARM A/c”, Hyderabad from any scheduled Bank** and should be sent by speed post as to reach before due date at the above address.

Key Dates:

Sl. No.	Description	Date	Time
1.	Tender Publishing Date	30.10.2019	1400 hrs
2.	Document Download start date	30.10.2019	1400 hrs
3.	Seek Clarification Start Date	01.11.2019	1500 hrs
4.	Seek Clarification End Date	05.11.2019	1000 hrs
5.	Bid Submission Start Date	01.11.2019	1600 hrs
6.	Bid Submission Closing Date	22.11.2019	1400 hrs
7.	Bid Opening Date	23.11.2019	1400 hrs

The Academy reserves the right to accept or reject any or, all the tenders without assigning any reason whatsoever.

The duly filled Application form (Cover -I) along with the supporting documents and Price bid as per Cover-II must be submitted in online mode only on <http://eprocure.gov.in>. Bidders would be required to register themselves in the web-site. For submission of bids, the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities (CA).

3. All the required documents (self-attested) in support of eligibility criteria are to be uploaded along with the tender documents. All pages of tender documents should be numbered serially. The bidders are advised to submit duly signed

required papers / documents with their bids as per the specifications indicated in online only through Portal: <https://eprocure.gov.in> failing which their bids will be rejected.

The bidders can download the tender document from Central Government procurement portal website: <http://www.eprocure.gov.in>

4. For further details regarding tender forms, terms and conditions, EMD and last date for submission of sealed tenders, please visit: <https://www.eprocure.gov.in> and Academy's website: <https://naarm.org.in>.



भाकृअनुप-राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी
राजेन्द्रनगर, हैदराबाद-५०००३०, तेलंगाणा, भारत
ICAR-National Academy of Agricultural Research Management
(ISO 9001:2008 Certified)
Rajendranagar, Hyderabad-500030, Telangana, India
<https://naarm.org.in>



e-tender Notice for – for Interactive Video Conferencing Boardroom / Discussion Room and Interactive Smart Class Room Setup on a Turnkey Project Mode at ICAR – NAARM

Terms and Conditions:

1. Online bids are invited for and on behalf of the Director, ICAR – NAARM, from experienced suppliers/bidders for Supply, installation and commissioning of Interactive Video Conferencing Boardroom / Discussion Room and Interactive Smart Class Room Setup on a Turnkey Project Mode at ICAR – NAARM
2. The Earnest Money Deposit (EMD) is Rs.1,50,000/- (Rupees One Lakh fifty thousand only) to be **submitted scanned copy of Demand Draft through online +** and original Demand Draft should be sent by speed post as to reach before due date at the above address.
3. **To Pre-qualify all the Bidders/OEM should satisfy the Eligibility Criteria mentioned below.**
 - a. All the components must comply with ISI standards.
 - b. The bidder should have experience in the setup of Video Conferencing / Conferencing Rooms , Smart Class Rooms
 - c. The quoted products should service support centers with fully equipped repair and maintenance office in India preferably in Hyderabad / Secunderabad
 - d. The Offered equipment from the reputed OEM to ensure seamless integration & better support. However, keeping in mind the future scalability, the offered equipment should be IPV6 compliant.
 - e. The bidder should have similar kind of Video conferencing / Smart Class Room products and installed in three Govt./Public sector/ Companies for the past two years
 - f. The firm should be registered and have valid GSTN Number

4. Background of the work

This Academy has created with a state of Art Video Conferencing equipment to conduct One to many Video Conferencing sessions and Cloud based web meeting with a provision of participation up to Two hundred users. To make use of this facilities more effective and productively, it is proposed to establish Interactive Video Conferencing Boardroom/Discussion Room with the latest futuristic

electronics available in today's technology era to make the best out of the meetings ensuring best in class experience to the End Users. This proposal is also to integrate the existing facilities / equipment at the Academy

This work consists of two components namely, establishing/commissioning of

1. The existing Board Room with Necessary Audio Conferencing Equipment, Video wall for Large Display of Content and Video Conference / Meetings.
2. Interactive Smart Classroom setup in one of the existing classroom

5. Brief Description about the requirements

Component 1: Boardroom for Video and Audio Conferencing

- This Boardroom has 48 sitting capacity in three Rows each side of the central U type sitting arrangement with a provision of two Chairman Seats.
- This proposal enables to have full control of dashboard for Chairman to control the boardroom activities. The Chairman can assign a task to the delegates to share their presentations from their respective devices i.e laptop/Tablets/Mobile on the large display using wireless presentation tools.
- Each of these delegates have access to wireless mic to participate in the Audio/Video Conferencing / Discussion. The existing ceiling mounted speakers are to be integrated with this wireless mic.
- Apart from this, entire system to integrate with existing two numbers of CISCO SX 20 Video Conferencing Endpoints for effective delivery of Video Conferencing and Local Audio Conferencing with the existing Audio Devices in the boardroom.
- To be Integrated with the existing projector for display the contents on the screen

Component 2: Interactive Smart Classroom setup

- In the present scenario, the White Board / Display board is available at the speakers/faculty dais. During the sessions, the content displayed /written on the board is not visible to the entire classroom of 60 students.
- The proposal enables the contents on the Interactive Display board to all the students on their respective laptops by the faculty.
- The students can have the facility to download the same presentations on their laptops.
- It enables the interactive presentation and collaboration solutions that allow up to 64 students / users to connect and participate
- Using conference control, faculty can select any of the connected participants / Students from the on-screen queue to present, up to four students at a time to evaluate their work from the dais itself.

6. Existing Infrastructure:

Board Room

- Seating Capacity : 48
- Seating Type: U Type. Three Rows of Board Room seating.
- Video Conferencing Equipment : Cisco SX20 (Dual Camera Mode)

- Display : EPSON Projector with 100 inch Projector Screen
- Audio Conference : One Speaker Mode
- Audio Processing : Amplifier – Brand : Ahuja
- Audio Output : Ceiling Speakers – Brand : Yamaha

Class Room

- Seating Capacity : 60
- Seating Type: 4 Nos. of Curve Shaped Horizontal Rows
- Audio Conference : One Speaker Mode
- Audio Processing : Amplifier – Brand : Ahuja
- Audio Output : Ceiling Speakers – Brand : Yamaha

7. Scope of Work

Component 1: Boardroom for Video and Audio Conferencing

a. Video Wall to the size of the Wall for a clear content Display

- Setup of 2X3 Video wall of six Panels with 3.5mm bezel on the wall for content and **Video Conferencing display, with suitable Video Wall Controller with matrix view and** Picture in Picture (PIP) if required.

b. Wireless Presentation Device

- Setup Wireless Presentation Device to avoid HDMI / VGA Cables for wireless local presentation from Chairman and delegates.
- The Wireless Presentation Device should make it easy for delegates with any device of any type to connect and present their content quickly and easily even without software installation. Should be compatible with all types of devices with different operating systems such as MS-Windows/Android/iOS etc.

c. Chairman Delegate Unit for Conferencing

- Setting up of Chairman Delegate Unit for Local Audio Conferencing Integrating to Video Conferencing and existing Audio Devices
- Setup Clutter free Wireless Chairman , Delegate discussion system with 2 Chairman Units & 16 Delegate Units on a 1:3 ratio

d. Integrating with the existing Video Conferencing Endpoint for Video Conferencing

- Integration of existing 2 SX20 Cameras for Dual Camera Capture

e. Configuration of Audio Digital Signal Processor (DSP)

- Configuration of Audio Digital Signal Processor (DSP) to handle Multiple Audio Inputs such as Audio from Discussion systems, Video Conference System, Local Audio Mics and integrate the same to the existing Amplifier and Audio Output from Speakers.

f. Single Touch Board Room Control on a Tablet

- Setup Dashboard controller for chairperson to Control entire Process by one touch automation of Dual Camera Control and Board Room Automation.

Component 2: Interactive Smart Classroom setup

a. Interactive Display Board

- Setup 75" Inch Ultra HD 4k Resolution Interactive Board with OPS board & Wall Mount
- Configure display unit to delivers clear and robust images, even when multiple users simultaneously project their screens in quadrant view
- It should enables the maximum viewing angle (178°) with a clear view for the student wherever he sits in the classroom.
- The display should have IR touch technology that offers the most intuitive and smoothest writing experience and multi-function display for classroom.
- It should have state-of-the-art touch technology; users can annotate with a writing stylus or fingers like writing on papers. It should support object recognition under the built-in annotation tool.

b. Wireless Presentation Device

- Setup Wireless Presentation Device to avoid HDMI / VGA Cables for wireless local presentation from Faculty and students / participants.
- The Wireless Presentation Device enables to make it easy for students /participants with any device of any type to connect and present their content quickly and easily even without software installation. In addition, allows students /participants to share audio/ video content from an iOS device.
- The Wireless Presentation Device should have feature to interactive presentation and collaboration solutions that allow up to 64 students /participants to connect and participate. All connected students /participants can take turns presenting, fostering a truly collaborative multi-user experience.
- It should enable the faculty can select any of the connected participants from the on-screen queue to present their work from laptops / devices, up to four participants at a time.

c. Integrated Digital Podium

- This podium should have facility to interlock with other equipment in classroom and control easily considering convenience of Faculty
- It should have On/Off all interlocked equipment in classroom by using one begin-end lecture button in Digital Podium.
- This podium should be equipped with 19-inch Tablet monitor and implement same feeling of conventional writing on the blackboard.
- It should have facility to adjust high tone and low tone by internal digital amp.
- It should provide Gooseneck microphone and provide voice lecture.
- It should have Laptop interface
- It should facility to integrate with the existing Audio controller and Ceiling mounted speakers.

8. Material Required

Component 1: Boardroom for Video and Audio Conferencing (As per Technical Specification in point 5)

Sl.No	Description	Quantity (Nos.)*
1.	Ultra-Thin Bezel Video Wall panel with 3.5mm bezel-to-bezel - 700 nits brightness for 24x7 Operation	6
2.	Universal Ceiling Mounting System kit for Suitable 50-70 inch Video wall Display	1
3.	Video wall Display Controller to support 2 x 3 video wall	1
4.	HDMI Cables	
	a. LockPro-HDMI Cable Lock (Pack of 10)	2
	b. 5M HDMI Cables for above Controller (Input)	8
	c. 15M HDMI Cables for above Controller	4
5.	Wireless Conference Unit	
	a. Host Unit	1
	b. Chairman Unit	2
	c. Delegate Units (1:3)	16
	d. Gooseneck Microphone	18
6.	Antenna Booster	1
7.	Six Channel Digital Signal Processor for Integrating VC to Audio Conference System, Supports both Hardware / Software Based VC Applications	1
8.	Dual Channel Automatic Feedback Terminator with 24 Digital Notch & LED Indicators for Each	1
9.	Wireless Presentation Device for Cable Free Presentation	1
10.	Control System for Dual Camera Support	1
11.	24 U Rack with cable manager for fixing Audio Controller with Ceiling mounted speaker cables and cables	1
12.	Any other item(s) required for the system.(If required list out and bundled as single item))	1

Component 2: Interactive Smart Classroom

Sl.No	Description	Quantity (Nos.)
13.	75" Interactive Display Panel with Built in OPS	1
14.	Integrated Digital Podium	1
15.	Wireless Presentation Device for Cable Free Presentation	1
16.	Any other item(s) required for the system.(If required list out and bundled as single item))	1

9. The complete scope of work shall include design, supply, erection, testing, commissioning of the complete system as per the scope of work. The vendor shall ensure the responsibility of the guaranteed continuous operation of the complete system. The bidder has to indicate the different equipment has offered and submit the complete technical details, brochures of the quoted equipment.
10. Based on the scope of the work/ supply as mentioned in the tender, bidder has to design the solution and submit the plan of action with diagram. The bidder will be required to make presentation at ICAR-NAARM before the Technical evaluation committee with blue print on the solution proposed, if asked.
11. All items of the equipment's/ accessories in this specification shall be new and

complete in all respects. Equipment/ material not covered in this specification but essential for completion of the project shall be included in the bid and clear justification may be provided in the Technical Compliance statement, with the document proof and the same mentioned in the price bid also as add-on Items. Similarly, if any item is not required from the list and it may not affect the functionality as per the scope of the work, then that item need not quote and the same may be mentioned in the Technical Compliance statement.

12. This Academy is eligible for excise duty exemption for imported equipment. On request of the bidder, certificate will be issued for that item.
13. All the quoted items are should be supplied with Three onsite comprehensive Warranty which includes rectification/ replacement of defective components, quarterly preventive maintenance. The warranty period shall start from the date of Installation.
14. Any application software as required for completion of the project shall be within the scope of the bidder.
15. The entire solution should be compatible with both IPv4 and IPv6 protocols.
16. Technical specification & Bill of Martial is given in Schedule-A.

17. Submission of Bids

The duly filled Application form (Cover-I) along with the supporting documents and Price bid as per Cover -II must be submitted in online mode only on **<http://eprocure.gov.in>**. Bidders would be required to register themselves in the website. For submission of bids, the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities (CA).

All the required documents (self-attested) in support of eligibility criteria are to be uploaded along with the tender documents. All tender documents should be numbered serially. The bidders are advised to submit duly signed required papers / documents with their bids as per the specifications indicated in online only through Portal: **<https://eprocureg.gov.in>** failing which their bids will be rejected.

The Application and Technical Bid as per Proforma (Cover-I) and price Bid as per proforma of Cover –II.

The following documents must be enclosed along with the duly filled in Tender form so as to make the tender eligible to be considered.

- i) Scanned duly filled in application as per Cover-I
- ii) Scanned copy of Bid document by the bidder on each and every page with seal and signature.
- iii) Scanned copy of Demand Draft/BG, prescribed towards Earnest Money Deposit

- iv) Scanned copies of audited financial statements showing the annual turnover during the last 3 years along with IT returns/assessment orders.
- v) PAN No & GST Registration number along with copies.
- vi) Registration Certificate of the Firm/Company
- vii) Scanned documents in proof of last 2 years' continuous experience of the Firm in the field of providing such services in Govt. /reputed public or private Organizations

The rates should be valid for 90 days from the last date fixed from receipt of the tender. The rates should be on FOR basis.

Parties are requested to make a visit to site and fully acquaint themselves about the site conditions, nature of work to be carried out.

Non- familiarity with the site condition shall not construed or attract for increase in rates if any, after acceptance of quoted rates.

The quoted rate shall be inclusive of all materials, labour required for carrying out the work, loading- unloading, transportation, taxes, duties and scaffolding etc. And shall also include those items which are not specified but required for completion of the works.

The vendors/bidders should quote the rate in figures as well as in words, and amount tendered by them. The amount for each item should be worked out and the requisite totals given in the Bill of Quantity (BOQ) as provided with the tender documents. The taxes, duties, or any other charges over and above the rates should be mentioned clearly.

The technical bid will be opened first. The financial bid will be opened only of the firms who qualify in the technical evaluation. The bids will be evaluated on the total cost quoted in the price bid for the tentative quantity of the items.

18. **Warranty support:** The successful bidder must furnish a warranty for all hardware, software and other items supplied for providing free post – installation comprehensive onsite maintenance and replacement support for a period of three (3) years from the date of successful commissioning of overall configuration as certified by ICAR – NAARM. Warranty period shall commence after ICAR – NAARM evaluates the performance of the system and acceptance certificate is issued.
19. **Security Deposit:** (i.e Performance Security): (a) The successful bidder must deposit the requisite amount of security money @ 5% of the total value in the form of a Crossed Demand Draft of any scheduled Bank drawn in favour of “ICAR Unit – NAARM A/c”.
20. **Refund of Security Deposit:** After successful completion of the work and after expiry of Warranty Period.
21. **Payment:** Payment shall be released after satisfactory completion of works in all respect. Necessary statutory deduction as applicable shall be made from the

amount payable to the party. Payment will be made through e payment and required Bank, tax particulars shall be submitted

22. In the event of any question, dispute or difference arising under these conditions relating to this contract will be resolved through joint discussion of the authorized representatives of the concerned parties. However, if disputes are not resolved by joint discussions, then the matter will be referred for adjudication to a sole Arbitrator appointed by the Director of the Academy. The award of the sole Arbitrator shall be final and binding on all the parties. The arbitration proceedings shall be governed by Indian Arbitration and Conciliation Act 1996 as amended from time to time. The cost of Arbitration shall be borne by the respective parties in equal proportions. During the pendency of the arbitration proceeding and currency of contract, the Contractor shall not be entitled to suspend the work/service to which the dispute relates on account of the arbitration and payment to the contractor shall continue to be made in terms of the contract. Arbitration proceedings will be held at Hyderabad only. The Courts at Hyderabad shall have the exclusive jurisdiction to try all disputes, if any, arising out of this agreement between the parties.
23. The Director, ICAR – NAARM reserves the right to accept or reject any or all tenders, received by it without assigning any reason whatsoever.

Asst. Admn. Officer (S & P)

Schedule A

TECHNICAL SPECIFICATION & QUANTITY

All the items quoted should be of reputed brands (preferably with ISI/International Standards, wherever applicable) having service support/service center in Hyderabad/Secunderabad

Material Required

Component 1: Boardroom for Video and Audio Conferencing (As per Technical Specification)

Sl.No	Description	Quantity (Nos.)*
1.	Ultra-Thin Bezel Video Wall panel with 3.5mm bezel-to-bezel – minimum of 400 nits brightness for 24x7 Operation	6
2.	Universal Ceiling Mounting System for Suitable 50-70 inch Videowall Display	6
3.	Video wall Display Controller to support 2 x 3 video wall (if a single unit support for 8 x 8 then quantity is One , otherwise the proposed device supports 4 x then two units required)	1
4.	HDMI Cables	
	a. LockPro-HDMI Cable Lock (Pack of 10)	2
	b. 5M HDMI Cables for above Controller (Input)	8
	c. 15M HDMI Cables for above Controller	4
5.	Wireless Conference Unit	
	a. Host Unit	1
	b. Chairman Unit	2
	c. Delegate Units (1:3)	16
	d. Gooseneck Microphone	18
6.	Antenna Booster	1
7.	Six Channel Digital Signal Processor for Integrating VC to Audio Conference System, Supports both Hardware / Software Based VC Applications	1
8.	Dual Channel Automatic Feedback Terminator with 24 Digital Notch & LED Indicators for Each	1
9.	Wireless Presentation Device for Cable Free Presentation	1
10.	Control System for Dual Camera Support	1
11.	24 U Rack with cable manager for fixing Audio Controller with Ceiling mounted speaker cables and cables	1
12.	Any other item(s) required for the system.(If required list out and bundled as single item))	1

Component 2: Interactive Smart Classroom

Sl.No	Description	Quantity (Nos.)
13.	75" Interactive Display Panel with Built in OPS	1
14.	Integrated Digital Podium	1
15.	Wireless Presentation Device for Cable Free Presentation	1
16.	Any other item(s) required for the system.(If required list out and bundled as single item))	1

e-tender Notice for – for Interactive Video Conferencing Boardroom / Discussion Room and Interactive Smart Class Room Setup on a Turnkey Project Mode at ICAR – NAARM

TENDER APPLICATION

Sl. No.	Description	Tenderers
1.	Name of the Tenderer	
2.	Address & Telephone No.	
3.	Telephone & Email	
4.	Whether Sole Proprietorship/Partnership/Private	
5.	Registration No. (Under Companies Act)	
6.	Income Tax PAN No.	
7.	CGST/SGST Registration Number	
8.	Details of past experience in relevant works (Please attach copies of work orders)	
9.	Annual Turn Over (Rs. Lakhs) 2016-17 2017-18 2018-19	

I / We submit that we have read and understood the terms and conditions of the Tender and undertake to abide by the same.

Place:

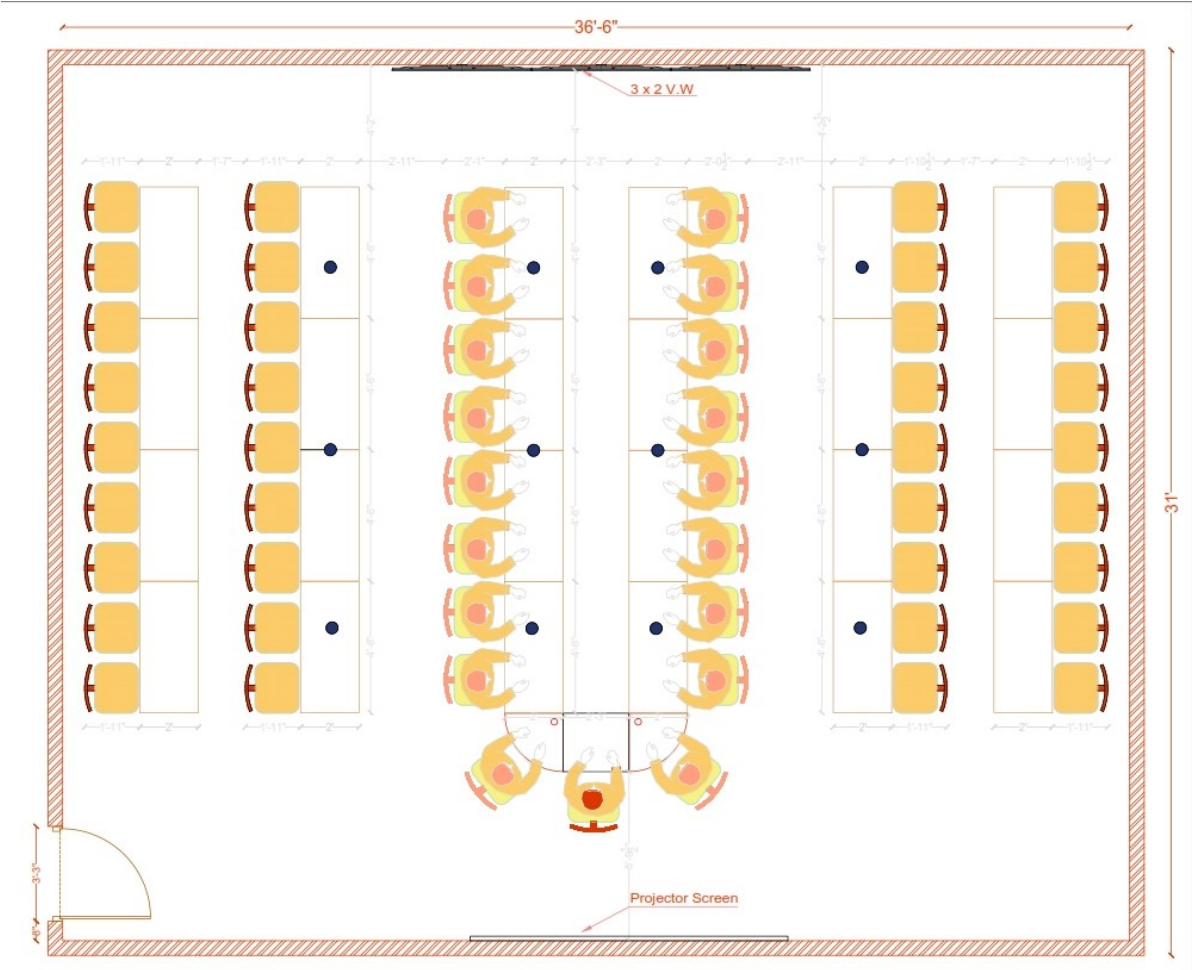
Date:

Name:

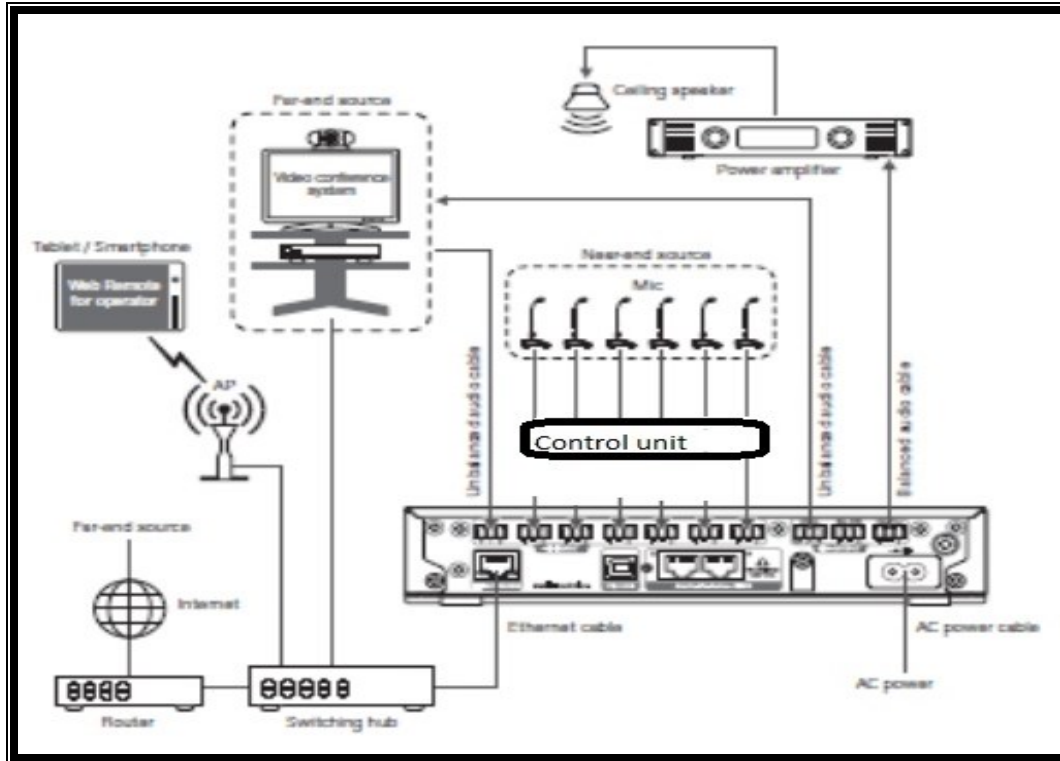
Signature of Tenderer:

Proposed Schematic View of the Project

Board Room seating arrangement

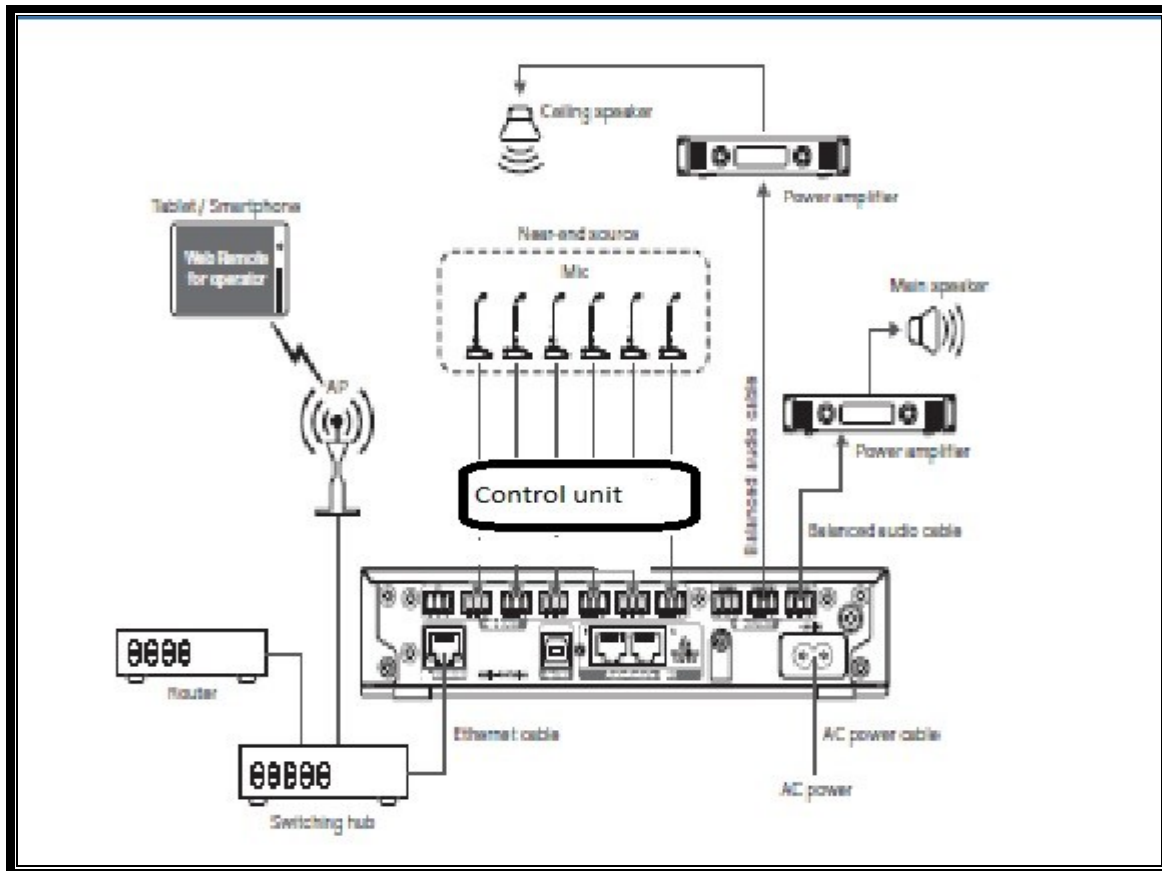


Audio Processing and Controlling : Video Conferencing



Audio Processing and Controlling:

Local Discussion



The above layout is tentative layout. As per the bidders, solution this may be changed. If any changes are there in the bidder's proposal please indicate the same in the schematic diagram. Accordingly, required equipment /items may be included / excluded from the list of items proposed with clear justification.

Technical Specifications

Component 1: Boardroom for Video and Audio Conferencing

Sr. No. 1: Ultra-Thin Bezel Video Wall panel with 3.5mm bezel-to-bezel

Description	Specifications
Screen Size (Diagonal) / Aspect ratio	55-inch / 16:9
Panel Type	D-LED
Effective Display Area (W x H)	1209.6 mm x 680.4 mm
Resolution (H x V)	1920 x 1080
Brightness	400 cd/m ² or Higher
Contrast ratio	1400:1
Viewing Angle (Horizontal/Vertical)	178° / 178°
Response time	8ms
Panel Surface Treatment	Anti-Glare
HDMI In	HDMI Type A Connector
DVI-D In	DVI-D 24-Pin x 1
DVI-D out	DVI-D 24-Pin x 1
AV In	1
Display Port In	1
Display Port Out	1
USB	USB x 1
Serial In (RS232C)	D-Sub 9-Pin x 1
Serial Out (RS232C)	D-Sub 9-Pin x 1
Earphone	Stereo Mini Jack (M3) x1
Power Requirement	100 V ~ 240 V, 50-60 Hz
Power Consumption	180W Max
Bezel Width (Bezel to Bezel)	3.5 mm
Orientation	Landscape / Portrait
Accessory	Apart from standard OEM accessories, all necessary cables which are required for smooth function
Warranty Comprehensive warranty and support	On-site Compressive warranty for Three Years from the date of Installation

Sr. No. 2: Universal Ceiling Mounting System for Suitable 50-70 inch Videowall Display

Si.No	Parameter	Specification
1	Recommended screen size	32" - 70"
2	Max load	50kg (per screen)
3	VESA & non-VESA fixings	fixings up to 900mm
4	Pole Length	0.5m up to 3m (can be cut or joined)

Sr. No. 3: Video wall Controller (8X8): 8 x 8 Video wall HDMI Matrix Switch

S.NO	Specifications for 8 x 8 HDMI Matrix switch
1.	It should connect 8 HDMI sources to 8 HDMI displays
2.	It should have built-in high performance scaler for the best image quality
3.	It should support long distance transmission up to 15 m
4.	It should have Max Data Rate 6.75 Gbps (2.25 Gbps Per Lane), Max. Pixel Clock 225 MHz.
5.	It should be HDCP 1.4 compatible
6.	It should have Video wall functionality to customize layouts using the web GUI.
7.	It should easily switch between multiple sources and multiple displays
8.	It should provide continuous video streams, real-time switching and stable signal transmission.
9.	Network or USB interfaces allow platform independent control
10.	System should be able to operate using Browser Graphical User Interface (GUI), Serial controller and Telnet
11.	It should have Built-in bi-directional RS-232 serial port for high-end system control
12.	It should support superior video quality – HDTV resolution of 480p, 720p, 1080i and 1080p (1920 x 1080)
13.	It should support Dolby True HD and DTS HD Master audio
14.	It should support IR signals for remote control
15.	Package must cover IR Remote & IR Receiver. In addition, final package should contain "HDMI Cable Lock" to ensure the reliable connection between the HDMI cables and the switcher.
16.	It should be Firmware Upgradeable.
17.	It should be Rack Mountable. Housing should be Metal.
18.	On-site Compressive warranty for Three Years from the date of Installation

Sr. No. 4: HDMI Cables

OEM/Standard cables of the following cables

- a. LockPro-HDMI Cable Lock (Pack of 10)
- b. 5M HDMI Cables for above Controller (Input)
- c. 15M HDMI Cables for above Controller

Sr. No. 5: Wireless Conference System

Sno	Specification
1.	2.4 GHz Adaptive Digital FHSS Technology features high confidentiality
2.	Operating range up to 40m.

3.	Conference System consists of One Host Unit, One Chairman Unit and 16 numbers of Delegates units and 18 numbers of 450 mm Flexible Gooseneck Microphone
4.	It enables 4 transmitters to speak simultaneously without mutual interference
5.	FREE / REQUEST speech mode of Delegate Units controlled by the Chairman Unit
6.	Intelligent power management system features battery power saving (All units turn off automatically when the Host unit is switched off)
7.	Built-in high performance frequency shifter effectively reduces howling and enhances the sound pick up effect
8.	All units should have LCD display which displays the Working Status & Battery charge should be shown on the Chairman and Delegate Unit display
9.	Host unit able to balanced and unbalanced audio outputs for convenient connection to the exiting amplifier
10.	It should be integrated with the existing Amplifier and Ceiling mounted speakers
11.	<p>a. Chairman Unit</p> <ul style="list-style-type: none"> i. FREE / REQUEST speech mode of Delegate Units controlled by the Chairman Unit ii. Priority Function to Override all delegates iii. LCD : Display the Working Status & Battery charge should be shown on the Chairman unit iv. Microphone Indicator Ring LED v. Power Supply AA Alkaline Batteries
12.	<p>b. Delegate Units</p> <ul style="list-style-type: none"> i. Power / Talk Button ii. LCD : Display the Working Status, Delegate Number & Battery charge should be shown on the Delegate units iii. Microphone Indicator Ring LED iv. Power Supply AA Alkaline Batteries
13.	<p>c. Host Unit</p> <ul style="list-style-type: none"> i. Host unit should be used together One Chairman Unit and 16 numbers of Delegates units and 18 numbers of 450 mm Flexible Gooseneck Microphone ii. Carrier Frequency 2400-2483MHz Adaptive Digital FHSS Technology iii. Operating range up to 40m iv. Frequency Response : 70 - 15,000Hz v. Power supply 12V DC from AC adopter
14.	<p>d. Gooseneck Microphone</p> <ul style="list-style-type: none"> i. Used with Chairman Unit and Delegate Unit ii. Easy to connect iii. Gooseneck Length min 450mm iv. Microphone Indicator Ring LED
15.	Three Years On-Site Compressive warranty and support

Sr. No. 6: Antenna Booster

SNo	Specification
1.	Special high gain wall mounting antenna
2.	The antenna should be compatible to the Chairman Unit/Delegate Units
3.	This antenna should have provision to fix to socket on the rear panel of the Wireless Receiver
4.	Three Years Compressive warranty and support

Sr. No. 7: Six Channel Digital Signal Processor for Integrating VC to Audio Conference System, Supports both Hardware / Software Based VC Applications

SNo	Specification
1.	4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input
2.	1 stereo and 2 mono outputs
3.	2-channel USB audio interface for soft codec (Skype, WebEx) integration or playback from computer
4.	Full digital processing on inputs and outputs
5.	8 x 3 audio routing matrix
6.	6-channel Smart Mix (gate or gain sharing)
7.	Onboard acoustic echo canceler (AEC) processing
8.	Front panel direct operation and Web Remote functionality
9.	IP control for third-party CCS administration
10.	Up to 6 mixers can be linked using Cat5e cable
11.	Three Years Compressive warranty and support

Sr. No. 8: Automatic Feedback Terminator PA Signal Processors

Sno	Specification
1.	It should have dual channel automatic feedback suppression capability
2.	Should have a feature packed signal processor to provide fast and accurate feedback control in fixed installations as well as live shows
3.	Should have 24 digital notch filters and LED indicators for each channel.
4.	Electronically balanced inputs and outputs should be available through XLR connectors and 6.3mm (1/4") stereo phone sockets.
5.	Should have a feature for Each channel has a control for selecting the filter width between 1/80th and 1/5th octave.
6.	Dual input sensitivity of -10dBV and +4dBu for each channel, which is individually selectable through push switches.
7.	Each channel should have separate push switch for choosing between three modes of operation – Bypass/ Setup/Live.
8.	Input Impedance - 30kΩ Balanced/15kΩ Unbalance
9.	Max Input Line Level - +20.5dBu
10.	A/D Conversion - 24 bit
11.	Sampling Rate 48kHz
12.	Signal to Noise Ratio 100dB
13.	Frequency Response 20-20,000Hz (-1dB)
14.	Three Years Compressive warranty and support

Sr. No. 9: Wireless Presentation Device for Cable Free Presentation

Specifications	
Communications	
1. Description of work	Supply, Installation and Testing of Secured Wireless Presentation System with HTTP over Transport Layer Security and SSL. Should have option of Customizable welcome screen provides clear instructions for presenters It should support complete Video sharing with Stereo Audio and PCM 2-Channel Audio over HDMI
2. Networking	Should have facility to present content thru wired as well as wireless
3. OS Support	It should support PC OS like Windows XP, Windows Vista™, Windows 7, Windows 8, Window 10 and both the mobile OS Android and Apple IOS

4. Support Devices	Should be compatible with Windows, macOS, Android, and Apple iOS devices
5. USB Host & Device	USB 2.0 to enable wireless keypad control and occupancy sensing
6. RS-232	2-way display device control up to 115.2k baud with hardware and software handshaking
7. IR/Serial	1-way display device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud
8. HDMI Output	Should support HDCP 1.4 , EDID, CEC compliant
9. HDMI Input	Should have HDMI input provides wired connectivity for sources with resolutions up to HD 1080p60
10. Full Screen Device Mirroring	It should minimum of 4 number of Simultaneous Connections / Mirroring and support Should be able to share the screen image and audio from an Apple iOS, Android, MacOS, or Windows device
11. Input & output Resolutions	800x600@60Hz, 1024x768@60Hz, 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1920x1080@60Hz (1080p60), 1920x1200@60Hz
12. Bitrate Peak	0.25 to 8.5 Mbps, variable depending on content complexity
13. Bitrate Average	1.4 Mbps typical
14. Audio Format	Stereo
15. Video	
16. Input Signal Types	HDMI (DVI & Dual-Mode DisplayPort compatible [2])
17. Output Signal Types	HDMI (DVI compatible [2])
18. Maximum Input Resolution	1920x1080@60Hz (HD 1080p60), 4:4:4, 36 bit color depth
19. Background & Logo File Support	GIF, JPEG, PNG
20. Audio	
21. Input Signal Types	HDMI (Dual-Mode DisplayPort compatible [2])
22. Output Signal Types	HDMI
23. Input/output Format	2 channel LPCM
24. Connectors	
25. CONSOLE	(1) Micro-USB Type B connector, female; USB 2.0 device port for computer console (installer setup); 6 ft (1.83 m) USB Type A to Micro-B cable
26. IR	(1) 4-pin 3.5 mm detachable terminal block; IR/Serial output port for display device control;
27. COM	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port for display device control;
28. HDMI INPUT	(1) HDMI Type A connector, female; HDMI digital video/audio input;
29. HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output
30. USB	(1) USB Type A connector, female;
31. LAN PoE	(1) 8-pin RJ45 connector, female;10Base-T/100Base-TX Ethernet port; PoE PD port
32. Controls & Indicators	Power , Reset, Setup, Online, HDMI in/out, LAN PoE
33. Warranty	Three Years Compressive warranty and support

Sr. No. 10 Control System for Dual Camera Support:

SNo	Specification
1.	Should have minimum 3 RS-232 ports
2.	Should have minimum 8 IR Ports
3.	IR Port should be able to handle 1-way serial TTL/RS-232 (0-5 Volts) up to 115.2k baud
4.	Should have Individual signal generator per port, allowing simultaneous firing of all ports

SNo	Specification
5.	Should have minimum 8 Low Voltage Relay Ports
6.	Relay Port should be Rated minimum 1 Amp, 30 Volts AC/DC
7.	Should have MOV arc suppression across contacts
8.	Should have minimum 8 I/O Versi ports
9.	<p>(1) 9-pin 3.5mm detachable terminal block comprising (8) digital input/output or analog input ports (referenced to GND);</p> <p>Digital Input: Rated for 0-24 Volts DC, input impedance 20k Ohms, logic threshold >3.125V low/0 and <1.875V high/1;</p> <p>Digital Output: 250mA sink from maximum 24 Volts DC, catch diodes for use with “real world” loads;</p> <p>Analog Input: Rated for 0-10 Volts DC, protected to 24 Volts DC maximum, input impedance 21k ohms with pull-up resistor disabled;</p>
10.	Should have minimum (1) High-speed USB 2.0 host port
11.	Should support Ethernet with 10/100BaseT, auto-negotiating, full/half duplex, static IP or DHCP/DNS, SSL, TCP/IP, UDP/IP, CIP, SMTP, SNMP, built-in Web server and e-mail client
12.	It should support SSL (Secure Sockets Layer)
13.	It should have Built-in SNMP support
14.	Should have IPv6 Support
15.	Should support Vector floating point coprocessor
16.	Should support FAT32 file system with long names
17.	Should have a Hardware Reset Button
18.	Should have a Software Reset Button
19.	Should be controllable thru PC thru browser or application file
20.	Should be able to be controlled thru Mobile Devices like Ipad, Iphone, Android without the need of any additional hardware
21.	Appropriate power supply for the controller should be included in the BOQ.
22.	Three Years Compressive warranty and support

Sr. No. 11: 22U Rack with cable manager for fixing Audio Controller with Ceiling mounted speaker cables and cables

S.No.	22U/24U Floor Mount Rack Specification
1.	Dimension Floor Mount Rack Size 22 U /24 U
2.	Conforms to DIN 41494 or Equivalent EIA /ISO / EN / CEA Standard
3.	Adjustable mounting depth
4.	4 No Adjustable, 19" verticals with Punched 10 mm Square Hole and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern offers greater mounting flexibility, maximizes usable mounting space.
5.	Universal 25MM Pitch Holes For ETSI Standard Racks
6.	State-of-the-art manufacturing methods provide the best product quality and fastest delivery in the industry
7.	100% assured compatibility with all equipment conforming to DIN 41494 (General industrial standard for equipment)
8.	Powder coated finish with seven tank pretreatment process meeting ASTM standard
9.	Grounding & Bonding Options
10.	Fan module Mount provision on top cover

Sr. No. 12: Any other item(s) required for the system. (If required list out and bundled as single item)

As per the solution provided by the bidders, if any additional items are required, specify those items with justification and quoted as single lot such items. Similarly if any items are not required from the above mentioned list (Material required), such items may exclude from the list

Component 2: Interactive Smart Classroom

Sr. No. 13: 75" Interactive Display Panel with Built in OPS

Si.No	Parameter	Specification
1.	Display Size	75"
2.	Display Ratio	16:9
3.	Backlight	DLED
4.	Resolution	3840 (H) ×2160 (V)
5.	Viewing Angle	Horizontal 178°, vertical 178°
6.	Glass Material	Anti-glare, tempered glass
7.	Touch Technology	Infrared ray
8.	Touch Point	20 points
9.	Writing Tools	Finger + opaque object (≥2mm)
10.	Touch Accuracy	±1mm
11.	Camera Location	Top×1
12.	Pixels	8 mega pixles
13.	Automatic Control	Automatic white balance, adaptive ambient brightness
14.	Lens Distortion	≤1%
15.	Smart Switch	Supported
16.	Face Recognition	Supported
17.	Directivity	Front
18.	Pick-up Distance	8m
19.	Quantity	6
20.	Sampling Frequency	16KHz
21.	Sampling Rate	16 bit
22.	Automatic Control	Automatic gain, automatic noise reduction
23.	Echo Cancellation	Supported
24.	Auditory Localization	Supported
25.	Frequency-domain	80Hz~20KHz
26.	Speaker Quantity	3
27.	Stereo	Supported
28.	PC	Ultra-thin, pluggable Intel® Core PC module
29.	CPU	Intel® Core i5
30.	RAM	DDR4 8GB
31.	HDD	HDD 256GB
32.	GPU	Intel® HD Graphics
33.	Warranty	Three Years Compressive warranty and support

Sr. No. 14: Integrated Digital Podium

S.No	Parameter	Specifications
1.	Top & Body	Top and Body should be Metal.

S.No	Parameter	Specifications
2.	Mechanism	The system should have a Top Sliding Mechanism.
3.	Keyboard/Mouse Tray	It should have sliding Tray for Keyboard /Mouse
4.	Visualizer Tray	It should have a Provision for Visualizer with a Sliding Tray.
5.	Wheels	It should have Wheels for easy movement.
6.	Rack Space	It should have Rack Space for keeping Amplifier, CPU, Microphone receiver or more equipment.
7.	Screen Size	The system should consist of 21.5 Inches Touch Screen Monitor.
8.	Type	The monitor should be LED backlit.
9.	Resolution	The monitor should have a native resolution of 1920x1080
10.	Port	The monitor should come with a USB port for PC Connection.
11.	Brightness	The monitor should have a Luminosity of 300 cd/m ² or more.
12.	Input port	The monitor should have a VGA, HDMI or DVI Input port.
13.	Supply	The monitor should support Power Supply of 100 ~ 250VAC.
14.	Gooseneck Mic Frequency	The Microphone should have a frequency response of 40 Hz to 17,000 Hz or better.
15.	Gooseneck Mic Pattern	The Microphone should have a Cardioids Polar Pattern.
16.	Gooseneck Mic Port	The Microphone should come up with standard 3 PIN XLR Connector.
17.	Wireless Microphone System	It should be supplied with 1 Wireless Handheld and 1 Lapel Microphone. The receiver should have individual XLR Outputs The receiver should have 1 number mixed Output. The Microphone should have a frequency response of 40Hz to 17000 Hz or better.
18.	Amplifier	The Amplifier should consist of a 100 Watts (50 WattsX2) at 4 Ohms. The Amplifier should have S/N Ratio of >80dB.
19.	DSP	The DSP should have a 100% Full Duplex Echo Cancelling – no attenuation during full duplex. The DSP should be standard 19 inches Rack Mountable The DSP Should have sufficient Ports to perform the Acoustic Echo Cancellation for all the microphones The DSP should have USB port for integrating with Unified Software solutions like Skype, Lync, etc.
20.	Speakers	It should be supplied with Two Wall Mount Speakers The speaker should be 30 Watts or more.
21.	Laptop Interface	The system should consist of the at least following ports on the interface VGA port, HDMI Port, Audio port, 4 USB Ports, Power Outlet It shall have HD video inputs for CPU, 2x Laptop Inputs, Visualizer or more
22.	Control	It shall have basic selection control buttons for the four inputs, Microphone Control Buttons, Volume Control Buttons, projector Control Buttons, Screen up/Down Buttons.
23.	Functions	It should perform the functions of Mic Mute/Unmute, Volume Mute/Unmute, Projector On/Off, Screen Up/Down, Source Selection or more.
24.	Warranty	Three Years Compressive warranty and support

Sr. No. 15: Wireless Presentation Device for Cable Free Presentation

Same as Sr. No. 9

Sr. No. 16: Any other item(s) required for the system. (If required list out and bundled as single item)

As per the solution provided by the bidders, if any additional items are required, specify those items with justification and quoted as single lot such items. Similarly if any items are not required from the above mentioned list (Material required), such items may exclude from the list

Technical Compliance Statement

Sr. No. 1: Ultra-Thin Bezel Video Wall panel with 3.5mm bezel-to-bezel

Quoted Product Make and Model: _____

Description	Specifications	Compliance (Yes/No)	If No, give Justification
Screen Size (Diagonal) / Aspect ratio	55-inch / 16:9		
Panel Type	D-LED		
Effective Display Area (W x H)	1209.6 mm x 680.4 mm		
Resolution (H x V)	1920 x 1080		
Brightness	400 cd/m ² or Higher		
Contrast ratio	1400:1 (typ)		
Viewing Angle (Horizontal/Vertical)	178 ^o / 178 ^o		
Response time	8ms		
Panel Surface Treatment	Anti-Glare		
HDMI In	HDMI Type A Connector		
DVI-D In	DVI-D 24-Pin x 1		
DVI-D out	DVI-D 24-Pin x 1		
AV In	1		
DisplayPort In	1		
DisplayPort Out	1		
USB	USB x 1		
Serial In (RS232C)	D-Sub 9-Pin x 1		
Serial Out (RS232C)	D-Sub 9-Pin x 1		
Earphone	Stereo Mini Jack (M3) x1		
Power Requirement	100 V ~ 240 V, 50-60 Hz		
Power Consumption	180W Max		
Bezel Width (Bezel to Bezel)	3.5 mm		
Orientation	Landscape / Portrait		
Accessory	Apart from standard OEM accessories, all necessary cables which are required for smooth function		
Warranty	On-site Compressive warranty and support for Three Years from the date of Installation		

Sr. No. 2:: Universal Ceiling Mounting System Suitable for 50-70 inch Video wall Display**Quoted Product Make and Model:** _____

Si.No	Parameter	Specification	Compliance (Yes/No)	If No, give Justification
1	Recommended screen size	32" - 70"		
2	Max load	50kg (per screen)		
3	VESA & non-VESA fixings	fixings up to 900mm		
4	Pole Length	0.5m up to 3m (can be cut or joined)		

Sr. No. 3: Video wall Controller (8X8): 8 x 8 Video wall HDMI Matrix Switch**Quoted Product Make and Model:** _____

S.NO	Specifications for 8 x 8 HDMI Matrix switch	Compliance (Yes/No)	If No, give Justification
1.	It should connect any of 8 HDMI sources to any of 8 HDMI displays		
2.	It should have built-in high performance scaler for the best image quality		
3.	It should support long distance transmission up to 15 m		
4.	It should have Max Data Rate 6.75 Gbps (2.25 Gbps Per Lane), Max. Pixel Clock 225 MHz.		
5.	It should be HDCP 1.4 compatible		
6.	It should have Video wall functionality to customize layouts using the web GUI.		
7.	It should easily switch between multiple sources and multiple displays		
8.	It should provide continuous video streams, real-time switching and stable signal transmission.		
9.	Network or USB interfaces allow platform independent control		
10.	System should be able to operate using Browser Graphical User Interface (GUI), Serial controller and Telnet		
11.	It should have Built-in bi-directional RS-232 serial port for high-end system control		
12.	It should support superior video quality – HDTV resolution of 480p, 720p, 1080i and 1080p (1920 x 1080)		
13.	It should support Dolby True HD and DTS HD Master audio		
14.	It should support IR signals for remote control		
15.	Package must cover IR Remote & IR Receiver. In addition, final package should contain 10 qty of "LockPro-HDMI Cable Lock" to ensure the reliable connection between the HDMI cables and the switcher.		
16.	It should be Firmware Upgradeable.		
17.	It should be Rack Mountable. Housing should be Metal.		
18.	On-site Compressive warranty for Three Years from the date of Installation		

Sr. No. 4: HDMI Cables

Quoted Product Make and Model: _____

Item	Compliance (Yes/No)	If No, give Justification
OEM/Standard cables of the following cables		
a. LockPro-HDMI Cable Lock (Pack of 10)		
b. 5M HDMI Cables for above Controller (Input)		
c. 15M HDMI Cables for above Controller		

Sr. No. 5: Wireless Conference System

Quoted Product Make and Model: _____

Sno	Specification	Compliance (Yes/No)	If No, give Justification
1.	2.4 GHz Adaptive Digital FHSS Technology features high confidentiality		
2.	Operating range up to 40m.		
3.	Conference System consists of One Host Unit, One Chairman Unit and 16 numbers of Delegates units and 18 numbers of 450 mm Flexible Gooseneck Microphone		
4.	It enables 4 transmitters to speak simultaneously without mutual interference		
5.	FREE / REQUEST speech mode of Delegate Units controlled by the Chairman Unit		
6.	Intelligent power management system features battery power saving (All units turn off automatically when the Host unit is switched off)		
7.	Built-in high performance frequency shifter effectively reduces howling and enhances the sound pick up effect		
8.	All units should have LCD display which displays the Working Status & Battery charge should be shown on the Chairman and Delegate Unit display		
9.	Host unit able to balanced and unbalanced audio outputs for convenient connection to the exiting amplifier		
10.	It should be integrated with the existing Amplifier and Ceiling mounted speakers		
11.	a. Chairman Unit <ul style="list-style-type: none"> i. FREE / REQUEST speech mode of Delegate Units controlled by the Chairman Unit ii. Priority Function to Override all delegates iii. LCD : Display the Working Status & Battery charge should be shown on the Chairman unit iv. Microphone Indicator Ring LED v. Power Supply AA Alkaline Batteries 		
12.	b. Delegate Units <ul style="list-style-type: none"> v. Power / Talk Button vi. LCD : Display the Working Status, Delegate Number & Battery charge should be shown on the Delegate units vii. Microphone Indicator Ring LED viii. Power Supply AA Alkaline Batteries 		
13.	c. Host Unit <ul style="list-style-type: none"> vi. Host unit should be used together One Chairman Unit and 16 numbers of Delegates units and 18 numbers of 450 mm Flexible Gooseneck Microphone 		

Sno	Specification	Compliance (Yes/No)	If No, give Justification
	vii. Carrier Frequency 2400-2483MHz Adaptive Digital FHSS Technology viii. Operating range up to 40m ix. Frequency Response : 70 - 15,000Hz x. Power supply 12V DC from AC adopter		
14.	d. Gooseneck Microphone v. Used with Chairman Unit and Delegate Unit vi. Easy to connect vii. Gooseneck Length min 450mm viii. Microphone Indicator Ring LED		
15.	Three Years On-Site Compressive warranty and support		

Sr. No. 6: Antenna Booster

Quoted Product Make and Model: _____

Sno	Specification	Compliance (Yes/No)	If No, give Justification
1.	Special high gain wall mounting antenna		
2.	The antenna should be compatible to the Chairman Unit/Delegate Units		
3.	This antenna should have provision to fix to socket on the rear panel of the Wireless Receiver		
4.	Three Years Compressive warranty and support		

Sr. No. 7: Six Channel Digital Signal Processor for Integrating VC to Audio Conference System, Supports both Hardware / Software Based VC Applications

Quoted Product Make and Model: _____

Sno	Specification	Compliance (Yes/No)	If No, give Justification
1.	4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input		
2.	1 stereo and 2 mono outputs		
3.	2-channel USB audio interface for soft codec (Skype, WebEx) integration or playback from computer		
4.	Full digital processing on inputs and outputs		
5.	8 x 3 audio routing matrix		
6.	6-channel Smart Mix (gate or gain sharing)		
7.	Onboard acoustic echo canceler (AEC) processing		
8.	Front panel direct operation and Web Remote functionality		
9.	IP control for third-party CCS administration		
10.	Up to 6 mixers can be linked using Cat5e cable		
11.	Three Years Compressive warranty and support		

Sr. No. 8: Automatic Feedback Terminator PA Signal Processors

Quoted Product Make and Model: _____

Sno	Specification	Compliance (Yes/No)	If No, give Justification
1.	It should have dual channel automatic feedback suppression capability		
2.	Should have a feature packed signal processor to provide fast and accurate feedback control in fixed installations as well as live shows		
3.	Should have 24 digital notch filters and LED indicators for each channel.		
4.	Electronically balanced inputs and outputs should be available through XLR connectors and 6.3mm (1/4") stereo phone sockets.		
5.	Should have a feature for Each channel has a control for selecting the filter width between 1/80th and 1/5th octave.		
6.	Dual input sensitivity of -10dBV and +4dBu for each channel, which is individually selectable through push switches.		
7.	Each channel should have separate push switch for choosing between three modes of operation – Bypass/ Setup/Live.		
8.	Input Impedance - 30kΩ Balanced/15kΩ Unbalance		
9.	Max Input Line Level - +20.5dBu		
10.	A/D Conversion - 24 bit		
11.	Sampling Rate 48kHz		
12.	Signal to Noise Ratio 100dB		
13.	Frequency Response 20-20,000Hz (-1dB)		
14.	Three Years Compressive warranty and support		

Sr. No. 9: Wireless Presentation Device for Cable Free Presentation

Quoted Product Make and Model: _____

	Specification	Compliance (Yes/No)	If No, give Justification
1. Description of work	Supply, Installation and Testing of Secured Wireless Presentation System with HTTP over Transport Layer Security and SSL. Should have option of Customizable welcome screen provides clear instructions for presenters It should support complete Video sharing with Stereo Audio and PCM 2-Channel Audio over HDMI		
2. Networking	Should have facility to present content thru wired as well as wireless		
3. OS Support	It should support PC OS like Windows XP, Windows Vista™, Windows 7, Windows 8, Window 10 and both the mobile OS Android and Apple IOS		
4. Support Devices	Should be compatible with Windows, macOS, Android, and Apple iOS devices		
5. USB Host & Device	USB 2.0 to enable wireless keypad control and occupancy sensing		
6. RS-232	2-way display device control up to 115.2k baud with hardware and software handshaking		
7. IR/Serial	1-way display device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud		
8. HDMI Output	Should support HDCP 1.4 , EDID, CEC compliant		
9. HDMI Input	Should have HDMI input provides wired connectivity for sources with resolutions up to HD 1080p60		
10. Full Screen Device Mirroring	It should minimum of 4 number of Simultaneous Connections / Mirroring and support Should be able to share the screen image and audio from an Apple iOS, Android, MacOS, or Windows device		
11. Input & output Resolutions	800x600@60Hz, 1024x768@60Hz, 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz,		

	Specification	Compliance (Yes/No)	If No, give Justification
	1600x1200@60Hz, 1920x1080@60Hz (1080p60), 1920x1200@60Hz		
12. Bitrate Peak	0.25 to 8.5 Mbps, variable depending on content complexity		
13. Bitrate Average	1.4 Mbps typical		
14. Audio Format	Stereo		
15. Video			
16. Input Signal Types	HDMI (DVI & Dual-Mode DisplayPort compatible [2])		
17. Output Signal Types	HDMI (DVI compatible [2])		
18. Maximum Input Resolution	1920x1080@60Hz (HD 1080p60), 4:4:4, 36 bit color depth		
19. Background & Logo File Support	GIF, JPEG, PNG		
20. Audio			
21. Input Signal Types	AirMedia, HDMI (Dual-Mode DisplayPort compatible [2])		
22. Output Signal Types	HDMI		
23. Input/Output Format	2 channel LPCM		
24. Connectors			
25. CONSOLE	(1) Micro-USB Type B connector, female; USB 2.0 device port for computer console (installer setup); 6 ft (1.83 m) USB Type A to Micro-B cable		
26. IR	(1) 4-pin 3.5 mm detachable terminal block; IR/Serial output port for display device control;		
27. COM	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port for display device control;		
28. HDMI INPUT	(1) HDMI Type A connector, female; HDMI digital video/audio input;		
29. HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output		
30. USB	(1) USB Type A connector, female;		
31. LAN PoE	(1) 8-pin RJ45 connector, female;10Base-T/100Base-TX Ethernet port; PoE PD port		
32. Controls & Indicators	Power , Reset, Setup, Online, HDMI in/out, LAN PoE		
33. Warranty	Three Years Compressive warranty and support		

Sr. No. 10 Control System for Dual Camera Support:

Quoted Product Make and Model: _____

Sno	Specification	Compliance (Yes/No)	If No, give Justification
1.	Should have minimum 3 RS-232 ports		
2.	Should have minimum 8 IR Ports		
3.	IR Port should be able to handle 1-way serial TTL/RS-232 (0-5 Volts) up to 115.2k baud		
4.	Should have Individual signal generator per port, allowing simultaneous firing of all ports		
5.	Should have minimum 8 Low Voltage Relay Ports		
6.	Relay Port should be Rated minimum 1 Amp, 30 Volts AC/DC		
7.	Should have MOV arc suppression across contacts		
8.	Should have minimum 8 I/O Versi ports		
9.	(1) 9-pin 3.5mm detachable terminal block comprising (8) "Versiport" digital input/output or analog input ports (referenced to GND); Digital Input: Rated for 0-24 Volts DC, input impedance 20k Ohms, logic threshold >3.125V low/0 and <1.875V high/1; Digital Output: 250mA sink from maximum 24 Volts DC, catch diodes for use with "real world" loads; Analog Input: Rated for 0-10 Volts DC, protected to 24 Volts DC maximum, input impedance 21k ohms with pull-up resistor disabled;		
10.	Should have minimum 512MB SD RAM and 4GB Flash memory		
11.	Should support Expandable storage up to 1TB		
12.	Should have minimum (1) High-speed USB 2.0 host port to support Mass Storage		
13.	Should support Ethernet with 10/100BaseT, auto-negotiating, full/half duplex, static IP or DHCP/DNS, SSL, TCP/IP, UDP/IP, CIP, SMTP, SNMP, built-in Web server and e-mail client		
14.	It should support SSL (Secure Sockets Layer)		
15.	It should have Built-in SNMP support		
16.	Should support IIS v.6.0 Web Server		
17.	Should have IPv6 Support		
18.	Should have Native BACnet®/IP support		
19.	Should support Vector floating point coprocessor		
20.	Should support FAT32 file system with long names		
21.	Should have a Hardware Reset Button		
22.	Should have a Software Reset Button		
23.	Should be controllable thru PC thru browser or application file		
24.	Should be able to be controlled thru Mobile Devices like Ipad, Iphone, Android without the need of any additional hardware		
25.	Appropriate power supply for the controller should be included in the BOQ.		
26.	Three Years Compressive warranty and support		

Sr. No. 11: 22U /24U Rack with cable manager for fixing Audio Controller with Ceiling mounted speaker cables and cables

Quoted Product Make and Model: _____

S.No.	22U Floor Mount Rack Specification	Compliance (Yes/No)	If No, give Justification
1.	Dimension Floor Mount Rack Size 22 U/22 U Overall Height :1160 mm or Higher Useable height : 1067 mm or Higher Overall Width : 600 mm or Higher Useable Width : 19 inches or Higher Overall Depth : 600 mm or Higher Useable Depth : 560 mm or Higher		
2.	Conforms to DIN 41494 or Equivalent EIA /ISO / EN / CEA Standard		
3.	Adjustable mounting depth		
4.	4 No Adjustable, 19" verticals with Punched 10 mm Square Hole and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern offers greater mounting flexibility, maximizes usable mounting space.		
5.	Universal 25MM Pitch Holes For ETSI Standard Racks		
6.	State-of-the-art manufacturing methods provide the best product quality and fastest delivery in the industry		
7.	Powder coated finish with seven tank pretreatment process meeting ASTM standard		
8.	Grounding & Bonding Options		
9.	Fan module Mount provision on top cover		
10.	Three Years Compressive warranty and support		

Sr. No. 12: Any other item(s) required for the system. (If required list out and bundled as single item)

As per the solution provided by the bidders, if any additional items are required, specify those items with justification and quoted as single lot such items. Similarly if any items are not required from the above mentioned list (Material required), such items may exclude from the list

Component 2: Interactive Smart Classroom

Sr. No. 13 : 86" Interactive Display Panel with Built in OPS

Quoted Product Make and Model: _____

Sr. No. 13 : 75" Interactive Display Panel with Built in OPS

Si.No	Parameter	Specification	Compliance (Yes/No)	If No, give Justification
1.	Display Size	75"		

2.	Display Ratio	16:9		
3.	Backlight	DLED		
4.	Resolution	3840 (H) ×2160 (V)		
5.	Viewing Angle	Horizontal 178°, vertical 178°		
6.	Glass Material	Anti-glare, tempered glass		
7.	Touch Technology	Infrared ray		
8.	Touch Point	20 points		
9.	Writing Tools	Finger + opaque object (≥2mm)		
10.	Touch Accuracy	±1mm		
11.	Camera Location	Top×1		
12.	Pixels	8 mega pixles		
13.	Automatic Control	Automatic white balance, adaptive ambient brightness		
14.	Lens Distortion	≤1%		
15.	Smart Switch	Supported		
16.	Face Recognition	Supported		
17.	Directivity	Front		
18.	Pick-up Distance	8m		
19.	Quantity	6		
20.	Sampling Frequency	16KHz		
21.	Sampling Rate	16 bit		
22.	Automatic Control	Automatic gain, automatic noise reduction		
23.	Echo Cancellation	Supported		
24.	Auditory Localization	Supported		
25.	Frequency-domain	80Hz~20KHz		
26.	Speaker Quantity	3		
27.	Stereo	Supported		
28.	PC	Ultra-thin, pluggable Intel® Core PC module		
29.	CPU	Intel® Core i5		
30.	RAM	DDR4 8GB		
31.	HDD	HDD 256GB		
32.	GPU	Intel® HD Graphics		
33.	Warranty	Three Years Compressive warranty and support		

Sr. No. 14 : Integrated Digital Podium

S.No	Parameter	Specifications	Compliance (Yes/No)	If No, give Justification
1.	Top & Body	Top and Body should be Metal.		
2.	Mechanism	The system should have a Top Sliding Mechanism.		

S.No	Parameter	Specifications	Compliance (Yes/No)	If No, give Justification
3.	Keyboard/Mouse Tray	It should have sliding Tray for Keyboard /Mouse		
4.	Visualizer Tray	It should have a Provision for Visualizer with a Sliding Tray.		
5.	Wheels	It should have Wheels for easy movement.		
6.	Rack Space	It should have Rack Space for keeping Amplifier, CPU, Microphone receiver or more equipment.		
7.	Screen Size	The system should consist of 21.5 Inches Touch Screen Monitor.		
8.	Type	The monitor should be LED backlit.		
9.	Resolution	The monitor should have a native resolution of 1920x1080		
10.	Port	The monitor should come with a USB port for PC Connection.		
11.	Brightness	The monitor should have a Luminosity of 300 cd/m ² or more.		
12.	Input port	The monitor should have a VGA, HDMI or DVI Input port.		
13.	Supply	The monitor should support Power Supply of 100 ~ 250VAC.		
14.	Gooseneck Mic Frequency	The Microphone should have a frequency response of 40 Hz to 17,000 Hz or better.		
15.	Gooseneck Mic Pattern	The Microphone should have a Cardioids Polar Pattern.		
16.	Gooseneck Mic Port	The Microphone should come up with standard 3 PIN XLR Connector.		
17.	Wireless Microphone System	It should be supplied with 1 Wireless Handheld and 1 Lapel Microphone. The receiver should have individual XLR Outputs The receiver should have 1 number mixed Output. The Microphone should have a frequency response of 40Hz to 17000 Hz or better.		
18.	Amplifier	The Amplifier should consist of a 100 Watts (50 WattsX2) at 4 Ohms. The Amplifier should have S/N Ratio of >80dB.		
19.	DSP	The DSP should have a 100% Full Duplex Echo Cancelling – no attenuation during full duplex. The DSP should be standard 19 inches Rack Mountable The DSP Should have sufficient Ports to perform the Acoustic Echo Cancellation for all the microphones The DSP should have USB port for integrating with Unified Software solutions like Skype, Lync, etc.		
20.	Speakers	It should be supplied with Two Wall Mount Speakers The speaker should be 30 Watts or more.		

S.No	Parameter	Specifications	Compliance (Yes/No)	If No, give Justification
21.	Laptop Interface	The system should consist of the at least following ports on the interface VGA port, HDMI Port, Audio port, 4 USB Ports, Power Outlet It shall have HD video inputs for CPU, 2x Laptop Inputs, Visualizer or more		
22.	Control	It shall have basic selection control buttons for the four inputs, Microphone Control Buttons, Volume Control Buttons, projector Control Buttons, Screen up/Down Buttons.		
23.	Functions	It should perform the functions of Mic Mute/Unmute, Volume Mute/Unmute, Projector On/Off, Screen Up/Down, Source Selection or more.		
24.	Warranty	Three Years Compressive warranty and support		

Sr. No. 15: Wireless Presentation Device for Cable Free Presentation

Same as Sr. No. 9

Sr. No. 16: Any other item(s) required for the system. (If required list out and bundled as single item)

As per the solution provided by the bidders, if any additional items are required, specify those items with justification and quoted as single lot such items. Similarly if any items are not required from the above mentioned list (Material required), such items may exclude from the list