

**THE HEAD OF THE DEPARTMENT
DEPT OF CIVIL ENGINEERING, IIT MADRAS
CHENNAI – 600 036.**

Tender Ref. No. CE/HOD/2022/1001/AVC SYSTEM

Date: 23.06.2022

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system from Class-1 local suppliers and Class II local suppliers, for “**Supply and Installation of Audio & Video Conferencing System**” conforming to the specifications given in **Annexure-A** with the following terms and conditions:

Manual Bids will be accepted: All tender documents including Technical and Financial bids should be submitted in hard-copies only to the above address

Last Date for receipt of Tender: 19.07.2022 @ 5 pm

Date & Time of opening of Tender: 20.07.2022 @ 4 pm

For Site Visit: Bidders will be allowed to visit the dept for site seeing from 29.06.2022 to 01.07.2022 @ 10.00 am to 5.00 pm to the Civil Engineering Dept, IIT Madras, Chennai – 600 036, Contact No. 044-2257 5284.

Concessional GST: Certificate for availing concessional GST @ 5% on IGST and @ 2.5% for CGST and SGST as per Notification No. 47/2017-Integrated Tax (Rate) dt.14.11.2017 and Notification No. 45/2017- Central Tax (Rate) dt.14.11.2017, Notification No. 45/2017 Union Territory Tax (Rate) dt. 14.11.2017, for procurement of Equipment and Consumables for research purpose will be provided.

Delivery: Items should be delivered and installed within **30 days** from the date of Purchase Order.

PRE-QUALIFICATION CRITERIA:

1. The bidder shall not be from a country sharing land border with India and if the bidder is from a country sharing land border with India the bidder should have been registered with the competent authority as per orders of DIPP OM No. F. No. 6/18/2019-PPD dated 23rd July 2020, and MoCI Order No. P-45021/112/2020-PP (BE II) (E-43780) dated 24th August 2020. A declaration as per format given in **Annexure – D** shall be submitted with the bid.
2. 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. Self-declaration for Class-I and Class-II local suppliers should be submitted in the prescribed proforma as per **Annexure-E**. Non-submission of self-declaration will lead to rejection of bid out rightly and the bidder will be treated as non-local supplier.

Evaluation of Bids:

Bid Evaluation will take place in two stages.

Stage I: Technical Bid evaluation

1. Bidder will be evaluated first for conformity with Pre-qualification Criteria and those bidders who have complied with pre-qualification criteria alone will be evaluated further.
2. In the 2nd stage, the details of technical specification offered by the bidders will be evaluated by the technical committee for compliance. Only those bidders who have fully complied with Pre-Qualification Criteria and technical specification will be considered for the opening of financial bid.

Stage II: Financial Bid Evaluation

The price bid evaluation will be based on price quoted by the bidder.

WARRANTY : **12 Months**
PRICE VALIDITY : **90 days**

PRICES:

- The prices quoted should be considering all terms & conditions and as per the technical specification mentioned in **Annexure A**.

PAYMENT: No Advance Payment will be made. Payment will be made only after supply and satisfactory installation.

CIVIL ENGINEERING DEPARTMENT, IIT MADRAS
Technical Specification for Supply and Installation of Audio and Video Conferencing System
Tender Ref. No. CE/HOD/2022/1001/AVC SYSTEM

Sl. No	Description	Specification	
Audio conferencing system – 1 No			
1	Virtual Microphone	Coverage	Up to 7.6m x 7.6m
		Type	Low-noise omnidirectional MEMS
		Frequency response at 94 dB SPL	100Hz to 5 kHz
		Total harmonic distortion (THD)	0.25% (typical)
2	SPEAKERS	Wattage & Number	≥ 20W x2
		Type	4" aluminum cone
		Acoustic output (hardware capable)	≥91 dB-SPL @ 1 m
		Total harmonic distortion (THD)	<3%
		Frequency response	50Hz to 16 kHz
		Amplifier Class	D
3	CONNECT MODULE	Interface to computer	Single USB 2.0, type B
		Auxiliary out	3.5 mm single-ended stereo jack x1
		Auxiliary in	3.5 mm single-ended stereo jack x1
		Connection to microphone and speaker	RJ-45 x2
4	Operating systems	OS	Windows® 7, Windows 8, Windows 10, Mac® OS X® 10.14 and 10.15 (Mojave and Catalina)
5	POWER	Power rating	100-240V AC, 50Hz
	GENERAL	Should have Advanced audio	Acoustic echo cancellation, position-based gain control
		Wall-mount installation	Built-in wall mount
		UC&C compatibility	Should work seamlessly with leading UC&C platforms, including Microsoft® Teams, Zoom, GoToMeeting®, Cisco Webex® and StarLeaf
Dual Wireless Receiver – 1 No			
1	Output Impedance	XLR connector – 200 Ω	
		6.35 mm (1/4") connector – 50 Ω	
2	Audio Output Level	XLR connector = –27 dBV (into 100 kΩ load)	
		6.35 mm (1/4") connector = –13 dBV (into 100 kΩ load)	
3	RF Sensitivity	(-105) dBm for 12 dB SINAD, typical.	
4	Image Rejection	>50 dB, typical	
Wireless Receiver with Handheld Microphone – 1 No			
1	Output Impedance	XLR connector – 200 Ω	
		6.35 mm (1/4") connector – 50 Ω	
2	Audio Output Level	XLR connector = –27 dBV (into 100 kΩ load)	

		6.35 mm (1/4") connector = -13 dBV (into 100 kΩ load)
3	RF Sensitivity	(-105) dBm for 12 dB SINAD, typical.
4	Image Rejection	>50 dB, typical
5	Audio Input Level	0dB = -20 dBV maximum
		(-10dB) = -10 dBV maximum
Handheld Transmitter (Microphone) – 1 No		
1	Audio Input Level	0dB = -20 dBV maximum
		(-10dB) = -10 dBV maximum
2	Gain Adjustment Range	10 dB
3	RF Transmitter Output	10 mW, typical
Headworn Microphone – 1 No		
1	Type	Condenser microphone
2	Frequency Response	40 Hz to 20,000 Hz
3	Polar Pattern	Unidirectional (Cardioid)
4	Output Impedance	100 Ω, @ 1 kHz
5	Sensitivity	(-57.8 dBV/Pa) @ 1 kHz, 1000 Ω load
6	Signal-To-Noise Ratio	59.2 dB, @ 1 kHz, 1000 Ω load
Bodypack Transmitter – 1 No		
1	Audio Input Level	max = (-16 dBV) maximum
		min (0 dB) = +10 dBV maximum
2	Input Impedance	1 MΩ
3	RF Transmitter Output	10 mW, typical
Mixer – 1 No		
1	Channel	6
2	Input Impedance	"Mic: 1,600 ohms Line: 10,000 ohms ST (L/R): 10,000 ohms"
3	Output Impedance	"Balanced: 150 ohms Unbalanced: 150 ohms"
4	Frequency Response	20 Hz to 20 kHz
5	Dynamic Range	110 dB or higher, A-weighted/ST
6	Signal-to-noise ratio	90 dB or higher, A-weighted/ST
7	Total Harmonic Distortion	0.03% or less, 1 kHz unity
8	Microphone Phantom Power	(+48V) DC
Audio Cable – 30 Mtrs		
1	Conductors	"Material: Tinned Copper Size: 2x20AWG Diameter: 0.916mm"
2	Insulation	"Material: PP Diameter: 1.8±0.09mm Average Thickness: 0.442mm Color: As color code"
3	Screening	"Material: AL-foil/mylar Overlap: 25% min"
4	Electrical	"Temperature rating: 75°C Insulation resistance: DC-500V 100MΩ/KM Conductor resistance: 20AWG-34.6Ω/KM Impedance: 40~100Ω"

CAT6A Video Cable – 30 Mtrs		
	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)
	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 Conductor DC Resistance: <79.8Ω/km Pair Resistance Unbalance DC: <1.5% Dielectric Strength: 2.5kV DC (2s) Insulation Resistance (500V): >5000MΩ/km”
RJ45 Connector – 4 Nos		
1	Maximum current / Voltage:	1.5A
2	Contact resistance:	<20mΩ
3	Insulation resistance:	>500MΩ
4	Mechanical dimensions compliance:	IEC 60606-7/FCC 68.500 22.5*11.68*8.0+0.00-0.15
5	Cable-to-plug tensile strength:	20LBs(89N) min.
6	Durability:	2000 mating cycles
7	Housing material:	UL 94V-2
8	Shield material:	Brass, Ni-plated
9	Contact material:	Phosphor bronze
10	Contact plating:	50u, gold plated
11	Conductor structure:	Stranded/Solid
12	Conductor AWG:	AWG26-AWG22
Required AV Connectors – 1 Lot		
With Installation and Commissioning		

CIVIL ENGINEERING DEPARTMENT, IIT MADRAS
Technical Compliance for Supply and Installation of Audio and Video Conferencing System
Tender Ref. No. CE/HOD/2022/1001/AVC SYSTEM

Sl. No.	Description	Specification	Comply / Not-Comply
Audio conferencing system – 1 No			
1	Virtual Microphone	Coverage	Up to 7.6m x 7.6m
		Type	Low-noise omnidirectional MEMS
		Frequency response at 94 dB SPL	100Hz to 5 kHz
		Total harmonic distortion (THD)	0.25% (typical)
2	SPEAKERS	Wattage & Number	≥ 20W x2
		Type	4" aluminum cone
		Acoustic output (hardware capable)	≥91 dB-SPL @ 1 m
		Total harmonic distortion (THD)	<3%
		Frequency response	50Hz to 16 kHz
		Amplifier Class	D
3	CONNECT MODULE	Interface to computer	Single USB 2.0, type B
		Auxiliary out	3.5 mm single-ended stereo jack x1
		Auxiliary in	3.5 mm single-ended stereo jack x1
		Connection to microphone and speaker	RJ-45 x2
4	Operating systems	OS	Windows® 7, Windows 8, Windows 10, Mac® OS X® 10.14 and 10.15 (Mojave and Catalina)
5	POWER	Power rating	100-240V AC, 50Hz
	GENERAL	Should have Advanced audio	Acoustic echo cancellation, position-based gain control
		Wall-mount installation	Built-in wall mount
		UC&C compatibility	Should work seamlessly with leading UC&C platforms, including Microsoft® Teams, Zoom, GoToMeeting®, Cisco Webex® and StarLeaf
Dual Wireless Receiver – 1 No			
1	Output Impedance	XLR connector – 200 Ω	
		6.35 mm (1/4") connector – 50 Ω	
2	Audio Output Level	XLR connector = –27 dBV (into 100 kΩ load)	
		6.35 mm (1/4") connector = –13 dBV (into 100 kΩ load)	
3	RF Sensitivity	(-105) dBm for 12 dB SINAD, typical.	
4	Image Rejection	>50 dB, typical	
Wireless Receiver with Handheld Microphone – 1 No			

1	Output Impedance	XLR connector – 200 Ω	
		6.35 mm (1/4") connector – 50 Ω	
2	Audio Output Level	XLR connector = -27 dBV (into 100 k Ω load)	
		6.35 mm (1/4") connector = -13 dBV (into 100 k Ω load)	
3	RF Sensitivity	(-105) dBm for 12 dB SINAD, typical.	
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5	Audio Input Level	0dB = -20 dBV maximum	
		(-10dB) = -10 dBV maximum	
Handheld Transmitter (Microphone) – 1 No			
1	Audio Input Level	0dB = -20 dBV maximum	
		(-10dB) = -10 dBV maximum	
2	Gain Adjustment Range	10 dB	
3	RF Transmitter Output	10 mW, typical	
Headworn Microphone – 1 No			
1	Type	Condenser microphone	
2	Frequency Response	40 Hz to 20,000 Hz	
3	Polar Pattern	Unidirectional (Cardioid)	
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6	Signal-To-Noise Ratio	59.2 dB, @ 1 kHz, 1000 Ω load	
Bodypack Transmitter – 1 No			
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2	Input Impedance	1 M Ω	
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Mixer – 1 No			
1	Channel	6	
2	Input Impedance	"Mic: 1,600 ohms Line: 10,000 ohms	
		ST (L/R): 10,000 ohms"	
3	Output Impedance	"Balanced: 150 ohms	
		Unbalanced: 150 ohms"	
4	Frequency Response	20 Hz to 20 kHz	
5	Dynamic Range	110 dB or higher, A-weighted/ST	
6	Signal-to-noise ratio	90 dB or higher, A-weighted/ST	
7	Total Harmonic Distortion	0.03% or less, 1 kHz unity	
8	Microphone Phantom Power	(+48V) DC	
Audio Cable – 30 Mtrs			
1	Conductors	"Material: Tinned Copper Size: 2x20AWG Diameter: 0.916mm"	
2	Insulation	"Material: PP	

		Diameter: 1.8±0.09mm Average Thickness: 0.442mm Color: As color code”	
3	Screening	“Material: AL-foil/mylar Overlap: 25% min”	
4	Electrical	“Temperature rating: 75°C Insulation resistance: DC-500V 100MΩ/KM Conductor resistance: 20AWG- 34.6Ω/KM Impedance: 40~100Ω”	
CAT6A Video Cable – 30 Mtrs			
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	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)	
	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 Conductor DC Resistance: <79.8Ω/km Pair Resistance Unbalance DC: <1.5% Dielectric Strength: 2.5kV DC (2s) Insulation Resistance (500V): >5000MΩ/km”	
RJ45 Connector – 4 Nos			
1	Maximum current / Voltage:	1.5A	
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3	Insulation resistance:	>500MΩ	
4	Mechanical dimensions compliance:	IEC 60606-7/FCC 68.500 22.5*11.68*8.0+0.00-0.15	
5	Cable-to-plug tensile strength:	20LBs(89N) min.	
6	Durability:	2000 mating cycles	
7	Housing material:	UL 94V-2	
8	Shield material:	Brass, Ni-plated	
9	Contact material:	Phosphor bronze	

10	Contact plating:	50u, gold plated	
11	Conductor structure:	Stranded/Solid	
12	Conductor AWG:	AWG26-AWG22	
Required AV Connectors – 1 Lot			
Installation and Commissioning			
Land Border Sharing Certificate as per format Annexure-D			
Local Content Certificate as per format Annexure-E			
Warranty – 12 Months			
Delivery period – 30 days			
Price Validity – 90 days			

Signature of the Tenderer

CIVIL ENGINEERING DEPARTMENT, IIT MADRAS
Supply and Installation of Audio and Video Conferencing System
Tender Ref. No. CE/HOD/2022/1001/AVC SYSTEM

FINANCIAL BID (PROFORMA)

Sl. No.	Description of Work	Qty	Units	Basic Rates in INR	GST 5%	Total Amount with taxes in INR
01.	Supply and Installation of Audio & Video Conferencing System	1	No.	Rs.	Rs.	Rs.
	Grand Total					Rs.

Total Amount/Rupees in words _____

Signature of the Tenderer

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

Tender 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

(Bidders from Country which shares a land border with India)

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 from _____ (Name of Country) and have registered with the Competent Authority. I also certify that I fulfil all the requirements in this regard and am eligible to be considered. *(Copy/ evidence of valid registration by the Competent Authority is to be attached)*

Place:
Date:

Signature of the Bidder
Name & Address of the
Bidder with Office Stamp

**FORMAT FOR AFFIDAVIT OF SELF-CERTIFICATION UNDER PUBLIC PROCUREMENT POLICY
(PREFERENCE TO MAKE IN INDIA) 2017**

Tender Reference Number:

Name of the item / Service:

Date: _____

I/We _____ S/o, D/o, W/o, _____

Resident of _____

hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to 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, 29.05.2019 and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P- 45021/102/2019-BE-II-Part(1) (E-50310) Dt.4th March 2021 and any subsequent modifications/Amendments, if any and

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

Tick (✓) and Fill the Appropriate Category	
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to or more than 50% and come under “ Class-I Local Supplier ” category.
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to or more than 20% but less than 50% and come under “ Class-II Local Supplier ” category.
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is less than 20% and come under “ Non Local Supplier ” category.

The details of the location (s) at which the local value addition is made and the proportionate value of local content in percentage

Percentage of Local content : _____ %**

Location at which value addition done : _____

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.>

[Note: In case of procurement for a value in excess of Rs. 10 Crores, the bidders shall provide this certificate from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.]

This letter should be on the letterhead of the quoting firm and should be signed by a competent authority.

**** Services such as transportation, insurance, installation, commissioning, and training and after sales service support like AMC/CMC cannot be claimed as local value addition**