# CORRIGENDUM-01

**Nālandā**
UNIVERSITY

No: Nu/Engg/68/20-21/02/N10/234    Date 21.05.2021

This is regarding e-tender vide NIT Ref No: Nu/Engg/68/20-21/02 dated 24.04.2021 and CPPP ID No 2021_NU_602182_1) published by Nalanda University for Supply, Installation, Testing & Commissioning of Audio and Video System for the Remaining Buildings (Other than the Priority Buildings) at the Permanent Campus of Nalanda University (NU), District Nalanda, Rajgir, Bihar Under Package 5C.

**The outcome of the pre-bid meeting is being issued herewith as followings:**

1.  The clarifications/responses to the queries listed in the pre-bid meeting are mentioned under "**Annexure A**" of this corrigendum.

2.  The revised technical specification read with the respective line item of the BoQ for the above referenced tender as mentioned in "**Annexure B**" of this corrigendum. The specifications mentioned in this annexure supersede any other BoQ/TS mentioned earlier in this tender dated 24.04.2021

3.  The bid submission last date has been extended as tabulated below:

| SR. NO. | AS PER NIT | AS PER THIS CORRIGENDUM |
|---|---|---|
| 01. | Ref NIT page No 7,8 & 11 (clause 2& 4): Last date for submission of Online bids is 26.05.2021 up to 1500 Hrs through online portal (https://nalandauniv.euniwizarde.com/) | The interested & eligible bidders as per shall upload their online bid in https://nalandauniv.euniwizarde.com/ and also submit the same bid in physical form. <br><br> The last date and time for submission of online bid is **07.06.2021, 3:00PM** <br> Last date for submission of the physical bid (technical bid) in a sealed envelope superscribes with the tender title [*physical/hard copy in addition of online, those bidder(s) who have submitted their online bid are only allowed to submit the technical bid in hard copy*]: By **15.06.2021, 3:00PM** |
| | Technical bid will be opened on 27.05.2021 at 1330 Hrs at Nalanda University, District Nalanda, Rajgir, Bihar | The detailed address of the Nalanda University's Rajgir Office for the physical bid submission is: **Tender Box Kept at Reception, Nalanda University, Rajgir, District- Nalanda, Bihar - 803116, India.** <br><br> The tender opening through online mode is scheduled on **08.06.2021, 11 AM** |

All other terms & condition of NIT No NU/Engg/51/2019-20/01 dated 07.04.2021 remains unchanged.

Registrar(I/c)
**Nalanda University, Rajgir**
**District- Nalanda, Bihar, Pin 803116**

| Project | Package-5C- Tender for Supply, Installation, Testing & Commissioning of Audio and Video System for the Remaining Buildings (Other than the Priority Buildings) at the Permanent Campus of Nalanda University (NU), District Nalanda, Rajgir, Bihar. | | | | | | |
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# Annexure A of Corrigendum 01 Dated 20.05.2021

(NIT Ref No: Nu/Engg/68/20-21/02 dated 24.04.2021 and CPPP ID No 2021_NU_602182_1)

| S.No | Company Name | Item | Volume/ Clause no | Page no | Tender Description | Clarification | NU Reply |
|---|---|---|---|---|---|---|---|
| 1 | Bidder 1 | | | | Physical Pre Bid Meeting has been kept on 05 05 2021 at Nalanda University | AT this present pandemic situation as you can understand travelling to other states has been restricted our sincere request to you please arrange for a VIRTUAL PRE BID MEETING on the same date and time so that everyone can join and clear up the queries | The prebid meeting was conducted in a virtual format |
| 2 | Bidder 2 | BOQ ITEM NO. 2 | 1 1 | RFP Pg No. 68 | 3 I/P SWITCHER PLUS TRANSMITTER WITH AUDIO EMBEDDING | | |
| | | | | | 3 I/P Switcher cum Transmitter with Audio embedding, supporting video output on a cable length up to 330 ft (100 meters) on CAT6. Input 2 x HDMI, 1 x VGA + Audio 3 5mm; Output 1 x HDBaseT, video output shall be on a single CAT6 shielded twisted pair cable, Auto switching between inputs, the device shall be HDCP compliant and with EDID support | Kindly note VGA is no more used, so request to remove that and can include DP if required which is available in laptops | The change is accepted, the revised specification would be 3 I/P Switcher cum Transmitter with Audio embedding, supporting video output on a cable length up to 330 ft (100 meters) on CAT6, Input 2 x HDMI, 1 x VGA/ DP + Audio 3 5mm; Output 1 x HDBaseT, video output shall be on a single CAT6 shielded twisted pair cable, Auto switching between inputs; the device shall be HDCP compliant and with EDID support. Kindly see the corrigendum issued. |
| | | | | | Input signals requirements Minimum 2 x HDMI, 1 x VGA on 15-pin D + 1 x unbalanced analog audio on 3 5mm connector | | |
| | | | | | Output signals requirements 1 x RJ-45 connector for HDBaseT output to be transmitted over CAT6 based shielded twisted pairs cable | | |
| | | | | | Video transmission shall support video transmission over CAT6 up to 100 meters (330 feet), 1080p, 4K video resolution support | Resolution should be 4K60 4 4 4, as this is the latest resolution avaible in market and proposed solution should be capable of handling this | Change accepted, Kindly see the corrigendum issued |
| | | | | | Other ports minimum 1 x RJ-45 based Ethernet port supporting TCP/IP at minimum 100Mbps, 1 x RS232 port for device control/data injection over HDBaseT, 1 x USB port for service control | | |
| | | | | | Video standards supported the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2 2 support, as this is the standard for protecting the content and should be as per to industry standard | No change , Please refer to NIT specification |
| 3 | | BOQ ITEM NO. 3 | 1 2 | RFP Pg No: 68 | HDMI TWISTED PAIR RECEIVER | | |
| | | | | | HDMI Twisted Pair Receiver, for receiving HDMI, RS232 & IR control up to 230 feet (70 meters) over a shielded CAT6 cable; Input One CAT6 twisted pair input on RJ-45; Outputs One HDMI; the device shall be HDCP compliant and with EDID support | | |
| | | | | | The device shall receive HDMI plus control signal up to 230 feet (70 meters) over a shielded twisted pair CAT6 cable | Kindly help to modify the distance from 230feet (70 meters) to 330 ft (100 m) which is industry standard and common with other OEM | No change , Please refer to NIT specification |
| | | | | | Input 1 x twisted pair on RJ-45 | As transmitter used are HDBT certified, Input should be modified as 1 x twisted pair and HDBT certified for compatibility | No change , Please refer to NIT specification |
| | | | | | Outputs 1 x HDMI, 1080p, 4K video resolution support | Resolution should be 4K60 4 4 4, as this is the latest resolution avaible in market and proposed solution should be capable of handling this | Change accepted, Kindly see the corrigendum issued |
| | | | | | Shall be able to accept additional RS232 and IR signals over CAT6 cable | | |
| | | | | | Video standards supported the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2 2 support, as this is the standard for protecting the content and should be as per to industry standard | No change , Please refer to NIT specification |
| 4 | | BOQ ITEM NO. 5 | 1 4 | RFP Pg No. 69 | HDMI ACTIVE WALL PLATE | | |
| | | | | | HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft (70 meters), device should support HDCP and EDID transmission | | |
| | | | | | The device shall transmit HDMI plus control signal up to 70 meters over a twisted pair shielded CAT6 cable | Kindly help to modify the distance from 230feet (70 meters) to 330 ft (100 m) which is industry standard and common with other OEM | No change , Please refer to NIT specification |
| | | | | | Inputs 1 x HDMI | Kindly help to mention the input resolution as 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| | | | | | Output 1 x Twisted pair output on RJ-45 | Kindly modify the same as 1 1 Output signals requirements 1 x RJ-45 connector for HDBaseT output to be transmitted over CAT6 based shielded twisted pairs cable | No change , Please refer to NIT specification |
| | | | | | The device shall be capable of transmitting RS232 and IR signals over CAT6 cable | | |
| | | | | | Video standards supported the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2 2 support, as this is the standard for protecting the content and should be as per to industry standard | No change , Please refer to NIT specification |
| 5 | | BOQ ITEM NO. 7 | 1 5 | RFP Pg No 70 | WIRELESS PRESENTOR SYSTEM | | |
| | | | | | Wireless Presentation Unit of HD content using laptops, tablets, and smartphones. Compatible with Windows OS X, Apple iOS, and Android, Supports 4K display resolutions, shall provide minimum 1 x HDMI output | | |
| | | | | | Wireless connection for up to 24 devices | Request to modify to 10 devices, so that we can comply | No change , Please refer to NIT specification |
| | | | | | Should support Web Browsers such as Internet Explorer, Mozilla and Chrome | | |
| | | | | | Should support third party app such as Microsoft Office®, Skype®, goto meeting®, Lync®, and webex® | Kindly add Zoom as well | No change , Please refer to NIT specification |
| | | | | | Simultaneous content display - 4 user or higher | Request to modify it to 2 user or higher, two content can be from any platform either PC of Mobile phones, so that we can comply | Change accepted, Kindly see the corrigendum issued |
| | | | | | Supported Operating System - Windows / Android / Mac | | |
| | | | | | Should have minimum 1 x HDMI output | | |

| | | | | | Should have Audio output | | |
|---|---|---|---|---|---|---|---|
| | | | | | Should have minimum 1 x USB port | | |
| 6 | | BOQ ITEM NO. 8 | 1.5 | RFP Pg No. 70 | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 3 x video and 1 x audio | | |
| | | | | | HDMI scalar cum matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 DVI-U (HDMI, DVI, VGA supported) and minimum two video outputs | Kindly help to modify as: HDMI matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 HDMI / DVI-U (HDMI, DVI, VGA supported) and minimum two video outputs | No change, Please refer to NIT specification |
| | | | | | - 2 x HDMI with parallel 2 x CAT6, 1 x audio output. It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | Kindly help to confirm what port need to be considered in 2 outputs, as output asked is only two but here its mentioned as 2xHDMI with parallel 2x CAT6 output | Kindly refer to the corrigendum issued |
| | | | | | Input signals requirements: minimum 4 x HDMI plus minimum 2 x CAT6 & 2 DVI-U (HDMI, DVI, VGA supported) inputs for accepting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable | | |
| | | | | | Output signals requirements: minimum 2 x HDMI with parallel 2 x CAT6 output for transmitting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable | Kindly help to confirm what port need to be considered in 2 outputs, as output asked is only two but here its mentioned as 2xHDMI with parallel 2x CAT6 output | Kindly refer to the corrigendum issued. |
| | | | | | Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, 1 RS232 port for data injection over HDBaseT | Kindly modify 1 x RS232 port for device control as 1 x RS232 / RJ45 port for device control | Change accepted, Kindly see the corrigendum issued. |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard, also add CAT6 input output should be HDBT certified for compatibility | No change, NIT specification shall prevail |
| | | | | | The device shall support automatic input selection via last detected input source | | |
| | | | | | Resolutions supported – minimum up to 4K | Kindly help to mention the supported resolution as 4K 60 4.4.4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 7 | | BOQ ITEM NO. 9 | 1.7 | RFP Pg No. 71 | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 2 x video and 1 x audio | Kindly note VGA is outdated technology, Request you to remove or change it to DP/USBC | It is clarified that under VGA you may offer VGA/DP/USBC |
| | | | | | HDMI scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, 2 x DisplayPort and minimum 2 x HDMI outputs, It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant. | Kindly help to modify as HDMI matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, 2 x DisplayPort and minimum 2 x HDMI outputs, It shall support resolutions upto 4K It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | No change, NIT specification shall prevail |
| | | | | | Input signals requirements: minimum 4 x HDMI plus minimum 2 x VGA+Audio, 2 Display Port | | |
| | | | | | Output signals requirements: minimum 1 x HDMI with parallel Display Port output, 1 HDMI with parallel VGA output | Kindly help to mention the parallel outputs as optional as this is specific to one OEM, although VGA output is no where utilised in the solutions. | Change accepted, Kindly see the corrigendum issued |
| | | | | | Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, Data injection over HDBaseT | Kindly modify 1 x RS232 port for device control as 1 x RS232 / RJ45 port for device control | Change accepted, Kindly see the corrigendum issued |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard, also add CAT6 input output should be HDBT certified for compatibility with other devices | No change, NIT specification shall prevail |
| | | | | | The device shall support automatic input selection via last detected input source | | |
| | | | | | Resolutions supported – minimum up to 4K. | Kindly help to mention the supported resolution as 4K 60 4.4.4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 8 | | BOQ ITEM NO. 10 | 1.8 | RFP Pg No. 72 | 1 x 8 HDMI DISTRIBUTION AMPLIFIER | | |
| | | | | | 1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant | | |
| | | | | | Input signals requirements: minimum 1 x HDMI | | |
| | | | | | Output signals requirements: minimum 8 x HDMI | | |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change, NIT specification shall prevail |
| | | | | | Resolutions supported – minimum up to 4K | Kindly help to mention the supported resolution as 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 9 | | BOQ ITEM NO. 11 | 1.9 | RFP Pg. No. 72 | 1 x 4 HDMI DISTRIBUTION AMPLIFIER | | |
| | | | | | 1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant. | | |
| | | | | | Input signals requirements: minimum 1 x HDMI | | |
| | | | | | Output signals requirements: minimum 4 x HDMI | | |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change, NIT specification shall prevail |
| | | | | | Resolutions supported – minimum up to 4K. | Kindly help to mention the supported resolution as 4K 60 4.4.4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 10 | | BOQ ITEM NO. 13 | 1.11 | RFP Pg. No. 73 | WIRED CONTROL PANEL | | |
| | | | | | podium mountable, minimum 12-Button wired control panel for controlling various devices, it shall have - one volume control knob, minimum 3 x RS 232, 4 x Relays and 2 x IR ports, 2 I/O, 1 x LAN, to control the devices. | | |

| | | | | | Description/Specification | Query | Response |
|---|---|---|---|---|---|---|---|
| | | | | | A wired button control panel shall be provided for control of devices - minimum 12 buttons or more, with required no. of RS232, IR and RJ-45 based Ethernet IP Ports to control up to 1 projector, 1 screens, 1 - video switcher, 1 annotation processor, 1 video recording device, 1 – 3 Input transmitter + receiver for (input switching) and audio system DSP as per the requirements of individual room | | |
| | | | | | However, following minimum requirement of ports shall be met | | |
| | | | | | Should have minimum 1 x Ethernet on RJ45 for monitoring and control over TCP/IP protocols, supporting minimum Fast Ethernet (10/100Mbps) speeds | | |
| | | | | | Should have minimum 3 x bi-directional RS232 ports for control | | |
| | | | | | Should have minimum 2 x IR ports (source/emitter ports) | | |
| | | | | | Should have minimum 4 x relay ports | | |
| | | | | | Should have minimum 2 x I/O ports | | |
| | | | | | Should have minimum 1 x IR sensor for reading IR commands from devices | Please clarify the desired functionality against this feature 1 x IR Sensor | It is clarified that "1xIR Sensor to be used for IR learner, if IR Sensor is not builtin, it has to be provided additionally |
| | | | | | Should have minimum 12 x programmable buttons with backlighting/LED indication for various AV control functions assignments, including input selections | | |
| | | | | | Should have minimum 1 x rotary dial/knob for volume control | | |
| 11 | | BOQ ITEM NO. 41, 42, 43 & 57 THRU 66 | 1.38 | RFP Pg No. 95 | Various AV Cables | | |
| | | | | | Cables should meet following minimum specifications or better: | | |
| | | | Microphone Cable | RFP Pg No. 1 | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum | | |
| | | | Speaker Cable | RFP Pg No. 2 | 14 AWG Speaker Cable in existing conduit. Two X 14 AWG conductors, High performance cable for audio signals. Non-Plenum | | |
| | | | | RFP Pg No. 3 | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum | | |
| | | | HDMI Cables (1.5mtr/5ft, 5mtr/15ft, 10mtr/30ft, 15mtr/50ft, 20mtr/75ft) | RFP Pg No. 4 | Male to Male - Moulded Connector, 1080p/60 verified, Gold plated contacts | Kindly help to mention the supported resolution as 4K 60 4 4 4 for HDMI cable upto 20feet and 4K 60 4 2 0 for cable above 25feet, as our system should be capable and ready for the latest resolution | No change, NIT specification shall prevail |
| | | | VGA with Audio (1.5mtr/5ft) | RFP Pg No. 5 | Male to Male VGA Cables With Audio-Moulded Connectors. VGA Cable: 15-pin HD Male to Male Moulded & Mini Stereo Audio Cable: 3.5 mm Stereo- 6' (1.5 m) | | |
| | | | VGA Cable (5mtr/15ft, 10mtr/30ft) | RFP Pg No. 6 | Male to Male VGA Cables - Moulded Connectors. High performance cable designed for transmission of computer video and ID bit signals. Pin 9 is passed through from end to end. Terminated with high quality VGA moulded connectors | | |
| | | | Shielded Twisted Pair Cable | RFP Pg No. 7 | 24 AWG solid copper construction Shielded Twisted Pair Cable, SF/UTP design with four unshielded twisted pairs inside, an overall braid and foil shield. IEEE/EIA/TIA 568 C2 | Kindly help to add minimum CAT7 cable for which is required for transporting 4K 60 4 4 4 resolution at 100meters. Should be supplied with required connectors. Also help to modify from 24AWG, kindly change this to 22AWG for us to comply. | No change, NIT specification shall prevail |
| 12 | Bidder 3 | 1 | | MR01 | SITC of modular configurable type flush mount / table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc. for min. requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10Amps power outlet | Technical specification for this item is not provided in Tender, for this item BOQ wording considered as specs. Request for 2X5 AMPs power outlet/1X10 AMPs as per BOQ | Change accepted, Kindly see the corrigendum issued |
| 13 | | 7 | | MR07 | SITC of Wireless Presentation Unit of HD content using laptops, tablets, and smart phones. Compatible with Windows OS X, Apple iOS, and Android, Supports Full HD 1080p display resolutions, shall provide minimum 1 x HDMI output. | Kindly add Kramer as Brand as we comply to technical specifications | No change, Tender condition shall prevail |
| 14 | Bidder 4 | | | NA | Modular configurable type flushmount / table top AV signal aggregation unit | There is no specification associated with this product under technical specification. Hence kindly advise to suggest suitable product model | Kindly refer to the corrigendum issued. |
| 15 | | | | Pg. No. 66 | 3 I/P SWITCHER PLUS TRANSMITTER WITH AUDIO EMBEDDING | 1 In the BOQ description, it is asked for supporting video output on a cable length up to 230 ft. (70 meters) on CAT6 , however this is different in tender specification and mentioned as "Video transmission shall support video transmission over CAT6 up to 100 meters (330 feet)," Kindly confirm which one to be considered to suggest suitable product model meeting application requirement.<br><br>2 In BOQ descriptions, it is asked for "Input 1 x HDMI, 1 x Display port, 1 x VGA + Audio 3.5mm", however this is different in tender specification and mentioned as "Minimum 2 x HDMI, 1 x VGA on 15-pin D + 1 x unbalanced analog audio on 3.5mm connector". Kindly confirm which one to be considered to suggest suitable product model meeting application requirement.<br><br>3 In the tender specifications, it is asked for "1 x RJ-45 based Ethernet port supporting TCP/IP at minimum 100Mbps" but as per application it is not required. Request to remove this line from tender specification | Change Partially accepted, kindly refer to the corrigendum for detailed specification |

| # | Bidder | | | | Pg No | Item | Query | Response |
|---|---|---|---|---|---|---|---|---|
| 16 | | | | | Pg No 70 | Wireless Presenter System | 1-Extron is one of leading manufacturer for switching, controls, audio, and wired & wireless collaboration products. Since Extron has been considered for other switching and control categories and complies majority of specs for this product except few and hence, we would request to consider Extron as approved make for Wireless Presenter System.<br><br>2-In the tender specification it is asked for "support Web Browsers such as Internet Explorer, Mozilla and Chrome". We would request to make changes as should support any of Web Browser such as Internet Explorer or Mozilla or Chrome to make system functional.<br>3-In the tender specification, it is asked for "Should support third party app such as Microsoft Office®, Skype®, goto meeting®, Lync®, and webex® " This specification is specific to single OEM and asked feature will not be part of application. Therefore, we would request to remove this line from specs to make the specification generic | NIT Condition shall Prevail |
| 17 | | | | | Pg No 70,71 | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 3 x video and 1 x audio | 1-There is discrepancy in description of the BOQ and tender specification as required number of inputs mentioned are different. Kindly confirm which one to be considered to suggest suitable product meeting application requirement.<br><br>2-Term "DVI-U" mentioned in tender specification and the matrix configuration is specific to single OEM. Therefore, we would request to make the specification generic so that others approved make can propose complied product model as per application requirement | 1 Refer NIT/ corrigendumm specification<br><br>2 It is clarified that Terms "DVI-U/ would mean DVI-U/(HDMI, DVI, VGA supported)" |
| 18 | | | | | Pg No 71 | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 2 x video and 1 x audio | 1-There is discrepancy in description of the BOQ and tender specification as required number of inputs/outputs mentioned are different. Kindly confirm which one to be considered to suggest suitable product meeting application requirement.<br><br>2-Technical specifications are specific to single OEM. Therefore, we would request to make the specification generic so that others approved make can propose complied product model as per application requirement.<br><br>3- Technical specifications asked for "Output signals requirements minimum 1 x HDMI with parallel Display Port output, 1 HDMI with parallel VGA output", This requirement doesnt come with all the make and also not required as per application. Kindly make it generic as now a days there is use of VGA at output as we are using all the output devices as HDMI only. Hence request to accept changes as 3x or more HDMI/DP output. | 1. Refer NIT/ corrigendumm specification<br><br>2. It is clarified that Terms "DVI-U/ would mean DVI-U/(HDMI, DVI, VGA supported)"<br><br>3. Kindly refer to the corrigendumm for revised specifications |
| 19 | | | | | Pg No 72 | 1 x 8 HDMI DISTRIBUTION AMPLIFIER | 1-As per tender specifications, it is asked for 1x8 HDMI Distribution amplifier. Kindly confirm if we can suggest product with deviation of 1 Input, 6 Output if application requirement meets with as we do not manufacture 8 output HDMI DA. | Change accepted, Kindly see the corrigendum issued. |
| 20 | | | | | Pg No 72,73 | CONTROL PROCESSOR | 1-As per tender specifications, it is asked for four IR/Serial ports. Kindly confirm if we can suggest product with deviation of two IR/Serial ports if application requirement meets with it. | No change, NIT specification shall prevail |
| 21 | | | | | Pg No 73,74 | WIRED CONTROL PANEL | 1 As per tender specifications, it is asked for 12 button with volume knob. Kindly confirm if we can suggest product with deviation of 10 button with volume knob if application requirement meets with it.<br>2 As per tender specifications, it is asked for "minimum 3 x bi-directional RS232 ports for control". Kindly confirm if we can suggest product with deviation of minimum 2 x bi-directional RS232 ports for control if application requirement meets with it.<br>3 As per tender specifications, it is asked for "minimum 2 x IR ports (source/emitter ports)". Kindly confirm if we can suggest product with deviation of minimum 2 x IR ports if application requirement meets with it.<br>4 As per tender specifications, it is asked for "4 x relay ports". Kindly confirm if we can suggest product with deviation of "minimum 2 x relay ports" if application requirement meets with it.<br>5 As per tender specifications, it is asked for "2 x I/O ports". Though as per application it is not required, however Kindly confirm if we can suggest product with deviation of "minimum 1 x I/O ports".<br>6 As per tender specifications, it is asked for "minimum 1 x IR sensor for reading IR commands from devices". Since other control processor model quoted in BOQ Serial No 12 has built in IR learner | No change, NIT specification shall prevail. Requirement can achieved by extender button panal. So please quote accordingly. |
| 22 | | | | | Pg No 74 | Audio and Video Recording and Streaming hardware | Specification for Audio and Video Recording and streaming hardware is missing in the tender specification. Kindly confirm to suggest suitable product model meeting application requirement | Lecture Recording and streaming device having minimum three video inputs - 2 x HDMI and 1 x HDMI/HD-SDI as per OEM, minimum 1 x audio feed port & 1 x HDMI output for confidence monitor and 1 x RJ-45 (LAN) port for streaming and recording application, record upto 3 full motion video inputs in single frame alongwith audio, Should have minimum 1TB inbuilt/ External storage |
| 23 | | | | | NA | Annotation Device | Product specification is mentioned for this product however the same has been mentioned for control and other devices taken to be used with this product. Kindly confirm to suggest suitable product model meeting application requirements | No Change. If the purpose is sufficiently met by the annotation built-in software in the podium touch monitor, the competent authority at a later stage may issue necessary amendment to the contractor |
| 24 | Bidder 5 | | Bid submission date | | Pg No 5 | Last time and date of submission of bid:22 05 2021 up to 3 30 pm ( as per e-tender portal) | We humbly request that last date of submission of bids be extended by 3 weeks from date of release of final corrigendumm | No change . NIT condition shall prevail |
| 25 | | | Scope of work | | Pg No 6 | Site is located along the Patna - Rajgir Highway and is well connected with the city of Rajgir, Bihar. Total area of the site is approximately 455 acres ("Site") | Since Rajgir is a remote location, we humbly request that Nalanda University provide boarding /lodging for the team on campus. This will reduce the travel time, cut costs and increase work efficiency | No change . NIT condition shall prevail |

| # | | | | Pg | Clause/Specification | Query/Request | Response |
|---|---|---|---|---|---|---|---|

| 26 | | | Part-1 "Technical Bid" | Pg No 10 | The Bidder or their authorized personnel should have conducted a site survey. The details of the same should be furnished as per Form G | Clarification required: Is site survey to be furnished as per form G is compulsory requirement to be submitted as part of the technical bid | Site survey and form G has been made optional |
|---|---|---|---|---|---|---|---|
| 27 | | | Milestone of Works (Time duration 9 Months) | Pg No 13 | The delivery and installation at site(s) must be completed within 270 days from the date of placement of supply order by Nalanda University, District Nalanda, Rajgir, and Bihar. It is mandatory for the bidders who respond to this bid to meet these expectations as time is the essence of this contract and is tightly linked to completing the project within the available time frame | We humbly request that the time allotted for completion of work be increased to 12 months from the current 9 months, taking into account the COVID -19 pandemic situations. Please note that supply chain of all OEMs is affected. The delivery times are longer than normal due some component shortages and delays both inbound and outbound shipping availability | No change , NIT condition shall prevail |
| 28 | | | Bidder Eligibility | Pg No 15 | | We humbly request that the clause " The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the previous day of the last day of submission of the Tender " be added to the bidder eligibility criteria | It is clarified that The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of, completion to the previous day of the last day of submission of the Tender |
| 29 | | | Payment terms | Pg No 25 | i. Nalanda University, Rajgir, Bihar shall release 80% of the payment on delivery of the tendered items at the site store as per the FDCC issued<br><br>ii. Payment of 20 % of the purchase order value will be made after the satisfactory successful installation and commissioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar | There should be provision to pay 40% advance against equivalent BG as per GFR rule 172 जो "Forty per cent of the contract value to a State or Central Government agency or a Public Sector Undertaking; औ<br>Also 80% should be released against delivery on pro rata basis | NIT condition shall prevail. The decision on advance payment would be at the discretion of the tendering authority based on the prevailing guidelines |
| 30 | | | Video conference system | Pg No 78 | 4. Audio Standards and Features - It should support G 711, G 728, G 729A, G 722, G 722 1, AAC-LD or better | We humbly request that specification be read as Audio Standards and Features - It should support G 711, G 729A, G 722, G 722 1, AAC-LD or better | No change , NIT condition shall prevail |
| 31 | | | Video conference 8 Camera | Pg No 79 | 8 Camera - The VC System should be a dual camera/two camera system with both cameras of minimum 10X Optical Zoom to provide automatic voice and speaker framing of the active speaker in the room with a range up to 32 feet. It should be possible to send both active speaker in zoomed mode and room view in PIP to far side location during a VC call in a single stream. It should be possible to cascade two such camera system to cover larger room | The Automatic voice tracking system feature is latest technology in video conference system as such it is more expensive than traditional VC system. Nalanda university can either procure upgradable VC system wherein voice tracking can be added at later stage or procure top of the line VC system with voice tracking feature at an increase of approx. 60% against the unit price mentioned in financial bid row no. 23.<br>We humbly request that the cost for procurement of VC system in the financial bid, be amended accordingly | No change , NIT condition shall prevail |
| 32 | | | Video conference system | Pg No 80 | 3. Content Standards and Resolutions - It should transmit both video and content to the far end location at 4K | We humbly request that specification be read as Content Standards and Resolutions - It should transmit both video to the far end location at 4K | No change , NIT specification shall prevail |
| 33 | | | Fully Digital Chairman Unit | Pg No 94 | Fully Digital Chairman Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Requestto-speak push button with LED Signalling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital Frequency Response 30Hz- 15kHz Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length | We humbly request specification read as Fully Digital Chairman Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Requestto-speak push button with LED Signalling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital Frequency Response 30Hz- 15kHz/ As per OEM, Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length<br>• 4.3 inch capacitive touch screen and built-in NFC reader for fast recognition of participants<br>• Speaker list and Request list<br>• Custom logo<br>• Additional functionality by use of software licenses only<br>– Identification functionality<br>– Voting<br>– Select language<br>– Dual use<br>- Basic meeting control for chairperson<br>› Start / stop recording<br>› Meeting state control<br>› Voting session control<br>› Agenda control | No change , NIT specification shall prevail |
| 34 | | | Fully Digital Conference Control Unit | Pg No 94 | Fully Digital Conference Control Unit (minimum 50 units) Central Conference Controller with integrated Recording facility &amp; Web Server for control, built-in Digital Signal Processing, control up to minimum 50 Discussion Unit and expandable up to 150 Discussion Unit , USB port to connect USB Storage Device for Direct Recording of the Meeting LCD display to implement several Conference Mode Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input &amp; Output for connectivity with external sysytem, LAN connection for web server or camera control protocol,4 digital RJ 45 ports,XLR out, XLR in, RCA in and two RCA out,Power connector with locking, complete with External power supply OEM- specific cable shall be inclusive | We humbly request specification read as Fully Digital Conference Control Unit (minimum 50 units) Central Conference Controller with integrated Recording facility &amp; Web Server for control, built-in Digital Signal Processing, control up to minimum 50 Discussion Unit and expandable up to 150 Discussion Unit , USB port to connect USB Storage Device for Direct Recording of the Meeting LCD display to implement several Conference Mode. Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input &amp; Output for connectivity with external sysytem, LAN connection for web server or camera control protocol,4 digital RJ 45 ports,XLR out, XLR in, RCA in and two RCA out,Power connector with locking, complete with External power supply OEM-specific cable shall be inclusive. Should have Dante interface . Should be upgradable for Software like , Voting , Language Interpretation ,Bluetooth , Dual use | No change , NIT specification shall prevail |

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| 35 | | | Fully Digital Delegate Unit | | Pg No 95 | Fully Digital Delegate Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signalling, Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital Frequency Response: 30Hz- 15kHz, Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length | We humbly request specification read as Fully Digital Delegate Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signalling, Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital Frequency Response: 30Hz- 15kHz/ As per OEM Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length • 4.3-inch capacitive touch screen and built in NFC reader for fast recognition of participants • Speaker list and Request list • Custom logo • Additional functionality by use of software licenses only. – Identification functionality – Voting – Select language – Dual use | No change , NIT specification shall prevail |
| 36 | | | Various AV cable Control Cable | | Pg. No 95 | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals; non-plenum | We humbly request specification read as : Minimum 4 core, 0.5 Sq. mm cable, ATC, untwisted, PVC sheathed cable is required for control cable Kindly amend the same. Also accept - Tasker brand in approved make in cable category | Change accepted, Kindly see the corrigendum issued |
| 37 | | | Commercial price schedule | | Pg No.112 | SITC of modular configurable type flush mount / table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc. for min requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10Amps power outlet | We humbly request specification read as: SITC of modular configurable type flush mount / table top AV signal aggregation unit. It should be complete with enclosure, inner frame, power socket and power cord etc for min requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10 or 2 x 5 Amps power outlet | Change accepted, Kindly see the corrigendum issued |
| 38 | | | Commercial price schedule | | Pg No 114 | SITC of Annotation Device having minimum 2 x HDMI inputs and minimum 2 x HDMI outputs Device shall be capable of printing captured content with the help of a printer | Annotation purpose for classrooms can be achieved by Inbuilt annotation software in the podium touch monitor We humbly request that annotator device be removed from BOQ This would lead to saving to NU | No Change. If the purpose is sufficiently met by the annotation built-in software in the podium touch monitor, the competent authority at a later stage may issue necessary amendment to the contractor |
| 39 | | | | | | Financial bid 24042021 | We humbly request clarification for the BOQ as item descriptions in the BOQ of financial bid do not match with tender (NIT) Specification | Kindly refer to the corrigendum issued |
| 40 | | | | | | Specifications 5C | We humbly request clarification for the Specifications 5C as item descriptions in the Specifications 5C do not match with tender (NIT) Specification | Kindly refer to the corrigendum issued |
| 41 | Bidder 6 | 1 | | | | SITC of modular configurable type flushmount / table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc for min requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10Amps power outlet | VGA has become obsolete now a days Requesting you to incorporate USB-C instead of VGA which is a future technology and approve Atlona as approved make | Kindly refer to the corrigendum issued |
| 42 | | 2 | | | | SITC of 3 I/P Switcher cum Transmitter with Audio embedding, supporting video output on a cable length up to 230 ft (70 meters) on CAT6; Input: 1 x HDMI, 1 x Display port, 1 x VGA + Audio 3.5mm; Output: video output shall be on a single CAT6 shielded twisted pair cable, Auto switching between inputs; the device shall be HDCP compliant and with EDID support. | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 43 | | 3 | | | | SITC of HDMI Twisted Pair Receiver, for receiving HDMI, control and analog audio up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45; Outputs: One HDMI and one Audio; the device shall be HDCP compliant and with EDID support | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 44 | | 4 | | | | SITC of HDMI Twisted Pair Extender, Transmits HDMI and control signal up to 230 feet (70 meters) over a shielded CAT6 cable, Output: One CAT6 twisted pair output on RJ-45, Inputs: One HDMI, Supports EDID and HDCP transmission | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 45 | | 5 | | | | SITC of HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft (70 meters), device should support HDCP and EDID transmission | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 46 | | 7 | | | | SITC of Wireless Presentation Unit of HD content using laptops, tablets, and smartphones Compatible with Windows OS X, Apple iOS, and Android, Supports Full HD 1080p display resolutions; shall provide minimum 1 x HDMI output | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 47 | | 8 | | | | SITC of scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x CAT6; and minimum three video outputs - 2 x HDMI and 1 x CAT6, and 1 x audio output. It shall support resolutions upto 1920 x 1200. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant. | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 48 | | 9 | | | | SITC of scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, minimum 2 x HDMI outputs and 1 x audio output; It shall support resolutions upto 1920 x 1200. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 49 | | 10 | | | | SITC of 1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |
| 50 | | 11 | | | | SITC of 1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change , NIT Condition shall prevail |

| | | | | | Description | Query | Response |
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| 51 | | | | 12 | SITC of Control Processor, with minimum ports as follows: 4 x bidirectional RS-232 serial ports, 1 x bidirectional RS-232/RS-485 serial port with hardware and software handshaking, 4 x IR/Serial ports for one-way control of external devices, 4 x Digital I/O ports, 4 x relays for controlling room functions, 1 x RJ-45 Ethernet monitoring and control, Supports 10/100/1000Base-T | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT Condition shall prevail |
| 52 | | | | 13 | SITC of podium mountable, minimum 8-Button wired control panel for controlling various devices, it shall have - one volume control knob; minimum 3 x RS 232, 3 x Relays and 2 x IR ports, 1 x LAN, to control the devices | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT Condition shall prevail |
| 53 | | | | 24 | SITC of Ultra Short Throw Projector - LCD/DLP Technology, minimum ANSI 3600 Lumens, 16:10 Aspect Ratio, WXGA 1280 x 720 Native Resolution, Minimum Ports - 1 x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x wired (RJ-45) LAN Port or wireless connectivity for configuration, 1 x USB or 1 x RS232/LAN for control | There is mismatch between Tender Specs and BOQ Description | Kindly refer to the corridengum issued |
| 54 | | | | 29 | SITC of 65" narrow bezel LED Professional 4K UHD display, 16:9 Aspect ratio, min 2 x HDMI Interfaces, inclusive of all mounting bracket | Kindly approve Christie as make for the displays as well | No change, NIT Condition shall prevail |
| 55 | | | | 30 | SITC of 65" narrow bezel LED Professional Display, 1920 X 1080 Resolution, 16:9 Aspect ratio, min 2 x HDMI Interfaces, inclusive of all mounting bracket | Kindly approve Christie as make for the displays as well | No change, NIT Condition shall prevail |
| 56 | | | | 31 | SITC of 55" narrow bezel LED Professional Display, 1920 X 1080 Resolution, 16:9 Aspect ratio, min 2 x HDMI Interfaces, inclusive of all mounting bracket | Kindly approve Christie as make for the displays as well | No change, NIT Condition shall prevail |
| 57 | | | | 34 | SITC of UHF True Diversity Wireless Microphone System consisting of - 1 x Receiver, 1 x Lapel Microphone with body pack; RF Frequency Range - as per respective OEM, however, minimum 8 or higher pre programmed selectable channels per frequency range shall be available in the receiver, Polar Pattern: Cardioid / Hypercardioid / Supercardioid, THD <0.9% or better, RF Power: 30mW or better, S/N Ratio: >100 dB or better, complete with all cables and standard accessories. (All cables shall be original OEM supplied) The wireless microphone system shall support simultaneous operation of 4 or more wireless microphones per room/area | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 58 | | | | 35 | SITC of UHF True Diversity Wireless Microphone System consisting of - 1 x Receiver, 1 x Headworn Microphone with body pack; RF Frequency Range - as per respective OEM, however, minimum 8 or higher pre programmed selectable channels per frequency range shall be available in the receiver, Polar Pattern: Cardioid / Hypercardioid / Supercardioid; THD <0.9% or better; RF Power: 30mW or better; S/N Ratio: >100 dB or better; all cables and standard accessories. (All cables shall be original OEM supplied). The wireless microphone system shall support simultaneous operation of 4 or more wireless microphones per room/area | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 59 | | | | 36 | SITC of UHF True Diversity Wireless Microphone system consisting of - 1 x Receiver, 1 x Handheld Microphone with transmitter; RF Frequency Range - as per respective OEM, however, minimum 8 or higher pre programmed selectable channels per frequency range shall be available in the receiver; Polar Pattern: Cardioid / Hypercardioid / Supercardioid; THD <0.9% or better; RF Power: 30mW or better; S/N Ratio: >100 dB or better, complete with all cables and standard accessories. (All cables shall be original OEM supplied). The wireless microphone system shall support simultaneous operation of 4 or more wireless microphones per room/area | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 60 | | | | 44 | SITC of 12x8 DSP - Digital Matrix Processors, with 12 mic/line inputs and 8 outputs with AEC - Acoustic Echo Cancellation features | BOQ item description no matching with tender Specification. Kindly ammend BOQ | Kindly refer to the corridengum issued |
| 61 | | | | 46 | SITC of full-range or 2-way minimum 3" or better ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 95 Hz - 17 kHz (-10dB), Power handling@70/100V : 20W or better, Sensitivity: SPL/W@1 Mtr - 86 db or better, Max SPL@1 Mtr - 103dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories | Specification is inclined towards a particular OEM. Kindly ammend power handling @ 70V/100V: 15 Watt or better and Sensitivity 85 or better and make it more generic | Kindly refer to the corridengum issued |
| 62 | | | | 47 | SITC of full-range, minimum 5" surface/wall mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 60 Hz - 20KHz (-10dB), Power handling@70/100V 30W or better, Sensitivity: SPL/W@1 Mtr - 90 dB SPL or better, Max SPL@1 Mtr - 110dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 63 | | | | 49 | SITC of Class D Power Amplifier, 4 x 300 W, selectable 4/8 ohms or 70/100V operation, Power @ 70/100V 300W or better, supporting short circuit, thermal, and under-voltage protection, 1U/2U form factor | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |

| # | Bidder | Clause Reference | Page | Tender Clause Description | Query/Clarification Sought | Response |
|---|---|---|---|---|---|---|
| 64 | | 50 | | SITC of Dual Channel Class D or Class AB Power Amplifier, 2 x 80 W @ 8 ohms, Comprehensive short circuit, thermal, and under-voltage protection, 1U/2U form factor | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 65 | | 54 | | SITC of Fully digital Main/Central Conference Controller Unit should be able to control and power 30 units or more, should have LED/LCD display for necessary controls and configuring the system, min. 6 or better open microphone support, daisy chain connectivity through CAT6 shielded cable via RJ-45 or OEM-specific cable via OEM-specific socket. OEM-specific cable shall be inclusive | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 66 | | 55 | | SITC of Fully Digital Chairman Unit - Table Top/Flush Mounted, inclusive of pluggable/fixed unidirectional microphone minimum approx. 15" (400mm) stem length, press-to-talk key, in-built speaker, should have 2 buttons – one for Mic on/off and one for Priority, and RJ45 socket or OEM specific standard connectivity | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 67 | | 56 | | SITC of Fully Digital Delegate Unit - Table Top/Flush Mounted, inclusive of pluggable/fixed unidirectional microphone minimum approx. 15" (400mm) stem length, press-to-talk key, in-built speaker, should have 1 microphone button, and RJ45 socket or OEM specific standard connectivity | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 68 | | 71 | | SITC of min. 22 Channel high performance Audio Mixer unit with 16 Mic/Line + 4 Mic/Stereo Line Channels, 4 x AUX, USB-Audio Interface, with integrated digital FX processors and Dual Graphic- EQ's, low noise and low distortion discrete microphone preamps built-in, Group-switch- able +48V phantom power | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 69 | | 74 | | SITC of 1x15" or better passive subwoofer Max power handling capacity of 1600 Watts with 8 Ohm impedance. Inclusive of all mounting brackets, assemblies, hardware and standard accessories for portable /outdoor application | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| 70 | | 75 | | SITC of Class D Power Amplifier, 2 x 600 W, selectable 8 ohms operation. Power @ 70/100V, 450W or better, supporting short circuit, thermal, and under-voltage protection, 1U/2U form factor | BOQ item description no matching with tender Specification. Kindly amend BOQ | Kindly refer to the corridengum issued |
| | | | | | | Kindly refer to the corridengum issued |
| 71 | Bidder 7 | Financial bid 24042021 | | | We request you to please clarify the discrepancies between the description of items in percentage price bid (Financial bid 24042021) and specification mentioned in RFP | Kindly refer to the corridengum issued |
| 72 | | Specifications 5C | | | We request you to please clarify the discrepancies between the specification as mentioned in Specifications 5C and specification mentioned in RFP | Kindly refer to the corridengum issued |
| 73 | | Last time and date of submission of bid 22.05.2021 up to 3.30 pm (as per e-tender portal) | Pg No 5 | | We request for extension of date of bid submission by at least 20 day from bid submission date | NIT Condition shall prevail. |
| 74 | | Site is located along the Patna - Rajgir Highway and is well connected with the city of Rajgir, Bihar. Total area of the site is approximately 455 acres ("Site") | Pg No 6 | | The work site is in a remote location, is it possible for Nalanda University to provide lodging and food within the campus. Charges shall be borne by us | NIT Condition shall prevail. |
| 75 | | i, Nalanda University, Rajgir, Bihar shall release 80% of the payment on delivery of the tendered items at the site store as per the FDCC issued ii. Payment of 20 % of the purchase order value will be made after the satisfactory successful installation and commissioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar. The delivery and installation at site(s) must be completed within 270 days from the date of placement of supply order by Nalanda University, District Nalanda, Rajgir, and Bihar. It is mandatory for the bidders who respond to this bid to meet these expectations as time is the essence of this contract and is tightly linked to completing the project within the available time frame | Pg No 13 | | Please increase the time given for the execution of the project by 100 days, keeping in mind the Covid-19 pandemic that has had a resurgence in the past few months | NIT Condition shall prevail. |
| 76 | | i, Nalanda University, Rajgir, Bihar shall release 80% of the payment on delivery of the tendered items at the site store as per the FDCC issued ii. Payment of 20 % of the purchase order value will be made after the satisfactory successful installation and commissioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar | Pg No 25 | | We request to amend payment terms as follows: i. Nalanda University, Rajgir, Bihar shall release 90% of the payment against delivery pro rata basis of the tendered items at the site store as per the FDCC issued ii. Payment of 10 % of the purchase order value will be made after the satisfactory successful installation and commissioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar | It is clarified that Nalanda University, Rajgir, Bihar shall release 80% of the pro rata payment on delivery of the tendered items at the site store as per the FDCC issued ii. Payment of 20 % of the purchase order value will be made after the satisfactory successful installation and commissioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar |
| 77 | | 4. Audio Standards and Features - It should support G.711, G.728, G.729A, G.722, G.722.1, AAC-LD or better | Pg No 80 | | We request to amend Audio Standards and Features as follow - It should support G.711, G.729A, G.722, G.722.1, AAC-LD or better | No change, NIT Specification shall prevail |
| 78 | | Microphone and Speaker -Should support at least one external tabletop microphone from same OEM | Pg No 81 | | We Request you to amend Microphone and Speaker feature as follow Should support at least 4 Internal / one external tabletop microphone from same OEM | No change, NIT Specification shall prevail. |
| 79 | | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum | Pg No 95 | | We request you to amend the specification of control cable as follow Minimum 4 core twisted pairs cable with individual drain wires or 4x0.5sqmm copper cable for serial control/audio signals, non-plenum | Change accepted, Kindly see the corrigendum issued |
| 80 | | Encryption: ● WEP – 64 and 128 bit, TKIP-MIC RC4 40 bit, 104 bit and 128 bit, SSL & TLS: RC4,128-bit ● PHY data rates up to 2.1Gbps per AP ● Support for band steering, client load balancing, LLDP | Pg No 99 | | We request you to amend the specification as follow: Encryption ● WEP – 64 and 128 bit, TKIP-MIC RC4 40 bit, 104 bit and 128 bit, ● PHY data rates up to 2.1Gbps per AP ● Support for band steering, client load balancing | Change accepted, Kindly see the corrigendum issued |
| 81 | | 85" Interactive White board (for smart classroom) with professional stylus | Financial bid- RA 82 | | We request you to amend board size from 85 inch to 82 inch or higher and make it generic, so that all the mentioned make can comply | Change accepted, Kindly see the corrigendum issued |

| | | | | | | Please clarify the exact BOQ as there are contradiction between Financial Item descriptions and ten-der document specifications | Kindly refer to the corridengum issued |
|---|---|---|---|---|---|---|---|
| 82 | Bidder 8 | | Financial bid 24042021 | | | | |
| 83 | | | Specifications 5C | | | Please clarify the exact BOQ as there are contradiction between Financial BOQ and specification of final tender document | Kindly refer to the corridengum issued |
| 84 | | | Bid submission date Last time and date of submission of bid: 22 05 2021up to 3 30 pm (asper e-lender portal) | Pg No 5 | | Please increase the last date of bid submission by 30 days from date of corrigendumm | |
| 85 | | | Part-1 "Technical Bid" The Bidder or their authorized personnel should have conducted a site survey The details of the same should be furnished as per Form G | Pg No 10 | | Please clarify if site survey report is mandatory prior to bid submission | Site survey and form G has been made optional |
| 86 | | | Bidder Eligibility | Pg No 15 | | Please allow for the contract values to be increased and brought to current costing at the rate of Inflation as per CPWD guidelines | It is clarified that The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the previous day of the last day of submission of the Tender |
| 87 | | | Payment terms । Nalanda University. Rajgir, Bihar shall release 80% of the payment on delivery of the tendered items at the site store as per the FDCC issue dii Payment of 20 % of the purchase order value will be made after the satisfactory successful installation and com-missioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar | Pg No 25 | | Please consider releasing 10% of the overall contract price as mobilization advance along with the Purchase order. The mobilization advance can be adjusted against the following bills payment against delivery on pro rata | No change, NIT Specification shall prevail |
| 88 | | | TABLE TOP MOUNTABLE DOCUMENT CAMERA Full HD/1080p, Table Top Mountable Document Camera with minimum 14 x optical zoom —1 x HDMI or DVI output and 1 x LAN port DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable | Pg No 76 | | Please remove 1 x LAN port feature of specification of Table Top Mountable Document Camera as this feature not found in table top mount document camera | Change accepted, Kindly see the corrgendum issued |
| 89 | | | Video conference system8 Camera -It should support PAN Range of +/-100°, and Tilt of +20°/- 30° & Minimum 10 camera presets | Pg No 78 | | Please amend this clause as-It should support PAN Range of +/-100°, and Tilt of +20°/- 20° & Mini-mum 10 camera presets | Change accepted, Kindly see the corrgendum issued |
| 90 | | | Video conference: 8 Camera8 Camera -The VC System should be a dual camera/two camera system with both cameras of minimum 10X Optical Zoom to provide automatic voice and speaker framing of the active speaker in the room with a range up to 32 feet. It should be possible to send both active speakers in zoomed mode and room view in PIP to far side location during a VC call in a single stream. It should be possible to cascade two such camera system to cover larger room. | Pg No 79 | | Please consider increasing the budget allocated to the video conferencing system: -As the specification mentioned for the system are very high end and as much the specified system will cost way higher than the allocated budget | Kindly refer to the corridengum issued |
| 91 | | | Video conference system5. Video and Audio Outputs -2 x HDMI output for connecting primary and secondary 4K(UHD)/Full HD displays. | Pg No 80 | | Please amend this clause as-Video and Audio Outputs -1 x HDMI output for connecting primary and secondary 4K (UHD)/Full HD displays | No change, NIT specification shall prevail |
| 92 | | | Video conference system. The camera should support automatic speaker framing and people framing | Pg No 80 | | Please amend this clause as -The camera should support autcmatic speaker framing / people framing | No change, NIT specification shall prevail |
| 93 | | BOQ item no-RA-82 | | | Size of Interactive white board with stylus for class room is Mentioned 85", when-ever makes which are mentioned for this category do not manufacture 85-inch board | So request you to please consider minimum 82-inch or above for board size | Change accepted, Kindly see the corrigendum issued |
| 94 | | | Clause -16 PORT POE LAYER 2 MANAGEABLE NETWORKING SWITCHLayer2 manageable networking switch, minimum 16 # 10/100/1000Tx ports, all ports capable of providing PoE+ as per 802 3at, switch having a PoE power budget of minimum 350 Watts, minimum 2 dedicated SFP ports | Pg No 96 | | Please clarify the POE power budget for 16 port PoE manageable switch as it is mentioned as Mini-mum 350 watts in one place and Minimum 245 watt in another place | Change accepted, Kindly see the corrgendum issued |
| 95 | | | Commercial price schedule SITC of Annotation Device having minimum 2 x HDMI inputs and minimum 2 x HDMI outputs Device shall be capable of printing captured content with the help of a printer. | Pg No: 114 | | Please remove annotation device from the Bill of quantity as the same can be achieved using touch annotator monitor and PC/ computer | No Change If the purpose is sufficiently met by the annotation built-in software in the podium touch monitor, the competent authority at a later stage may issue necessary amendment to the contractor |
| 96 | Bidder 9 | | | | SITC of Lecture Recording and Streaming device having minimum three video inputs - 2 x HDMI and 1 x HDMI/HD-SDI as per OEM, minimum 1 x audio feed port & 1 x HDMI output for confidence monitor and 1 x RJ-45 (LAN) port for streaming and recording application | Your prestigious orgazniation have asked for minimum 3 Inputs in the systems but have not mentioned how amny sourcs can be recorded and streamed in PIP form simultaneously in single frame. We request you to kindly incorporate that the system should be able to record and stream upto minimum 3 Full HD Video Sources simultaneculsy in single frame | Change accepted, Kindly see the corrigendum issued |
| 97 | | | | | SITC of Full HD/1080p, Table Top Mountable Document Camera with minimum 14x optical zoom — 1 x HDMI or DVI output DVi models shall be acceptable with external DVi to HDMI converter interface unit or cable | Your prestigious organziation has asked for LAN port in the portable document camera LAN Ports are not available in any of the Portable Document Cameras and is avaialbe only in Ceiling Mount Document Cameras We request you to kindly remove LAN Port from the Portable Document Camera | Change accepted, Kindly see the corrigendum issued |
| 98 | Bidder 10 | BOQ ITEM NO 2 | | | 3 I/P SWITCHER PLUS TRANSMITTER WITH AUDIO EMBEDDING | | |

| | | | | | Specification | Query | Response |
|---|---|---|---|---|---|---|---|
| 99 | | | | | 3 I/P Switcher cum Transmitter with Audio embedding, supporting video output on a cable length up to 330 ft. (100 meters) on CAT6; Input: 2 x HDMI, 1 x VGA + Audio 3.5mm; Output: 1 x HDBaseT, video output shall be on a single CAT6 shielded twisted pair cable; Auto switching between inputs, the device shall be HDCP compliant and with EDID support | Kindly note VGA is no more used, so request to remove that and can include DP if required which is available in laptops | Change accepted, Kindly see the corrigendum issued |
| | | | | | Input signals requirements : Minimum 2 x HDMI, 1 x VGA on 15-pin D + 1 x unbalanced analog audio on 3.5mm connector | | |
| | | | | | Output signals requirements : 1 x RJ-45 connector for HDBaseT output to be transmitted over CAT6 based shielded twisted pairs cable | | |
| | | | | | Video transmission: shall support video transmission over CAT6 up to 100 meters (330 feet), 1080p, 4K video resolution support. | Resolution should be 4K60 4:4:4, as this is the latest resolution avaible in market and proposed solution should be capable of handling this | Change accepted, Kindly see the corrigendum issued |
| | | | | | Other ports: minimum 1 x RJ-45 based Ethernet port supporting TCP/IP at minimum 100Mbps, 1 x RS232 port for device control/data injection over HDBaseT, 1 x USB port for service control | | |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly help to modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change , Please refer to NIT specification |
| 100 | | BOQ ITEM NO. 3 | | | HDMI TWISTED PAIR RECEIVER | | |
| | | | | | HDMI Twisted Pair Receiver, for receiving HDMI, RS232 & IR control up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45; Outputs: One HDMI; the device shall be HDCP compliant and with EDID support | | |
| | | | | | The device shall receive HDMI plus control signal up to 230 feet (70 meters) over a shielded twisted pair CAT6 cable | Kindly modify the distance from 230feet (70 meters) to 330 ft (100 m) which is industry standard and common with other OEM | No change , Please refer to NIT specification |
| | | | | | Input: 1 x twisted pair on RJ-45 | As transmitter used are HDBT certified, Input should be modified as 1 x twisted pair and HDBT certified for compatibility | No change , Please refer to NIT specification |
| | | | | | Outputs: 1 x HDMI, 1080p, 4K video resolution support | Resolution should be 4K60 4:4:4, as this is the latest resolution avaible in market and proposed solution should be capable of handling this | Change accepted, Kindly see the corrigendum issued |
| | | | | | Shall be able to accept additional RS232 and IR signals over CAT6 cable | | |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change , Please refer to NIT specification |
| 101 | | BOQ ITEM NO. 5 | | | HDMI ACTIVE WALL PLATE | | |
| | | | | | HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft (70 meters), device should support HDCP and EDID transmission | | |
| | | | | | The device shall transmit HDMI plus control signal up to 70 meters over a twisted pair shielded CAT6 cable | Kindly modify the distance from 230feet (70 meters) to 330 ft (100 m) which is industry standard and common with other OEM | No change , Please refer to NIT specification |
| | | | | | Inputs: 1 x HDMI | The input resolution is 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| | | | | | Output: 1 x Twisted pair output on RJ-45 | Kindly modify the same as 1.1: Output signals requirements : 1 x RJ-45 connector for HDBaseT output to be transmitted over CAT6 based shielded twisted pairs cable | Kindly see the corrigendum issued. |
| | | | | | The device shall be capable of transmitting RS232 and IR signals over CAT6 cable | | |
| | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change , Please refer to NIT specification |
| 102 | | BOQ ITEM NO. 7 | | | WIRELESS PRESENTOR SYSTEM | | |
| | | | | | Wireless Presentation Unit of HD content using laptops, tablets, and smartphones; Compatible with Windows OS X, Apple iOS, and Android; Supports 4K display resolutions; shall provide minimum 1 x HDMI output | | |
| | | | | | Wireless connection for up to 24 devices | Request to modify to 10 devices | NIT specification shall prevail |
| | | | | | Should support Web Browsers such as internet Explorer, Mozilla and Chrome | | |
| | | | | | Should support third party app such as Microsoft Office®, Skype®, goto meeting®, Lync®, and webex® | Kindly add Zoom as well | No change , NIT specification shall prevail. |
| | | | | | Simultaneous content display:- 4 user or higher | Request to modify it to 2 user or higher, two content can be from any platform either PC of Mobile phones | NIT specification shall prevail |
| | | | | | Supported Operating System - Windows / Android / Mac | | |
| | | | | | Should have minimum 1 x HDMI output | | |
| | | | | | Should have Audio output | | |
| | | | | | Should have minimum 1 x USB port | | |
| 103 | | BOQ ITEM NO. 8 | | | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 3 x video and 1 x audio | | |
| | | | | | HDMI scalar cum matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 DVI-U (HDMI, DVI, VGA supported) and minimum two video outputs | Kindly modify as: HDMI matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 HDMI / DVI-U (HDMI, DVI, VGA supported) and minimum two video outputs | No change , NIT specification shall prevail |
| | | | | | - 2 x HDMI with parallel 2 x CAT6, 1 x audio output. It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | Kindly help to confirm what port need to be considered in 2 outputs, as output asked is only two but here its mentioned as 2xHDMI with parallel 2x CAT6 output | Change accepted, Kindly see the corrigendum issued |
| | | | | | Input signals requirements: minimum 4 x HDMI plus minimum 2 x CAT6 & 2 DVI-U (HDMI, DVI, VGA supported) inputs for accepting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable | | |
| | | | | | Output signals requirements: minimum 2 x HDMI with parallel 2 x CAT6 output for transmitting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable | Kindly help to confirm what port need to be considered in 2 outputs, as output asked is only two but here its mentioned as 2xHDMI with parallel 2x CAT6 output | Change accepted, Kindly see the corrigendum issued |

| | | | | | | Specification | Query / Request | Response |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, 1 RS232 port for data injection over HDBaseT | Please modify 1 x RS232 port for device control as 1 x RS232 / RJ45 port for device control | Change accepted, Kindly see the corrigendum issued |
| | | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard, also add CAT6 input output should be HDBT certified for compatibility | No change, NIT specification shall prevail |
| | | | | | | The device shall support automatic input selection via last detected input source | | |
| | | | | | | Resolutions supported – minimum up to 4K | Kindly help to mention the supported resolution is 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 104 | | BOQ ITEM NO. 9 | | | | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 2 x video and 1 x audio | Kindly note VGA is outdated technology, Request you to remove or change it to DP/USBC | It is clarified that under VGA you may offer VGA/DP/USBC |
| | | | | | | HDMI scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, 2 x DisplayPort and minimum 2 x HDMI outputs, It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | Kindly modify as HDMI matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, 2 x DisplayPort and minimum 2 x HDMI outputs, It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | No change, NIT specification shall prevail |
| | | | | | | Input signals requirements: minimum 4 x HDMI plus minimum 2 x VGA+Audio, 2 Display Port | | |
| | | | | | | Output signals requirements: minimum 1 x HDMI with parallel Display Port output, 1 HDMI with parallel VGA output | Kindly help to mention the parallel outputs as optional as this is specific to one OEM, although VGA output is no where utilised in the solutions | Change accepted, Kindly see the corrigendum issued |
| | | | | | | Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, Data injection over HDBaseT | Kindly modify 1 x RS232 port for device control as 1 x RS232 / RJ45 port for device control | Change accepted, Kindly see the corrigendum issued |
| | | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard, also add CAT6 input output should be HDBT certified for compatibility with other devices | No change, NIT specification shall prevail |
| | | | | | | The device shall support automatic input selection via last detected input source | | |
| | | | | | | Resolutions supported – minimum up to 4K | Kindly help to mention the supported resolution as 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 105 | | BOQ ITEM NO. 10 | | | | 1 x 8 HDMI DISTRIBUTION AMPLIFIER | | |
| | | | | | | 1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant | | |
| | | | | | | Input signals requirements: minimum 1 x HDMI | | |
| | | | | | | Output signals requirements: minimum 8 x HDMI | | |
| | | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Kindly modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change, NIT specification shall prevail |
| | | | | | | Resolutions supported – minimum up to 4K | Kindly help to mention the supported resolution is 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 106 | | BOQ ITEM NO. 11 | | | | 1 x 4 HDMI DISTRIBUTION AMPLIFIER | | |
| | | | | | | 1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant | | |
| | | | | | | Input signals requirements: minimum 1 x HDMI | | |
| | | | | | | Output signals requirements: minimum 4 x HDMI | | |
| | | | | | | Video standards supported: the unit shall be EDID & HDCP compliant | Please modify HDCP compliant as HDCP 2.2 support, as this is the standard for protecting the content and should be as per to industry standard | No change, NIT specification shall prevail |
| | | | | | | Resolutions supported – minimum up to 4K | Kindly help to mention the supported resolution as 4K 60 4:4:4, as our system should be capable and ready for the latest resolution available in market | Change accepted, Kindly see the corrigendum issued |
| 107 | | BOQ ITEM NO. 13 | | | | WIRED CONTROL PANEL | | |
| | | | | | | podium mountable, minimum 12-Button wired control panel for controlling various devices; it shall have - one volume control knob; minimum 3 x RS 232, 4 x Relays and 2 x IR ports, 2 I/O, 1 x LAN, to control the devices | | |
| | | | | | | A wired button control panel shall be provided for control of devices - minimum 12 buttons or more, with required no. of RS232, IR and RJ-45 based Ethernet IP Ports to control up to 1 projector, 1 screens, 1 - video switcher, 1 annotation processor, 1 video recording device, 1 – 3 input transmitter + receiver for (input switching) and audio system DSP as per the requirements of individual room | | |
| | | | | | | However, following minimum requirement of ports shall be met: | | |
| | | | | | | Should have minimum 1 x Ethernet on RJ45 for monitoring and control over TCP/IP protocols, supporting minimum Fast Ethernet (10/100Mbps) speeds | | |
| | | | | | | Should have minimum 3 x bi-directional RS232 ports for control | | |
| | | | | | | Should have minimum 2 x IR ports (source/emitter ports) | | |
| | | | | | | Should have minimum 4 x relay ports | | |
| | | | | | | Should have minimum 2 x I/O ports | | |
| | | | | | | Should have minimum 1 x IR sensor for reading IR commands from devices | Please clarify the desired functionality against this feature 1 x IR Sensor | 1 x IR sensor required for reading IR commands from devices |
| | | | | | | Should have minimum 12 x programmable buttons with backlighting/LED indication for various AV control functions assignments, including input selections | | |
| | | | | | | Should have minimum 1 x rotary dial/knob for volume control | | |

| | | BOQ ITEM NO. 41, 42, 43 & 57 THRU 66 | | | Various AV Cables | | |
|---|---|---|---|---|---|---|---|
| 108 | | | | | Cables should meet following minimum specifications or better: | | |
| | | | 1 Microphone Cable | | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum | | |
| | | | 2 Speaker Cable | | 14 AWG Speaker Cable in existing conduit Two X 14 AWG conductors, High performance cable for audio signals. Non-Plenum | | |
| | | | 3 | | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum | | |
| | | | 4 HDMI Cables (1.5mtr/5ft,5mtr/15ft, 10mtr/30ft,15mtr/50ft, 20mtr/75ft) | | Male to Male - Moulded Connector, 1080p/60 verified. Gold plated contacts | Kindly help to mention the supported resolution is 4K 60 4:4:4 for HDMI cable upto 20 feet and 4K 60 4:2:0 for cable above 25 feet, as our system should be capable and ready for the latest resolution | No change, NIT specification shall prevail |
| | | | 5 VGA with Audio (1.5mtr/5ft) | | Male to Male VGA Cables With Audio- Moulded Connectors. VGA Cable: 15-pin HD Male to Male Moulded & Mini Stereo Audio Cable: 3.5 mm Stereo- 6' (1.5 m) | | |
| | | | 6. VGA Cable (5mtr/15ft,10mtr/30ft) | | Male to Male VGA Cables - Moulded Connectors. High performance cable designed for transmission of computer video and ID bit signals, Pin 9 is passed through from end to end, Terminated with high quality VGA moulded connectors | | |
| | | | 7 Shielded Twisted Pair, Cable | | 24 AWG solid copper construction Shielded Twisted Pair Cable, SF/UTP design with four unshielded twisted pairs inside an overall braid and foil shield, IEEE/EIA/TIA 568-C2 | Kindly help to add minimum CAT7 cable for which is required for transporting 4K 60 4:4:4 resolution at 100 meters. Should be supplied with required connectors Also please modify from 24AWG, kindly change this to 22AWG for us to comply. | No change, NIT specification shall prevail |
| 109 | Bidder 11 | | Fully Digital Chairman Unit | | Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy chain cabling, Audio Quality 16Bit digital, Frequency Response: 30Hz- 15kHz,Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length | We humbly request specification read as Fully Digital Chairman Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy chain cabling, Audio Quality 16Bit digital, Frequency Response: As per OEM ,Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length • 4.3 inch capacitive touch screen and built-in NFC reader for fast recognition of participants • Speaker list and Request list • Custom logo • Additional functionality by use of software licenses only – Identification functionality – Voting – Select language – Dual use • Basic meeting control for chairperson ı Start / stop recording ı Meeting state control ı Voting session control ı Agenda control | No change , NIT Specification shall prevail |
| 110 | | | Fully Digital Conference Control Unit | | Fully Digital Conference Control Unit (minimum 50 units) Central Conference Controller with integrated Recording facility &amp; Web Server for control, built-in Digital Signal Processing, control up to minimum 50 Discussion Unit and expandable up to 150 Discussion Unit , USB port to connect USB Storage Device for Direct Recording of the Meeting, LCD display to implement several Conference Mode: Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input &amp; Output for connectivity with external system, LAN connection for web server or camera control protocol,4 digital RJ 45 ports, XLR out, XLR in, RCA in and two RCA out, Power connector with locking, complete with External power supply. OEM- specific cable shall be inclusive | We humbly request specification read as Fully Digital Conference Control Unit (minimum 50 units) Central Conference Controller with integrated Recording facility &amp; Web Server for control, built-in Digital Signal Processing , control up to minimum 50 Discussion Unit and expandable up to 150 Discussion Unit , USB port to connect USB Storage Device for Direct Recording of the Meeting, LCD display to implement several Conference Mode: Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input &amp; Output for connectivity with external system, LAN connection for web server or camera control protocol,4 digital RJ 45 ports, XLR out, XLR in, RCA in and two RCA out, Power connector with locking, complete with External power supply. OEM- specific cable shall be inclusive. Should be able to interface with Dante card for digital out for future propose, Should be upgradable for Software like, Voting , Language Interpretation ,Bluetooth , Dual use Software should be provided by OEM for Delegate Information, Signage, Meeting Reports Room Layout , Manage the speaker list , Manage request list with drag and drop re-ordering capability | No change , NIT Specification shall prevail |

*Bhanhan* (signature)

| # | Bidder | BOQ | | | Specification | Query | Response |
|---|---|---|---|---|---|---|---|
| | | | Fully Digital Delegate Unit | | Fully Digital Delegate Unit<br>Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital Frequency Response 30Hz- 15kHz, Screw-lock socket Microphone connection etc. complete with interconnecting cables of 2m length | We humbly request specification read as :<br>Fully Digital Delegate Unit<br>Digital Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital  Frequency Response  As per OEM ,Screw-lock socket Microphone connection etc. complete with interconnecting cables of 2m length<br>• 4 3-inch capacitive touch screen and built in NFC reader for fast recognition of participants<br>• Speaker list and Request list<br>• Custom logo<br>• Additional functionality by use of software licenses only<br>– Identification functionality<br>– Voting<br>– Select language<br>– Dual use | No change , NIT Specification shall prevail. |
| 111 | | | | | | | |
| 112 | Bidder 12 | BOQ No. 44 | | | 10 x 6 AUDIO DSP (with AEC feature)<br>Support 24 channels of AEC processing, Built in 64 x 64 DANTE channel, dual-redundant DANTE/AES67 audio transport, USB Audio Interface 24Bit, 48Khz, Frequency Response 20Hz to 20KHz, Dynamic range: > 105 dB, Ethernet Port, RS232 connector for interfacing with 3rd party control systems, 6 No's or better GPIO, Embedded media engine for audio playback and recording etc complete with accessories | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions | Kindly refer to corridengum issued |
| | | | | | • No. of Inputs Channels  should have minimum 10 mic/line inputs | | |
| | | | | | • Audio Input DC Phantom Power  should have +48 VDC | | |
| | | | | | • Audio Output Interface: should have minimum 6 balanced/unbalanced outputs | | |
| | | | | | • 24 channels of Acoustic echo cancellation (AEC) shall be supported on single DSP | As per the Inputs requested within the device no one single device from Approved makes may provide 24CH AEC in one device, either they need to use expanders or additional DSP. Please confirm on the exact no of AEC Inputs required in a project, So the vendors may decide on the device capabilities and suggest accordingly. | Minimum 16 AEC input is required instead of 24 port input AEC block  Kindly refer to corrigendumm issued |
| | | | | | • Dante channel of 64x64 shall be supported | | |
| | | | | | • It shall have USB audio interface port | | |
| | | | | | • Control Interface : Minimum 1 x RS232 for third party control, 1x RJ-45 based Ethernet port supporting TCP/IP for configuration. 6 x GPIO ports | | |
| | | | | | • Gain Range : 0 to +66 dB with step 6 dB | | |
| | | | | | • Frequency Response : should be between 20 Hz to 20 kHz | | |
| | | | | | • THD + Noise : should have <0.005%, 20 Hz to 20 kHz | | |
| | | | | | • Input Impedance : should be minimum 10K ohm or better | | |
| | | | | | • Output Impedance : should be 200 Ohms or better | | |
| | | | | | • Dynamic range : should have >105 dB, 20 Hz to 20 kHz | | |
| | | | | | • Mounting Type : should be rack mountable | | |
| 113 | | BOQ No. 45 | | | 8 x 3 AUDIO DSP<br>8x3 DSP - Digital Processors with 4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input; 1 stereo and 2 mono outputs; 2-channel USB audio interface, Full digital processing on inputs and outputs; Dynamic Range 110 dB or higher, Onboard 6 nos. acoustic echo canceler (AEC) processing ; Front panel direct operation and Web Remote functionality; LAN Port for third-party control | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions | Kindly refer to corridengum issued |
| | | | | | • No. of Inputs Channels: should have minimum 4 mic inputs, 2 Mic/Line Inputs and 1 x Stereo input | | |
| | | | | | • Audio Input DC Phantom Power  should have +48 VDC | | |
| | | | | | • Audio Output Interface: should have minimum 1 Stereo and 2 mono outputs | | |
| | | | | | • Control Interface: Minimum 1 x RJ-45 based Ethernet port , 1 x USB Interface | | |
| | | | | | • Maximum Gain : 64 dB | | |
| | | | | | • Frequency response : should be between 20 Hz to 20 kHz | | |
| | | | | | • THD + Noise : should have <0.03%, 20 Hz to 20 kHz | | |
| | | | | | • Input Impedance : should be minimum 10K ohm or better | | |
| | | | | | • Output Impedance : should be 150 Ohms or better | | |
| | | | | | • Dynamic range : should have >110 dB | | |
| | | | | | • Mounting Type : should be rack mountable | | |
| 114 | | BOQ No. 46 | | | 30W Ceiling Mount Speaker<br>full-range or 2-way minimum 4" ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 80 Hz - 19 kHz (-10dB), Power handling@70/100V 30W or better, Sensitivity  SPL/W@1 Mtr - 86 db or better, Max SPL@1 Mtr - 100dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories. | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions<br><br>The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corridengum issued |
| | | | | | • Frequency range (-10dB) : should be between 80 Hz to 19 kHz or better | Frequency above 16K is not perceptible to Human ears, hence doesn't make sense to ask for 19K Please allow to lower the same to 16K, so the other vendors may quote | Kindly refer to corridengum issued |

| | | | | Specification | Query | Response |
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| | | | | ● Power Rating : minimum 30 W or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Maximum Peak SPL @ 1m : 100dB or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Drivers: Full range driver or 2-way - minimum 1 x 4" LF Driver & minimum 1 x 0.75" HF Driver | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Coverage (conical): 100 degrees or higher | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Sensitivity 1W @1m : 86dB or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Impedance : 4/8 Ohms or 70/100V tapping operation | | |
| 115 | | BOQ No. 47 | | 30W Surface/Wall Mount Speaker Full-range, minimum 4"-5" LF or better surface/wall mount loudspeaker, 4 to 8 ohms low impedence and 70V/100V operation, Frequency Response - 60 Hz - 19 KHz (-10dB), Power handling@ 70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 84 dB SPL or better, Max SPL(peak) - 106dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions | Kindly refer to corridengum issued |
| | | | | ● Frequency range (-10dB) : should be between 60 Hz to 19 kHz or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Power Rating : minimum 30 W or better | | |
| | | | | ● Maximum Peak SPL @ 1m : 106dB or better | | |
| | | | | ● Drivers: Full range driver or 2-way - minimum 1 x 4"-5" LF Driver & minimum 1 x 0.75" HF Driver | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Coverage (conical): 110 degrees or higher | | |
| | | | | ● Sensitivity 1W @1m : 84dB or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Impedance : 4 to 8 Ohms and 70/100V tapping operation | | |
| 116 | | BOQ No. 48 | | 100 Watt Column Loudspeaker Passive Multidriver Column Array Speaker with 5 or more Full range drivers with power output 100 Watt @ 70V /100V , frequency response : 130 Hz - 15 kHz (-10 dB), Sensitivity : SPL/W@1 Mtr - 89 dB SPL or better, Max SPL (peak) 116 dB or better, Coverage - 120 degree Horizontal x 30-45 degree Vertical and inclusive of Pan Tilt Wall mounting brackets, assemblies, hardware and standard accessories | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions<br><br>As far as the Column arrays are considered, lesser than 8 drivers may results in improper LF controls and din't perform well. Hence, Request you to please re-look in the minimum driver requirements to 8 or better | Kindly refer to corridengum issued |
| | | | | ● Frequency range : should be between 130 Hz to 15 kHz or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Power Rating : minimum 100 W or better@70V/100V | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Maximum Peak SPL @ 1m : 116dB or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Sensitivity 1W @ 1m : 89dB or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| | | | | ● Coverage (conical): 120H x 30-45 V degrees or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Change accepted, Kindly see the corrigendum issued |
| | | | | ● Driver : 5 or more full range drivers or combination of LF/HF | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change , NIT Specification shall prevail |
| 117 | | BOQ No. 49 | | Four Channel Power Amplifier 4 x 240 W Multi Channel Class D Power Amplifier with DANTE and Energy Star Certification delivering 4 x 240 W , Selectable 4/8 Ohms or 70V/100V operation , distortion <0.05%, Frequency response 20 Hz to 20 kHz, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions<br><br>The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete<br><br>Also commenting on to Dante Requirements, whether this one is required for this application, as dante requirements may lead to huge surge in the prices of Amplifiers | Kindly refer to corridengum issued |
| | | | | ● Frequency Response : should be between 20 Hz to 20 KHz | | |
| | | | | ● No. of Channels : should have 4 channels or equivalent | | |
| | | | | ● Output Power per Channel: minimum 240 Watts per channel | | |
| | | | | ● Should have DANTE Networking port | | |

| # | | BOQ | | | Specification | Vendor Query | Response |
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| | | | | | • selectable 4/8 ohms or 70/100V operation | | |
| | | | | | • S/N Ratio : > 101 dBA | | |
| | | | | | • THD 20 Hz - 20 kHz, 1 W : less than 0.1% | | |
| | | | | | • Channel Separation (Crosstalk) : > 72 dB | | |
| | | | | | • Amplifier Class: Class D Amplifier | | |
| | | | | | • Cooling requirement: temperature level controlled fans for front to rear airflow. | | |
| | | | | | • Protection: should have overload protection, Thermal Protection etc. | | |
| | | | | | • Should have energy star certification | | |
| 118 | | BOQ No: 50 | | | Dual Channel Power Amplifier 2 x 60 W Dual Channel Commercial Class D Amplifier with DANTE and Energy Star Certification delivering 2 x 60 W @ 4/8 Ohms and 70V/100V, distortion <0.05%, Frequency response 20 Hz to 20 kHz, +0.5 / -1 dB, Crosstalk >72 dB, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions. The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete. Also commenting on to Dante Requirements, whether this one is required for this application, as dante requirements may lead to huge surge in the prices of Amplifiers | No Change, Kindly refer NIT specification |
| | | | | | • Frequency Response : should be between 20 Hz to 20 KHz | | |
| | | | | | • No. of Channels : should have 2 channels | | |
| | | | | | • Output Power per Channel: minimum 60 Watts per channel | | |
| | | | | | • Should have DANTE Networking | | |
| | | | | | • selectable 4/8 ohms or 70/100V operation | | |
| | | | | | • S/N Ratio : > 101 dBA | | |
| | | | | | • THD 20 Hz - 20 kHz, 1 W: less than 0.1% | | |
| | | | | | • Channel Separation (Crosstalk) : > 72 dB | | |
| | | | | | • Amplifier Class: Class D Amplifier | | |
| | | | | | • Cooling requirement: temperature level controlled fans for front to rear airflow. | | |
| | | | | | • Protection: should have overload protection, Thermal Protection etc. | | |
| | | | | | • Should have energy star certification | | |
| 119 | | BOQ No: 73 | | | 1x12" OR DUAL 8" PASSIVE LOUDSPEAKER Full Range Two way Passive 12" or Dual 8" loudspeaker with RMS power 200 W or better, 8 Ohms, Frequency Range (-10 dB) 55 Hz - 20 kHz, System Sensitivity 97 dB or better , Coverage 90-100 Degree(H), 80-90 degree(V), Maximum SPL 126 dB Peak or better, birch plywood enclosure, Complete with accessories etc | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions. The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corndengum issued |
| | | | | | • Frequency range: should be between 55 Hz to 20 kHz or better | | |
| | | | | | • Power handling capacity (RMS/Peak): minimum 200W/800 W or better | | |
| | | | | | • Maximum Peak SPL : 126dB or better | | |
| | | | | | • Sensitivity 1W @ 1m: 97dB or better | | |
| | | | | | • Coverage (conical): 90-100H x 80-90V degrees or better | | |
| | | | | | • Driver: 1 x 12" or 2 x 8" LF, 2-way or better | | |
| | | | | | • Impedance: 8 Ohms or better | | |
| | | | | | • Enclosure: Birch Plywood with Built-in In Hanging Inserts | | |
| 120 | | BOQ No: 74 | | | Dual 8" Passive Subwoofer Compact Low Profile dual 8" Subwoofer with RMS power 400 W or better, 8 ohms, Frequency Range (-10 dB) 40 Hz - 200 Hz, System Sensitivity 97 dB or better, Maximum SPL 129 dB peak or better, 2 x 8" bass driver, birch plywood enclosure, Complete with accessories etc | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions. The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corridengum issued |
| | | | | | • Frequency range: should be between 40 Hz to 200 Hz or better | | |
| | | | | | • Power handling capacity (RMS/Peak) minimum 400W/1600 W or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete. | Kindly refer to corridengum issued |
| | | | | | • Maximum Peak SPL @ 1m : 129dB or better | | |
| | | | | | • Sensitivity 1W @ 1m: 97dB or better | | |
| | | | | | • Driver: 2 x 8" LF or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corridengum issued |
| | | | | | • Impedance: 8 Ohms or better | | |
| 121 | | BOQ No: 75 | | | Dual Channel Power Amplifier with DSP Dual Channel power amplifier with Integrated DSP delivering 1200 W @ 4 Ohms, THD + N 20 Hz- 20 kHz for 1 W <0.01%, Signal-to-Noise ratio >102 dBA , Frequency Response 20 Hz- 20 kHz, LAN port for Control and software Graphic User interface for setting parameters | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions. The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corridengum issued |
| | | | | | • Frequency Response: should be between 20 Hz to 20 KHz or better | | |
| | | | | | • No. of Channels: should have minimum 2 channels | | |
| | | | | | • Output Power per Channel: minimum 600 Watts @ 8 Ohms, 1200 Watts @ 4 Ohms per channel | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corridengum issued |
| | | | | | • S/N Ratio: minimum 102dBA or higher | | |

| | | | | | • THD 20 Hz - 20 kHz, 1 W: less than 0.01% | |
|---|---|---|---|---|---|---|
| | | | | | • Input Impedance: minimum 18 kOhms or better | |
| | | | | | • Integrated DSP – 40 multi-slope parametric equalizers, crossover with multiple filter types | |
| | | | | | • It shall have Ethernet-based networking for monitoring and control | |
| | | | | | • It should have 2 link outputs for Balanced inputs | |
| 1 | Bidder 13 | BOQ ITEM NO 46 | | | 30W Ceiling Mount Speaker | In NIT No: NU/Engg/14/5B/NIT/2010-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -JBL was one of approved make in above mentioned NIT tender floated last year. Request you to please approve JBL make for this category | Change accepted, Kindly see the corrigendum issued |
| 2 | | BOQ ITEM NO 47 | | | 30W Surface/Wall Mount Speaker | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -JBL was one of approved make in above mentioned NIT tender floated last year. Request you to please approve JBL make for this category | Change accepted, Kindly see the corrigendum issued |
| 3 | | BOQ ITEM NO 48 | | | 150W Column Loudspeaker | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -JBL was one of approved make in above mentioned NIT tender floated last year. Request you to please approve JBL make for this category | Kindly refer to corridengum issued |
| 4 | | BOQ ITEM NO 49 | | | Four Channel Power Amplifier 4 x 250 W | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -Crown was one of approved make in above mentioned NIT tender floated last year. Request you to please approve Crown make for this category | No change , NIT Specification shall prevail |
| 5 | | BOQ ITEM NO 50 | | | Dual Channel Power Amplifier 2 x 60 W | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -Crown was one of approved make in above mentioned NIT tender floated last year. Request you to please approve Crown make for this category | No change , NIT Specification shall prevail |
| 6 | | BOQ ITEM NO 71 | | | 32 CHANNEL AUDIO MIXER | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -Soundcraft was one of approved make in above mentioned NIT tender floated last year. Request you to please approve Soundcraft make for this category | Change accepted, Kindly see the corrigendum issued |
| 7 | | BOQ ITEM NO 73 | | | 1x12" OR BETTER PASSIVE LOUDSPEAKER | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -JBL was one of approved make in above mentioned NIT tender floated last year. Request you to please approve JBL make for this category | Kindly refer to corridengum issued |
| 8 | | BOQ ITEM NO. 74 | | | 1x12" OR BETTER PASSIVE SUBWOOFER | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -JBL was one of approved make in above mentioned NIT tender floated last year. Request you to please approve JBL make for this category | Kindly refer to corridengum issued |
| 9 | | BOQ ITEM NO 75 | | | 2 x 600 W Class D Power Amplifier | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -Crown was one of approved make in above mentioned NIT tender floated last year. Request you to please approve Crown make for this category | Kindly refer to corridengum issued |
| 10 | | BOQ ITEM NO. 33 | | | Gooseneck Microphone | Request you to please approve Harman- AKG Brand | No change , NIT Specification shall prevail |
| 11 | | BOQ ITEM NO. 34 | | | UHF Wireless Lapel Microphone | Request you to please approve Harman- AKG Brand | No change , NIT Specification shall prevail |
| 12 | | BOQ ITEM NO. 35 | | | UHF Wireless Head-worn Microphone | Request you to please approve Harman- AKG Brand | No change , NIT Specification shall prevail |
| 13 | | BOQ ITEM NO. 36 | | | UHF Wireless Handheld Microphone | Request you to please approve Harman- AKG Brand | No change , NIT Specification shall prevail |
| 14 | | BOQ ITEM NO 44 | | | 12 x 8 AUDIO DSP (with AEC feature) | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -BSS was one of approved make in above mentioned NIT tender floated last year. Request you to please approve BSS make for this category. | Change accepted, Kindly see the corrigendum issued |

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|---|---|---|---|---|---|---|---|---|
| 15 | | BOQ ITEM NO 45 | | | | 6 x 4 AUDIO DSP | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -BSS was one of approved make in above mentioned NIT tender floated last year Request you to please approve BSS make for this category | Change accepted, Kindly see the corrigendum issued |
| 16 | | BOQ ITEM NO 1 | | | | 3 I/P SWITCHER PLUS TRANSMITTER WITH AUDIO EMBEDDING | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 17 | | BOQ ITEM NO 3 | | | | HDMI TWISTED PAIR RECEIVER | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 18 | | BOQ ITEM NO 4 | | | | HDMI TWISTED PAIR EXTENDER TRANSMITTER | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 19 | | BOQ ITEM NO 5 | | | | HDMI ACTIVE WALL PLATE | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22.07.2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 20 | | BOQ ITEM NO 8 | | | | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 6 video inputs, outputs - minimum 3 x video and 1 x audio | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year. Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 21 | | BOQ ITEM NO 9 | | | | HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 6 video inputs, outputs - minimum 2 x video and 1 x audio | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year. Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 22 | | BOQ ITEM No 12 | | | | CONTROL PROCESSOR | In NIT No. NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year. Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 23 | | BOQ ITEM NO 13 | | | | WIRED CONTROL PANEL | In NIT No: NU/Engg/14/5B/NIT/2019-20/04 Dated 22 07 2020 & Name of Work:- Supply, Installation, Testing & Commissioning of Audio and Video System for all the Priority Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar - Harman -AMX was one of approved make in above mentioned NIT tender floated last year. Request you to please approve AMX make for this category | No change , NIT Specification shall prevail |
| 24 | Bidder 14 | 1 20(BOQ Item No 24) | | | | SITC of Ultra Short Throw Projector - Minimum ANSI 5000 Lumens, 16:9 Aspect Ratio, 1080 display Resolution, Minimum Ports - 3 x HDMI, 1 X HDBaseT, 1 X RCA composite, 1 X HDMI Out, 3 X Stereo Mini in, 1 X Mini out, 1 x D-Sub 15 pin VGA, 1 x wired (RJ-45) LAN Port, 2 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required. Inclusive of standard or optional lens as per OEM to project on a 106" diagonal screen. | SITC of Ultra Short Throw Projector - Minimum ANSI 4000 Lumens, 16:9 Aspect Ratio, 1080 displaVGAIn(15pin DSub),HDMI (x2), SVideo,CompositeVideo, AudioIn(RCA) , AudioIn(MiniJack),VGAOut(15pinDSub),AudioOut(M iniJack),RJ45, RS232,USB A (Power Only), USB miniB (Service),Inclusive of standard or optional lens as per OEM to project on a 150" diagonal screen. | No change , NIT Specification shall prevail |

| # | Bidder | BOQ item | Ref | Page | Heading | Query | Response |
|---|---|---|---|---|---|---|---|
| 25 | | 1.21(Bo Q item No 25) | | | | SITC of Laser type Projector - 1-Chip DLP Technology, minimum 6,000 ANSI Lumens,16.9 Aspect Ratio, Resolution : Full HD 1920 x 1080, Minimum Ports - 1 x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x HDBaseT (RJ-45) for receiving video over CAT6 twisted pair, 1 x wired (RJ-45) LAN port or wireless connectivity for configuration; 1 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required. Inclusive of standard or optional lens as per OEM to project on a 150" diagonal (3320mm W x 1868mm H) size screen from a throw distance of not more than 4000mm from the screen | SITC of Laser type Projector - 1-Chip DLP Technology, minimum 6,000 ANSI Lumens,16.9 Aspect Ratio, Resolution : Full HD 1920 x 1200,VGAIn(15pin DSub),HDMI Number of Ports v.1.4b (x3: HDMI/MHLx1HDMIx2,Composite Video, AudioIn (RCA),AudioIn(MiniJack),VGAOut15pin DSub),RJ45 (x2: HDBaseTx1, LANx1),RS232, 3DSync(1: Out), USB A (Power Only), USB miniB (Service), Microphone(MiniJack),speaker5WX2,he projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required. Inclusive of standard or optional lens as per OEM to project on a 150" diagonal (3320mm W x 1868mm H) size screen from a throw distance of not more than 4000mm from the screen 3D Ready(DLP link, PC+Video), Direct 3D (HDMI 1.4a), 3D Mandatory Formats supported (top/bottom, right/left, frame sequential. | No change , NIT Specification shall prevail |
| 26 | | 1.22(Bl OQ Item No 25A) | | | | SITC of Laser type Projector - 1-Chip DLP Technology, minimum 17000 ANSI Lumens,16:10 Aspect Ratio, Resolution : WUXGA 1920x1200, Minimum Ports - 1 x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x HDBaseT (RJ-45) for receiving video over CAT6 twisted pair, 1 x wired (RJ-45) LAN port or wireless connectivity for configuration; 1 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required. Auto keystone correction: Yes; Quick corner: Yes, Contrast ratio 2,40,000x1 or better. Inclusive of standard or optional lens as per OEM to project on a 226" diagonal size screen. This is including all mounting and fixing (floor or ceiling as per teh design confirmation by the client during shopdarwing preparation by the SI suitably for the respective space. | SITC of Laser type Projector - 1-Chip DLP Technology, minimum 18,000 ANSI Lumens,16:10 Aspect Ratio, Resolution : WUXGA 1920x1200VGAIn(15pin DSub),HDMI (x2), Display Port, DVID,Component (5 BNC)(RGBHV),3DSync (x2: In and Out), Remote Jack(wire remote), 3GSDI (x2: In and Out,The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.Contrast ratio 10000:1 or better | Kindly refer to corridengum issued |
| 27 | | 1.5(BO Q item No 7) | | | | Wireless Presentation Unit of HD content using laptops, tablets, and smartphones Compatible with Windows OS X, Apple iOS, and Android, Supports 4K display resolutions, shall provide minimum 1 x HDMI output.Wireless connection for up to 24 devices,Should support Web Browsers such as Internet Explorer, Mozilla and Chrome,Should support third party app such as Microsoft Office®, Skype®, goto meeting®, Lync®, and webex® 4 user or higher,Windows / Android / Mac,Should have minimum 1 x HDMI output,Should have Audio output,Should have minimum 1 x USB port | INPUT-Ethernet RJ45,USB Type A x 1,USB Type C x 1,microSD Slot,RS-232 jack,DC Jack Power-In,OUTPUT-HDMI-Out Audio-Out (3.5mm jack),Output Resolution-4K-UHD (3840 x 2160), 1080p (1920 x 1080),Mirroring Resolution-Up to 4K-UHD, 30 fps,Split-Screen-Up to 4, in dynamic layout,inbuilt digital sinage player, upgradable to launcher.Internal storage 16GB,MiracastWindows® 10,Air Play, Google Cast. | No change , NIT Specification shall prevail |
| 28 | Bidder 15 | BOQ item No.24 | NIT Document | Pg No 82 | ULTRA SHORT THROW PROJECTOR | 1. Lens specification: 0.25 UST, as asked in the tender specification is specific to one brand out of the three approved brands in the tender document. Request to amend it to the value of 0.5:1 UST or better so that all the three approved brands can comply the asked tender specifications | No change , NIT Specification shall prevail |
| 29 | | BOQ item No.25 | NIT Document | Pg No 82, 83 | 6000 LUMENS PROJECTOR | 1. It seems there is typographical mistake in writing the projector resolution, as 1920 x 1200 pixels which represents "WUXGA" resolution is written along with "full HD" resolution. Request to remove the "Full HD" resolution as mentioned in the specifications which is a lower resolution consisting of 1920 x 1080 pixels only. Moreover, WUXGA is brighter as compared to Full HD for a similar size of screen when projected through a similar brightness projector. In addition, WUXGA is most suitable for the wide range of content like PowerPoint slides, spreadsheets, engineering drawings, documents and websites most frequently used in a classroom application like the one in consideration. | Change accepted, Kindly see the corrigendum issued. |
| | | | | | | 2. Request to confirm the contrast ratio asked in the tender specifications is Native or Dynamic. Every reputed projector manufacturer brand publishes "Dynamic contrast ratio value" including the approved makes as stated in the tender document for Projector. Moreover, the value of contrast ratio 5,000,00:1 as asked in the tender specifications will allow only one brand to comply out of three approved makes for projectors. However, if we compare the dynamic value of contrast ratio, all approved brands are complying. Hence, Request to state dynamic contrast value i.e. minimum 6,000:1 or better. | A Full On/Off Contrast reading measures the ratio between the brightness of a solid white, 100 IRE test pattern ("full on"), and the brightness of a solid black, 0 IRE test pattern ("full off"). 500000:1 is measured as per Full On/Off method. Please follow this and comply |
| 30 | | BOQ item No.25A | NIT Document | Pg No 83, 84 | 17000 LUMENS PROJECTOR | 1. Request to confirm the contrast ratio asked in the tender specifications is Native or Dynamic. Every reputed projector manufacturer brand publishes "Dynamic contrast ratio value" including the approved makes as stated in the tender document for Projector. Moreover, the value of contrast ratio 5,000,00:1 as asked in the tender specifications will allow only one brand to comply out of three approved makes for projectors. However, if we compare the dynamic value of contrast ratio, all approved brands are complying. Hence, Request to state dynamic contrast value i.e. minimum 6,000:1 or better. | A Full On/Off Contrast reading measures the ratio between the brightness of a solid white, 100 IRE test pattern ("full on"), and the brightness of a solid black, 0 IRE test pattern ("full off"). 500000:1 is measured as per Full On/Off method. Please follow this and comply. |
| 31 | | BOQ item No.24 | Specification5c Sheet | Pg No 12 | ULTRA SHORT THROW PROJECTOR | 1. As, minimum 5000 ANSI Brightness asked in the "specification5c" sheet whereas in the NIT document, 5000 Lumens brightness is mentioned. Our request is to amend the same to 4500 ANSI lumens or better because the value of "ANSI lumens" of a 5000 lumens projector would be lower | kindly refer NIT specification. |
| 32 | | | | | | 2. of projection technology mentioned in the "specification5c" sheet is "3LCD" which is not commercially at par with the "DLP laser phosphor" projection technology as mentioned in the NIT document. Request to remove "3LCD" projection technology, which is extending undue advantage to particular one brand in this category of projectors. | Kindly refer to corrigendumm issued |

| # | Bidder | Ref | Pg | Specification | Query | Reply |
|---|--------|-----|-----|---------------|-------|-------|
| 33 | | BOQ item No.25 | Pg No 12, 13 | 6000 LUMENS PROJECTOR | 1. As, minimum 6000 ANSI Brightness asked in the "specification5c" sheet whereas in the NIT document, 6000 Lumens brightness is mentioned. Our request is to amend the same to 5300 ANSI lumens or better because the value of ANSI lumens of a 6000 lumens projector would be lower | kindly refer NIT specification |
| 34 | **Bidder 16** | Tender Ref No.1 | | SITC of modular configurable type flushmount / table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc. for min requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10Amps power outlet | Requesting you to incorporate USB-C instead of VGA as VGA is obsolete now and approve Atlona as approved make | Change accepted, Kindly see the corrigendum issued |
| 35 | | Tender Ref No.2 | | SITC of 3 I/P Switcher cum Transmitter with Audio embedding, supporting video output on a cable length up to 230 ft. (70 meters) on CAT6; Input: 1 x HDMI, 1 x Display port, 1 x VGA + Audio 3.5mm; Output: video output shall be on a single CAT6 shielded twisted pair cable; Auto switching between inputs; the device shall be HDCP compliant and with EDID support | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 36 | | Tender Ref No.3 | | SITC of HDMI Twisted Pair Receiver, for receiving HDMI, control and analog audio up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45, Outputs: One HDMI and one Audio; the device shall be HDCP compliant and with EDID support | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 37 | | Tender Ref No.4 | | SITC of HDMI Twisted Pair Extender, Transmits HDMI and control signal up to 230 feet (70 meters) over a shielded CAT6 cable, Output: One CAT6 twisted pair output on RJ-45, Inputs: One HDMI, Supports EDID and HDCP transmission. | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 38 | | Tender Ref No.5 | | SITC of HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft. (70 meters), device should support HDCP and EDID transmission. | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 39 | | Tender Ref No.7 | | SITC of Wireless Presentation Unit of HD content using laptops, tablets, and smartphones. Compatible with Windows OS X, Apple iOS, and Android; Supports Full HD 1080p display resolutions; shall provide minimum 1 x HDMI output. | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 40 | | Tender Ref No.8 | | SITC of scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x CAT6, and minimum three video outputs - 2 x HDMI and 1 x CAT6, and 1 x audio output. It shall support resolutions upto 1920 x 1200. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 41 | | Tender Ref No.9 | | SITC of scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, minimum 2 x HDMI outputs and 1 x audio output; It shall support resolutions upto 1920 x 1200. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 42 | | Tender Ref No.10 | | SITC of 1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 43 | | Tender Ref No.11 | | SITC of 1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 44 | | Tender Ref No.12 | | SITC of Control Processor, with minimum ports as follows: 4 x bidirectional RS-232 serial ports, 1 x bidirectional RS-232/RS-485 serial port with hardware and software handshaking, 4 x IR/Serial ports for one-way control of external devices, 4 x Digital I/O ports, 4 x relays for controlling room functions, 1 x RJ-45 Ethernet monitoring and control, Supports 10/100/1000Base-T. | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 45 | | Tender Ref No.13 | | SITC of podium mountable, minimum 8-Button wired control panel for controlling various devices, it shall have - one volume control knob, minimum 3 x RS 232, 3 x Relays and 2 x IR ports, 1 x LAN, to control the devices | Kindly approve Atlona as approved make which is a world renowned brand for Video Equipments and also has products complying with the specification | No change, NIT condition shall prevail |
| 46 | | Tender Ref No.54 | | SITC of Fully digital Main/Central Conference Controller Unit should be able to control and power 30 units or more, should have LED/LCD display for necessary controls and configuring the system, min 6 or better open microphone support, daisy chain connectivity through CAT6 shielded cable via RJ-45 or OEM-specific cable via OEM-specific socket. OEM-specific cable shall be inclusive | We humbly request specification read as : Fully Digital Conference Control Unit (minimum 50 units), Central Conference Controller with integrated Recording facility &amp; Web Server for control, built-in Digital Signal Processing, control up to minimum 50 Discussion Unit and expandable up to 150 Discussion Unit, USB port to connect USB Storage Device for Direct Recording of the Meeting, LCD display to implement several Conference Mode: Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input &amp; Output for connectivity with external system, LAN connection for web server or camera control protocol, 4 digital RJ 45 ports, XLR out, XLR in, RCA in and two RCA out, Power connector with locking, complete with External power supply. OEM- specific cable shall be inclusive. Should be able to interface with Dante card for digital out for future propose, Should be upgradable for Software like, Voting, Language Interpretation, Bluetooth, Dual use. Software should be provided by OEM for Delegate Information, Signage, Meeting Reports Room Layout, Manage the speaker list, Manage request list with drag and drop re-ordering capability | No change, NIT condition shall prevail |

| # | Bidder | Reference | Page | Specification | Request | Response |
|---|---|---|---|---|---|---|
| 47 | | Tender Ref No 55 | | SITC of Fully Digital Chairman Unit - Table Top/Flush Mounted, inclusive of pluggable/fixed unidirectional microphone minimum approx. 15" (400mm) stem length, press-to-talk key, in-built speaker, should have 2 buttons – one for Mic on/off and one for Priority, and RJ45 socket or OEM specific standard connectivity | We humbly request specification read as Fully Digital Chairman Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signaling ,Priority and Next-in-Line button. Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital  Frequency Response  As per OEM ,Screw-lock socket Microphone connection etc  complete with interconnecting cables of 2m length<br>• 4.3 inch capacitive touch screen and built-in NFC reader for fast recognition of participants<br>• Speaker list and Request list<br>• Custom logo<br>• Additional functionality by use of software licenses only<br>– Identification functionality<br>– Voting<br>– Select language<br>– Dual use<br>- Basic meeting control for chairperson<br>› Start / stop recording<br>› Meeting slate control<br>› Voting session control<br>› Agenda control | No change, NIT condition shall prevail |
| 48 | | Tender Ref No 56 | | SITC of Fully Digital Delegate Unit - Table Top/Flush Mounted, inclusive of pluggable/fixed unidirectional microphone minimum approx  15" (400mm) stem length, press-to-talk key, in-built speaker, should have 1 microphone button, and RJ45 socket or OEM specific standard connectivity | We humbly request specification read as Fully Digital Delegate Unit Digital Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital  Frequency Response  As per OEM ,Screw-lock socket Microphone connection etc  complete with interconnecting cables of 2m length<br>• 4.3-inch capacitive touch screen and built in NFC reader for fast recognition of participants<br>• Speaker list and Request list<br>• Custom logo<br>• Additional functionality by use of software licenses only<br>– Identification functionality<br>– Voting<br>– Select language<br>– Dual use | No change, NIT condition shall prevail |
| 49 | Bidder 16 | Bidder eligibility criteria | | Experience  The copy of Supply Orders/ Contracts/ Agreements issued by/ signed with Government of India (Ministry/ Department/ Undertaking/ PSU/ Educational Institutions such as IIT's, NIT's, or other such Central Universities/ Autonomous Body) for similar works value as mentioned below herein executed by the bidders in last Seven years ending one day before date of submission of bid in India/Abroad | "The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of submission of bids" - Request to kindly add this clause as per CPWD standards for getting competitive bids. | It is clarified that The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the previous day of the last day of submission of the Tender. |
| | | | Page 9-10 & 15 | For the above experience, the bidder should enclose the completion certificate duly issued by the end user  The bidder should have completed at least ONE similar work not less than INR 15.04 Crore OR TWO similar works not less than INR 9.4 Crore OR THREE similar works not less than INR 8 Crore in India during the last seven (7) years ending previous day of the last day of submission of Tender  For this purpose cost of work shall mean gross value of the completed work  This should be certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent. | | |
| 50 | | sl  No  4 5 | Page No 16 | MAF | We request you to kindly ask MAF from lowest Bidder as per CPWD guidelines (Circular from CPWD is enclosed for your reference & records). | No change , NIT condition shall prevail |
| 51 | | | | Request to permit Specialized Firms for direct participation in the tender | We request you to allow specialized firm of Audio Video for direct participation in the tender meeting the PQ eligibility criterion  PSU's Like TCIL, NBCC, IRCON floats tenders when it comes to AV instead of executing the same by its own team  Allowing Specialized Firm will increase the participation and competition results in saving Tax Payer Money which may get utilized for implementing other services / facilities for University | No change , NIT condition shall prevail |
| 52 | | Sl. No  4 8 | Page No 17 | Site Survey | We request you to relax the site survey clause since Majority States/Cities are locked down due to COVID-19 Pandemic  Drawings are already part of tender which itself self-explanatory as minute details like equipment placements etc already marked in drawings  Generally Site Visits are required when design is in the scope of bidder and site drawings are not available  Since this is already BOQ based tender hence FORM "G" can be relaxed from NIT keeping in view the COVID-19 Pandemic and restriction on travelling by state and central government | Site survey and form G has been made optional |
| 53 | | Sl  No  9 | Page No 44 | Digital Podium | We request you to Approve "Vantage Make" which is make in India Brand similar to "UNI" brand  As per central government guidelines Make in India brands should be promoted and preferred over imported brands like Tecom/AHA etc | No change , Kindly refer NIT condition |

| | | | | | | Clarification Sought on tender specifications | As per NIT Specifications are provided as a separate pdf name "Specification 5C" but on the contrary specifications are also given in the main NIT document name "AV Tender 2 Final Version dated 24.04.2021" which is completely different for most of the item. Clarification required which specifications need to considered for submitting compliance. However we considered "Specification 5C" pdf as final specifications and based on same we are submitting our queries related to technical as below | Kindly refer to corrigendumm issued |
|---|---|---|---|---|---|---|---|---|
| 54 | | | | | | | | |
| 55 | | BOQ ITEM NO. 20 | | | Page No 77 | 4K Video Conferencing System The MCU and Video Conferencing endpoints, camera and microphones and associated software shall be from the same OEM/vendor | We understand that MCU item is not required, if required please advice the No. of ports, simultaneous connection at a time, resolution and FPS requirement. Based on same we will calculate the bandwidth requirement which needs toe arranged by user required for operational system | Change accepted, Kindly see the corrigendum issued |
| 56 | | BOQ ITEM NO. 34, 35 & 36 | | | Page No 85& 86 | UHF Wireless Lapel, Headworn and Handheld Microphone | Please generalize the specification "PLL Synthesize technology" as it is proprietary to a specific brand. | Kindly refer to corrigendumm issued |
| 57 | | BOQ ITEM NO. 46 | | | Page No 89 | 30W Ceiling Mount Speaker Frequency range (-10dB) : should be between 80 Hz to 19 kHz or better | Bose brand manufactures ceiling speaker in range of 80 Hz to 16 Khz (- 10dB), Kindly amend the same so that Bose brand can also offer their equivalent product | No change , Kindly refer NIT condition |
| 58 | | BOQ ITEM NO 47 | | | Page No 89 | 30W Surface/Wall Mount Speaker Frequency range (-10dB) : should be between 80 Hz to 19 kHz or better | Bose brand manufactures Surface/Wall Mount speaker in range of 80 Hz to 16 Khz (-10dB), Kindly amend the same so that Bose brand can also offer their equivalent product. | No change , Kindly refer NIT condition |
| 59 | | BOQ ITEM NO. 73 | | | Page No 100 | 1x12" OR BETTER PASSIVE LOUDSPEAKER Driver 1 x 12" | We request you to kindly ask for 1 x 12" or 2 x 6" driver size which is better if compared technically with 1 x 12". Kindly accept the same so that Bose brand can also offer their product in competition against other approved brands. | Kindly refer to corrigendumm issued |
| 60 | | BOQ ITEM NO. 74 | | | Page No 101 | 1x12" OR BETTER PASSIVE SUBWOOFER Driver : 1 x 12" or better | We request you to kindly ask for 1 x 12" or 2 x 10" driver size which is better if compared technically with 1 x 12". Kindly accept the same so that Bose brand can also offer their product in competition against other approved brands. | Kindly refer to corrigendumm issued |
| 61 | | BOQ ITEM NO. 76 | | | Page No 102 | Smart Lesson Capture & Faculty Development/Reflection System | This item specifications are specific to one brand and cannot be complied with second approved make. In this scenario OEM will dictate the tender and have monopoly on price and MAF. We request you to kindly approve at least three approved brands with Models for this item for fair competition or alternatively remove brands and give only requirements so that it can be customized based on user requirements. | Accepted, Instead of MAF bidder can submit compliance on OEM letterhead from Accepted makes kindly refer to corrigendum issued |
| 62 | | | | | | Request for Extension of Pre Bid meeting and tender submission date. | As you are aware that due to COVID-19 pandemic majority OEMs are either shut down or their representative affected and under medical treatment. Reply to technical queries, documentations etc which are supposed to come from OEM's might get delayed and may not meet the time bound deadlines as per tender. Hence we request you to kindly extend the same at least for one month time until this covid pandemic get normalized to some extent. | No change , NIT condition shall prevail |
| 63 | Bidder 17 | | Bidder eligibility criteria | | Pg NO 15 | The bidder should have completed at least ONE similar work not less than INR 15.04 Crore OR TWO similar works not less than INR 9.4 Crore OR THREE similar works not less than INR 8 Crore in India during the last seven (7) years ending previous day of the last day of submission of Tender | You are requested to kindly allow MSME exemption for Experience Criteria. We are registered as MSME for which our registration number is DL08A0000927, which is also attached in this mail. Also attached Relaxation of Norms for Micro & Small Enterprises in Public Procurement on Prior Experience - Prior Turnover criteria MSME Office Memorandum | NIT condition shall prevail. |
| 64 | | | | | Pg NO 16 | Service Support: The bidders should have their own branch office/ service centre in District Nalanda, Bihar or shall have an arrangement to provide service through dealer/ service provider | You are requested to kindly amend the clause as the bidders should have their own branch office/ service centre in India or shall have an arrangement to provide service within the stipulated time or provide service through dealer/ service provider | No change , NIT condition shall prevail |
| 65 | Bidder 18 | BOQ No.44 | | | | 10 x 6 AUDIO DSP (with AEC feature) Support 24 channels of AEC processing, Built in 64 x 64 DANTE channel, dual-redundant DANTE/AES67 audio transport, USB Audio Interface 24Bit, 48Khz, Frequency Response: 20Hz to 20KHz, Dynamic range : > 105 dB, Ethernet Port, RS232 connector for interfacing with 3rd party control systems, 6 No's or better GPIO, Embedded media engine for audio playback and recording etc complete with accessories | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions | Kindly refer to corrigendumm issued |
| 66 | | BOQ No.44 | | | | • 24 channels of Acoustic echo cancellation (AEC) shall be supported on single DSP | As per the Inputs requested within the device no one single device from Approved makes may provide 24CH AEC in one device, either they need to use expanders or additional DSP. Please confirm on the exact no of AEC Inputs required in a project, So the vendors may decide on the device capabilities and suggest accordingly. | It is clarified that we have asked for 24 channel AEC processing on single DSP. This is being done considering future expansion of Inputs over connected network input modules of any third party Dante devices without any need to add physical AEC input.

However Minimum 16 AEC input is required and shall be accepted instead of 24 port input AEC block (refer to corrigendumm) |
| | | BOQ No.44 | | | | • Gain Range : 0 to +66 dB with step 6 dB | | |
| 67 | | BOQ No.45 | | | | 8 x 3 AUDIO DSP 8x3 DSP - Digital Processors with 4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input; 1 stereo and 2 mono outputs, 2-channel USB audio interface, Full digital processing on inputs and outputs; Dynamic Range 110 dB or higher; Onboard 6 nos. acoustic echo canceler (AEC) processing ; Front panel direct operation and Web Remote functionality; LAN Port for third-party control | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions | Kindly refer to corrigendumm issued |
| 68 | | BOQ No.46 | | | | 30W Ceiling Mount Speaker full-range or 2-way minimum 4" ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation; Frequency Response - 80 Hz - 19 kHz (-10dB), Power handling@70/100V 30W or better; Sensitivity : SPL/W@1 Mtr - 86 db or better; Max SPL@1 Mtr - 100dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions

The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corrigendumm issued |

| # | | BOQ No | | Specification | Comment | Response |
|---|---|---|---|---|---|---|
| | | BOQ No 46 | | • Frequency range (-10dB) should be between 80 Hz to 19 kHz or better | Frequency above 16K is not perceptible to Human ears, hence doesn't make sense to ask for 19K Please allow to lower the same to 16K, so the other vendors may quote | Kindly refer to corrigendumm issued |
| 69 | | BOQ No.47 | | 30W Surface/Wall Mount Speaker Full-range, minimum 4"-5" LF or better surface/wall mount loudspeaker, 4 to 8 ohms low impedence and 70V/100V operation, Frequency Response - 60 Hz - 19 KHz (-10dB), Power handling@ 70/100V 30W or better, Sensitivity SPL/W@1 Mtr - 84 dB SPL or better, Max SPL(peak) - 106dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions | Kindly refer to corrigendumm issued |
| | | BOQ No:47 | | • Frequency range (-10dB) should be between 60 Hz to 19 kHz or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corrigendumm issued |
| 70 | | BOQ No 48 | | 100 Watt Column Loudspeaker Passive Multidriver Column Array Speaker with 5 or more Full range drivers with power output 100 Watt @ 70V /100V , frequency response 130 Hz - 15 kHz (-10 dB), Sensitivity SPL/W@1 Mtr - 89 dB SPL or better, Max SPL (peak) 116 dB or better, Coverage - 120 degree Horizontal x 30-45 degree Vertical and inclusive of Pan Tilt Wall mounting brackets, assemblies, hardware and standard accessories | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions\n\nAs far as the Column arrays are considered, lesser than 8 drivers may results in improper LF controls and din't perform well. Hence Request you to please re-look in the minimum driver requirements to 8 or better | Kindly refer to corrigendumm issued |
| | | BOQ No 48 | | • Power Rating minimum 100 W or better@70V/100V | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change, NIT Specification shall prevail |
| | | BOQ No 48 | | • Sensitivity 1W @ 1m : 89dB or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change, NIT Specification shall prevail |
| | | BOQ No:48 | | • Coverage (conical) 120H x 30-45 V degrees or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Change Accepted, Kindly Refer to the corrigendumm issued |
| | | BOQ No 48 | | • Driver 5 or more full range drivers or combination of LF/HF | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | No change, NIT Specification shall prevail |
| 71 | | BOQ No 49 | | Four Channel Power Amplifier 4 x 240 W Multi Channel Class D Power Amplifier with DANTE and Energy Star Certification delivering 4 x 240 W , Selectable 4/8 Ohms or 70V/100V operation , distortion <0.05%, Frequency response 20 Hz to 20 kHz, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions\n\nThe attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete.\n\nAlso commenting on to Dante Requirements, whether this one is required for this application, as dante requirements may lead to huge surge in the prices of Amplifiers | Kindly refer to the corrigendum issued\n\nDante is a basically latest input port being used by all major OEM. This is required for future expansion |
| | | BOQ No 49 | | • Output Power per Channel: minimum 240 Watts per channel | | |
| | | BOQ No 49 | | • Should have DANTE Networking port | | |
| | | BOQ No 49 | | • Should have energy star certification | | |
| 72 | | BOQ No:50 | | Dual Channel Power Amplifier 2 x 60 W Dual Channel Commercial Class D Amplifier with DANTE and Energy Star Certification delivering 2 x 60 W @ 4/8 Ohms and 70V/100V, distortion <0.05%, Frequency response 20 Hz to 20 kHz, +0.5 / -1 dB, Crosstalk >72 dB, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions\n\nThe attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete.\n\nAlso commenting on to Dante Requirements, whether this one is required for this application, as dante requirements may lead to huge surge in the prices of Amplifiers | Kindly refer to corrigendumm issued |
| | | BOQ No 50 | | • Frequency Response should be between 20 Hz to 20 KHz | | |
| | | BOQ No:50 | | • Output Power per Channel: minimum 60 Watts per channel | | |
| | | BOQ No:50 | | • Should have DANTE Networking | | |
| | | BOQ No 50 | | • selectable 4/8 ohms or 70/100V operation | | |
| | | BOQ No 50 | | • S/N Ratio : > 101 dBA | | |
| | | BOQ No 50 | | • THD 20 Hz - 20 kHz, 1 W: less than 0.1% | | |
| | | BOQ No:50 | | • Should have energy star certification | | |
| 73 | | BOQ No 73 | | 1x12" OR DUAL 8" PASSIVE LOUDSPEAKER Full Range Two way Passive 12" or Dual 8" loudspeaker with RMS power 200 W or better, 8 Ohms, Frequency Range (-10 dB) 55 Hz - 20 kHz, System Sensitivity 97 dB or better , Coverage 90-100 Degree(H), 80-90 degree(V), Maximum SPL 126 dB Peak or better, birch plywood enclosure, Complete with accessories etc | As There is an ambiguity between both the specs published in Commercial Price Schedule and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions\n\nThe attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corrigendumm issued |
| | | BOQ No 73 | | • Frequency range: should be between 55 Hz to 20 kHz or better | | |
| | | BOQ No.73 | | • Sensitivity 1W @ 1m: 97dB or better | | |
| | | BOQ No 73 | | • Coverage (conical) 90-100H x 80-90V degrees or better | | |

| # | Bidder | Serial No | BOQ | Page No | Clause / Title | Query | Response |
|---|---|---|---|---|---|---|---|
| 74 | | | BOQ No 74 | | | Dual 8" Passive Subwoofer Compact Low Profile dual 8" Subwoofer with RMS power 400 W or better, 8 ohms, Frequency Range (-10 dB) 40 Hz - 200 Hz, System Sensitivity 97 dB or better ,Maximum SPL 129 dB peak or better, 2 x 8" bass driver, birch plywood enclosure, Complete with accessories etc | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions. The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corrigendumm issued |
| | | | BOQ No 74 | | | • Sensitivity 1W @ 1m 97dB or better | | |
| | | | BOQ No 74 | | | • Driver: 2 x 8" LF or better | The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete. | Kindly refer to corrigendumm issued |
| 75 | | | BOQ No 75 | | | Dual Channel Power Amplifier with DSP Dual Channel power amplifier with Integrated DSP delivering 1200 W @ 4 Ohms, THD + N 20 Hz- 20 kHz for 1 W <0.01%, Signal-to-Noise ratio >102 dBA , Frequency Response 20 Hz- 20 kHz, LAN port for Control and software Graphic User interface for setting parameters | As There is an ambiguity between both the specs published in Commercial Price Schedue and Technical Specifications, However we are following Technical specifications, as they provide more details as required. We request you to please rectify the Commercial Price Schedule sheet for no further confusions. The attached specifications are very specific to one Brand, request you to please allow to change the specifications to made them generic, so the other vendors may quote and compete | Kindly refer to corrigendumm issued |
| | | | BOQ No 75 | | | • THD 20 Hz - 20 kHz, 1 W less than 0.01% | | |
| | | | BOQ No 75 | | | • Integrated DSP – 40 multi-slope parametric equalizers, crossover with multiple filter types | | |
| | | | BOQ No 75 | | | • It should have 2 link outputs for Balanced inputs | | |
| 76 | | | | | | Pre-Bid Meeting | Due to Corona virus Pandemic and lockdown in majority of the states, it is very difficult to attend current pre-bid physically. We would request you to kindly extend the dates and include the provision of attending online pre-bid | Already done |
| 77 | | | | Page No 9-10 | | Credentials on similar work | The credentials which has been asked in the tender is purely Audio and Video System credentials which may be amended as "any IT Project credentials" | Kindly refer to corrigendumm issued |
| 78 | | | | Page no 68 – 109 | | TECHNICAL SPECIFICATIONS FOR AUDIO VISUAL SYSTEM | As per given tender we have found two different sets of | Kindly refer to corrigendumm issued |
| 79 | | | | page no 112 - 120 | | Package 5C AV SYSTEMS WORKS – TECHNICAL SPECIFICATION&SECTION V – Commercial Price Schedule | technical specification and both have ambiguity Also, specification mentioned in Section V – Commercial Price having totally different set of specification from the | Kindly refer to corrigendumm issued |
| 80 | | Serial No 4.8 | | Page No 17 | | FORM' G' Site Survey | Due to Corona virus Pandemic Travelling is allowed for very essential works only, Request to accept undertaking for completeness responsibility as per page no. 24 clause no. 3 in the NIT in lieu of Form G | Site survey and form G has been made optional |
| 81 | | Serial No 4.5 | | Page No 16 | | Manufacturer Authorization Certificate | 1.  MAF is asked for each & every item like for wi-fi router, network switch etc which is not even 1% value of total tender estimated. Manufactures like CISCO, HP, Juniper and Allied Telesis are multinational billion turnover company and may not entertain MAF request for such small amount items. Hope you understand our concern and remove MAF clause for small value items 2.  Further you may ask the same after L1 is declared. It's a standard practise adopted by majority central government departments like CPWD, PWD, AAI etc. 3.  We are also a PSU and request to accept our undertaking for completeness responsibility as per page no. 24 clause no. 3 in the NIT in lieu of MAF from OEM's | Kindly refer to corrigendumm issued |
| 82 | | | | | | Digital Podium | Request you to approve Realtek Make which is a reputed brand and been used in past for reputed Clients like IITs, NIT and IIM's. | No change, NIT condition shall prevail |
| 83 | | Serial No. 76 | | Page No 102 | | Smart Lesson Capture Software | Software technical specification are available with one Noida Based Company headquartered at UK. Unfortunately, we are not able to communicate with them due to unavailability of any local contact in India. Please add some more brands for competitive pricing and better after sales support | Accepted, Instead of MAF bidder can submit compliance on OEM letterhead from accepted makes. |
| 84 | | | | | | Extension for Bid Submission Date | A significant no. of OEMs are involved for the said tender which are required to be aligned properly to get best competitive prices. Due to ongoing pandemic and thereafter lockdown in many states, OEMs are not in a position to support properly and hence request you to extend the bid submission date by at least one month i.e. June-2021 end | No change, NIT condition shall prevail. |
| 85 | Bidder 19 | | | | | | I would like to participate in the Pre-Bid meeting of NIT No. . NU/ENGG/68/20-21/02. Please provide me the link for joining the Webinar. | Already done. |
| 86 | Bidder 20 | | | | | | 1.We are very keen to participate in the subject cited Tender. It is imperative to note that traveling has been disrupted due to the ongoing COVID-19 epidemic situation and curfew (Lockdown) imposed across various parts of the country. Basis this, we would request to kindly postpone the Pre-bid meeting scheduled for 05th May 2021 and provide us with a new date. | Already done. |
| 87 | | | | | | | Accordingly, would request you to kindly extend the Bid Submission date and oblige. | No change, NIT condition shall prevail. |

| | | | Ref NIT Page 08, clause 1 | | Online Tender Fee | Copy of Tender Fee (Non-Refundable) in the form of Demand Draft for Rs. 5,000/- (Rupees Five Thousand only) drawn on any Nationalized/ Scheduled Bank, In favour of ' Nalanda University' payable at Rajgir.<br><br>a) Bank Details of Nalanda university is as follows:<br>1. Name of Bank: HDFC BANK LTD<br>2. Name & Address of Branch: DHARAMSHALA ROAD, DIST NALANDA, City: RAJGIR 803116, State: BIHAR<br>3. Branch Code :2059<br>4.IFSC Code of respective branch: HDFC0002059<br>The participating bidder(s) may also deposit online in the above give account and the copy of the electronic transfer statement done before set timeline to be uploaded on the web portal in place of the said DD.<br><br>The bank account details for the online payment of tender fee is required to be updated. | As an alternative option, the bidder may also pay non-refundable tender fee amount Rs 5000 (Five Thousand Only) either in the form of Demand Draft in favour of "Nalanda University" payable at Rajgir 'OR' through online/electronic payment transfer method in Nalanda University Bank Account mentioned below:<br><br>1 Name of the Account Holder: Nalanda University<br>2.Name of Bank: HDFC BANK LTD<br>3.Name & Address of Branch: DHARAMSHALA ROAD, DIST NALANDA, City: RAJGIR 803116, State: BIHAR<br>4. Account No. 50100079546912<br>5.IFSC Code: HDFC0002059<br><br>The participating bidder(s) may also deposit online in the above give account and the copy of the electronic transfer statement done before set timeline to be uploaded on the web portal in place of the said DD. |

Chauhan

# Annexure B

# Revised Technical Specification

# Tender Package 5C

1.1.        **BOQ ITEM No. 1**

Modular configurable type flush mount / table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc. for min. requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, Min 1 x 10/ 2X5 Amps power outlet.

1.2.        **BOQ ITEM NO. 2**

**3 I/P SWITCHER PLUS TRANSMITTER WITH AUDIO EMBEDDING**

**3 I/P Switcher cum Transmitter with Audio embedding; supporting video output     on a cable length up to 330 ft. (100 meters) on CAT6; Minimum 2 x HDMI,1 x VGA on 15-pin D /Display Port + Audio 3.5mm; Output: 1 x HD Base-T, video   output shall be on a single CAT6 shielded twisted pair cable; Auto switching between inputs; the device shall be HDCP compliant and with EDID support.**

- Input signals requirements: Minimum 2 x HDMI, 1 x VGA on 15-pin D /Display Port + 1 x unbalanced analog audio on 3.5mm connector
- Output signals requirements: 1 x RJ-45 connector for HDBaseT output to be transmitted over CAT6 based shielded twisted pairs cable
- Video transmission: shall support video transmission over CAT6 up to 100 meters (330 feet), 1080p, 4K video resolution support.
- Other ports: minimum 1 x RJ-45 based Ethernet port supporting TCP/IP at minimum 100Mbps, 1 x RS232 port for device control/data injection over HDBaseT, 1 x USB port for service control
- Video standards supported: the unit shall be EDID & HDCP compliant

1.3.        **BOQ ITEM NO. 3**

**HDMI TWISTED PAIR RECEIVER**

**HDMI Twisted Pair Receiver, for receiving HDMI, RS232 & IR control up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45; Outputs: One HDMI; the device shall be HDCP compliant and with EDID support.**

- The device shall receive HDMI plus control signal up to 230 feet (70 meters) over a shielded twisted pair CAT6 cable
- Input: 1 x twisted pair on RJ-45
- Outputs: 1 x HDMI, 1080p, 4K video resolution support.
- Shall be able to accept additional RS232 and IR signals over CAT6 cable

- Video standards supported: the unit shall be EDID & HDCP compliant

## 1.4.  BOQ ITEM NO. 4

### HDMI TWISTED PAIR EXTENDER TRANSMITTER

**HDMI Twisted Pair Extender, Transmits HDMI and control signal up to 230 feet (70 meters) over a shielded CAT6 cable, Output: One CAT6 twisted pair output on RJ-45, Inputs: One HDMI, Supports EDID and HDCP transmission.**

- The device shall transmit HDMI plus control signal up to 230 feet (70 meters) over a shielded twisted pair CAT6 cable
- Inputs: 1 x HDMI
- Output: 1 x twisted pair output on RJ-45, 1080p, 4K video resolution support.
- The device shall be capable of transmitting RS232 and IR signals over CAT6 cable
- Video standards supported: the unit shall be EDID & HDCP compliant

## 1.5.  BOQ ITEM NO. 5

### HDMI ACTIVE WALL PLATE

**HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft. (70 meters), device should support HDCP and EDID transmission.**

- The device shall transmit HDMI plus control signal up to 70 meters over a twisted pair shielded CAT6 cable
- Inputs: 1 x HDMI
- Output: 1 x Twisted pair output on RJ-45
- The device shall be capable of transmitting RS232 and IR signals over CAT6 cable
- Video standards supported: the unit shall be EDID & HDCP compliant

## 1.6.  BOQ ITEM NO. 7

### WIRELESS PRESENTOR SYSTEM

**Wireless Presentation Unit of HD content using laptops, tablets, and smartphones. Compatible with Windows OS X, Apple iOS, and Android, Support 4K display resolutions; shall provide minimum 1 x HDMI output**

- Wireless connection for up to 24 devices

- Should support Web Browsers such as Internet Explorer, Mozilla and Chrome

- Should support third party app such as Microsoft Office®, Skype®, goto meeting®, Lync®, and webex®.

- Simultaneous content display: - 4 user or higher

- Supported Operating System: - Windows / Android / Mac

- Should have minimum 1 x HDMI output

- Should have Audio output

2

- Should have minimum 1 x USB port

## 1.7. BOQ ITEM NO. 8

**HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 3 x video and 1 x audio**

**HDMI scalar cum matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 DVI-U /(HDMI, DVI, VGA supported) and minimum two video outputs - 2 x HDMI with parallel 2 x CAT6, 1 x audio output. It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant.**

- Input signals requirements: minimum 4 x HDMI plus minimum 2 x CAT6 & 2 DVI-U/(HDMI, DVI, VGA supported) inputs for accepting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable.
- **Output signals requirements: minimum 2 x HDMI with parallel 2 x CAT6 and 1 audio output** for transmitting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable
- **Other ports: minimum 1- RS232 port and 1-RJ 45 port over HDBaseT.**
- Video standards supported: the unit shall be EDID & HDCP compliant
- The device shall support automatic input selection via last detected input source
- Resolutions supported – Minimum up to 4K @4:2:0 or better

## 1.8. BOQ ITEM NO. 9

**HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 2 x video and 1 x audio**

**HDMI scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+ Audio, 2 x DisplayPort and minimum Output** 2 x HDMI with parallel Display/VGA/USBC and 1-audio Port **outputs. It shall support resolutions up to 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant.**

- Input signals requirements: minimum 4 x HDMI plus minimum 2 x VGA+Audio, 2 Display Port.
- **Output signals requirements: minimum 2 x HDMI with parallel Display/VGA/USBC and 1 Audio Port output.**
- Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, Data injection over HDBaseT.
- Video standards supported: the unit shall be EDID & HDCP compliant
- The device shall support automatic input selection via last detected input source
- Resolutions supported – minimum up to 4K @4:2:0 or better

## 1.9. BOQ ITEM NO. 10

**1 x 8 HDMI DISTRIBUTION AMPLIFIER**

*Bhankey*

**1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant.**

- Input signals requirements: minimum 1 x HDMI
- Output signals requirements: minimum 8 x HDMI
- Video standards supported: the unit shall be EDID & HDCP compliant
- Resolutions supported – minimum up to 4K.

### 1.10. BOQ ITEM NO. 11

**1 x 4 HDMI DISTRIBUTION AMPLIFIER**

**1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant.**

- Input signals requirements: minimum 1 x HDMI
- Output signals requirements: minimum 4 x HDMI
- Video standards supported: the unit shall be EDID & HDCP compliant
- Resolutions supported – minimum up to 4K.

### 1.11. BOQ ITEM No. 12

**CONTROL PROCESSOR**

**Control Processor, with minimum ports as follows: 4 x bidirectional RS-232 serial ports, with hardware and software handshaking, 4 x IR/Serial ports (Inbuilt/ External), 4x Digital I/O ports, 4 x relays for controlling room functions, 1 x RJ-45 Ethernet monitoring and control, Supports 10/100/1000Base-T.**

Control Processor shall have:

- At least four bidirectional RS-232 serial ports.
- At least four IR/Serial ports for one-way control of external devices.
- At least 4 Digital I/O ports.
- At least four relays for controlling room functions.
- At least Ethernet port supporting 10/100/1000Mbps for monitoring and control.
- The device shall be rack mountable.

### 1.12. BOQ ITEM NO. 13

**WIRED CONTROL PANEL**

**Podium mountable, minimum 12-Button wired control panel for controlling various devices; it shall have - one volume control knob; minimum 3 x RS 232, 4 x Relays and 2 x IR ports, 2 I/O, 1 x LAN, to control the devices.**

**A wired button control panel shall be provided for control of devices - minimum 12 buttons or more, with required no. of RS232, IR and RJ-45 based Ethernet IP Ports to control up to 1 projector, 1 screens, 1 - video switcher, 1 video recording**

device, 1 – 3 Input transmitter + receiver for (input switching) and audio system DSP as per the requirements of individual room.

**Note: External Module can be added to meet the above specification and will be accepted.**

However, following minimum requirement of ports shall be met:

- Should have minimum 1 x Ethernet on RJ45 for monitoring and control over TCP/IP protocols, supporting minimum Fast Ethernet (10/100Mbps) speeds
- Should have minimum 3 x bi-directional RS232 ports for control
- Should have minimum 2 x IR ports (source/emitter ports)
- Should have minimum 4 x relay ports
- Should have minimum 2 x I/O ports
- Should have minimum 1 x IR sensor inbuilt/ External for reading IR commands from devices
- Should have minimum 12 x programmable buttons with backlighting/LED indication for various AV control functions assignments, including input selections
- Should have minimum 1 x rotary dial/knob for volume control

## 1.13. BOQ ITEM NO. 15

**Lecture Recording & Streaming Device:**

Lecture Recording and Streaming device having minimum three video inputs - 2 x HDMI and 1 x HDMI/HD-SDI as per OEM, minimum 1 x audio feed port & 1 x HDMI output for confidence monitor and 1 x RJ-45 (LAN) port for streaming and recording application. record up to 3 full motion video inputs in single frame along with audio, should have minimum 1TB inbuilt/ External storage.

## 1.14. BOQ ITEM NO.16

**SPECIFICATIONS FOR VIDEO MANAGEMENT PLATFORM**

**OVERVIEW**

- The video streaming platform should provide a complete solution to upload, manage, publish and measure video content. It should be possible to broadcast live events, upload existing videos and organize & distribute videos using the video streaming platform. Devices such as iPhones, iPads, Android phones, Android tablets, Windows tablets and all leading browsers and operating systems shall be recognized and supported. Should support single registration and login system for both web and mobile platform

**ESSENTIAL COMPONENTS OF VIDEO MANAGEMENT PLATFORM**

**a.    MEDIA/VIDEO LIBRARY**

The provided solution shall include online video library so as to sort, manage and organize the entire media library. It shall be possible to upload all popular formats of video, tag them, categorize them and generate a thumbnail automatically. It shall be possible to specify an expiry date so as to automatically make the video unavailable beyond a certain time frame.

The provided solution shall include Audio video library so as to sort, manage and organize the entire media library. Device should have Inbuilt memory storage of 1TB.

## b. LIVE VIDEO STREAMING

The video platform shall provide streaming facility. It shall be capable of delivering high-quality live HD video streaming broadcasts to any device or browser besides allowing sharing of desktop presentation.

## c. VIDEO PLAYER

The video management platform shall provide intelligent video players that will automatically detect a viewing device and select the correct video type matching that viewing device. The video player shall have user-friendly features such as playlist viewing, in-player chatting or access restrictions when required. It shall be possible to provide a customized or proprietary appearance to the user interface matching the university requirements of intranet access and website. The video player shall support standard features such as volume control, full-screen playback, e-mail sharing and auto-start playback.

## d. MOBILE DEVICE SUPPORT

Via the video management platform, it shall be possible to play any video on any device. Using features such as intelligent video encoding and intelligent video player, it shall allow an easy, simplified access of videos for mobile users. Whether the users are accessing the videos on a computer, at home or on the go using a mobile device(s) such as mobile phones, tablets and other smart devices, the videos shall be appropriately formatted for viewing on their respective devices.

## e. INTELLIGENT TRANSCODING

The video streaming platform shall provide intelligent transcoding thereby automatically preparing the videos for all devices. The video streaming platform should be able to automatically determine the appropriate translation into multiple types of videos for supporting a variety of viewing devices.

**VIDEO MANAGEMENT PLATFORM FEATURES**

• The video platform shall allow multi-platform delivery; it shall support viewers irrespective of whatever device they may be using, e.g., desktops, smartphones/mobiles, laptops or tablets.

• The video management platform shall provide HD format viewing and adaptive streaming; it shall provide dynamic streaming capabilities to provide high quality videos depending upon the available bandwidth at that time.

6

- The video management platform shall provide live broadcasting; it shall be possible to broadcast live any events such as lectures, seminars, training sessions, webinars any other events such as sports or cultural which can be broadcast live or may be offered as on-demand after the live broadcast.

- The video management platform shall provide syndication capabilities for both controlled and viral syndication so as to help reach the possible broadest audience.

- The video management platform shall be able to integrate with popular global content distribution networks allowing for access to vast number of viewers.
- The video management platform shall support various media formats such as H.264, Flash, MPG, MP3, MP4, AVI, WMV, HTML5, Window media based viewing.
- The video management platform shall provide intelligent video search facilities using intelligent techniques such as semantic search to help identify relevant videos.

- The video management platform shall adequate mechanism in place for providing video security & encryption using platforms and protocols such as - AES for live video, https, ftps and sftp.

- The video management platform shall provide intelligent transcoding capabilities for the various target viewing devices such as by trans-coding or trans-rating video between protocols for both live and file based processing.

## 1.15. BOQ ITEM NO. 17

**PTZ Camera**

Full HD/1080p, PTZ Camera for presenter capturing having minimum 20 x optical zoom, minimum 60 presets and minimum output- 1 x HDMI or HD-SDI or OEM specific output, 1 x RS- 232/422 for control. However, if supported output format is other than HDMI, same shall be converted to HDMI using suitable interface unit or cable convertor.

## 1.16. BOQ ITEM NO. 18

### CEILING MOUNT DOCUMENT CAMERA

- ○ **Full HD/1080p, ceiling mounted Document Camera with minimum 14 x optical zoom — 1 x HDMI or DVI output and 1 x LAN port. DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable.**

- Type: Full HD/1080p Document Camera, Ceiling mounting
- Output Resolution: XGA (1024 x 768), SXGA (1280 x 1024), UXGA (1600 x 1200), WXGA (1280 x 800), HD720p and Full HD 1080p
- Frame Rate: Up to 30 fps or better with all resolutions
- Zoom Capacity: Minimum 14 x optical zoom or better
- Output Interfaces: 1 x HDMI preferred or 1 x DVI with DVI to HDMI cable adaptor inclusive

- Protocols: Ethernet or RS-232 as either RS-232 port on 9-pin D-Sub or via RJ-45.
- Power Supply: POE preferred or else via OEM's adaptor
- Type of mounting: ceiling mounted

### 1.17.  BOQ ITEM NO. 19

**TABLE TOP MOUNTABLE DOCUMENT CAMERA**

**Full HD/1080p, Table Top Mountable Document Camera with minimum 14 x optical zoom — 1 x HDMI or DVI output. DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable.**

- Type: Full HD/1080p Document Camera, Ceiling mounting
- Output Resolution: XGA (1024 x 768), SXGA (1280 x 1024), UXGA (1600 x 1200), WXGA (1280 x 800), HD720p and Full HD 1080p
- Frame Rate: Up to 30 fps or better with all resolutions
- Zoom Capacity: Minimum 14 x optical zoom or better
- Output Interfaces : 1 x HDMI preferred or 1 x DVI with DVI to HDMI cable adaptor inclusive
- Protocols: Ethernet or RS-232 as either RS-232 port on 9-pin D-Sub or via RJ-45 connector
- Power Supply: POE preferred or else via OEM's adaptor
- Type of mounting: table top, movable.

### 1.18.  BOQ ITEM NO. 20

The proposed system must support PAL with a PTZ camera. The codec must be based on ITU standards. The VC End Point should be a codec based hardware. No software based solution is accepted here. All components of the VC system like Codec, Camera, Microphone and Remote Control and Touch Panel should be from the same OEM.

| Sr. No. | Description | Specification Parameter |
|---|---|---|
| 1 | Package | Full HD 1080p60 camera, codec, Microphone Array, cables, and remote control |
| 2 | Video Standards and Resolutions | It should support H.323, SIP standards for communications. |
| | | It should support H.261, H.263, H.264 AVC/ SVC, H.264 High Profile |
| | | It should support 1080p 60 fps, 1080p 30 fps, 720p 60 fps and 720p 30fps |

| | | |
|---|---|---|
| 3 | Content Standards and Resolutions | It should support content sharing using standard based H.239 & BFCP. It should also support audio from PC used for content sharing. |
| | | It should transmit both people and content both simultaneously to the far end location at 1080p 30fps |
| 4 | Audio Standards and Features | It should support G.711, G.729A, G.722, G.722.1, AAC-LD or better |
| | | It should support 20kHz or better bandwidth with crystal clear audio and stereo sound. |
| | | Automatic Gain Control and Automatic Noise Suppression |
| | | Keyboard noise reduction and instant adaptation echo cancellation |
| 5 | Video and Audio Inputs | 1 x HDCI\HDMI input for connecting main HD camera |
| | | 1 x HDMI & 1 VGA input for connecting PC/Laptop to share HD content |
| | | 1 x Microphone Input or more(Support for minimum 4 mics), bidder need to supply 1 mic on day 1 |
| | | Proposed mic should be omni directional with 360 degree coverage & should have a mute\unmute button with LED indication |
| | | 1 x 3.5mm stereo line-in |
| 6 | Video and Audio Outputs | 2 x HDMI output for connecting main monitor & second monitor. |
| | | 1 x 3.5 mm stereo line-out |
| 7 | Other Interfaces | 1 x 10/100/1000 LAN port |
| | | 2 x USB for software upgrade and connecting external devices |
| | | 1 x RS-232 mini-DIN 8-pin or equivalent |
| 8 | Camera | It should support 1080p60fps and 10x optical zoom with 1/2.33" CMOS Sensor or better |
| | | Camera -It should support PAN Range of +/-100°, and Tilt of +20°/-20° & Minimum 10 camera presets. |
| | | The VC System should be a dual camera/two camera system with both cameras of minimum 10X Optical Zoom to provide automatic voice and speaker framing of the active speaker in the room with a range up to 32 feet. It should be possible to send both active speaker in zoomed mode and room view in PIP to far side location during a VC call in a single stream. It should be possible to cascade two such camera system to cover larger room. |
| 9 | Network Features | H.323 and SIP bandwidth up to 6 Mbps |
| | | IPv4 and IPv6 support from day one |
| | | Auto Gatekeeper Discovery |
| | | IP Precedence, QoS |
| | | H.323 based Packet Lost Recovery |
| 10 | Multisite Feature | It should support inbuilt multiparty feature with support for 1+5 sites at 720p with all sites encryption enabled |
| 11 | Security | Media Encryption (H.323, SIP): AES-128, AES-256, SSL 3.0 |

| | | Authenticated access to admin menus, web interface and telnet API |
|---|---|---|
| | | Local account password policy configuration |
| 12 | Other Standards | H224/H.281, H.323 Annex Q, H.225, H.245, H.241, H.239, H.243, H.460 |
| 13 | Touch Panel | It should be supported minimum 10inch touch screen with 1280x800 resolution & PoE option. It should provide access to call controls and administrative menus (If required in future) |

### 1.19. BOQ ITEM NO. 21

The proposed system must be an all-in-one video bar consisting of Integrated - Camera, Codec, Speaker, Microphone and Wireless Remote Control/Touch Control Panel. The system must be based on ITU standards & hardware based. No software based solution will be accepted. It should native 3rd party apps including Zoom, Microsoft Teams, Ring Central, Goto Room and Star Leaf

| Sr. No. | Description | Specification Parameter |
|---|---|---|
| 1 | Package | It should be All-In-One Video Bar (with Integrated Microphones, Speakers , 4K Camera with Privacy Cover/Shutter) and Wireless Remote Control/Touch Control Panel. |
| 2 | Video Standards and Resolutions | It should support H.323 & SIP standards for communications. |
| | | It should support interoperability and bandwidth saving using video compression H.264 AVC, H.264 High Profile, H.265 |
| | | It should support  4K 30 fps,1080p 60 fps,1080p 30 fps ,720p 60 fps ,720p 30 fps. |
| 3 | Content Standards and Resolutions | It should support both wired and wireless content sharing using standard based H.239 and BFCP. It should also support audio from PC used for content sharing. |
| | | It should transmit both video and content to the far end location at 4K |
| | | It should support wireless content sharing using Airplay and Miracast. |
| | | It should support Content Annotation and White Boarding capability when connected to Touch Display. |
| 4 | Audio Standards and Features | It should support G.711, G.729A, G.722, G.722.1, G.719, AAC-LD or better |
| | | It should support 20 kHz or better bandwidth with crystal clear audio and stereo sound. |
| | | Keyboard Noise Reduction and Noise Block |
| 5 | Video and Audio Inputs | 1 x HDMI input to share 4K & Full HD content from PC/Laptop/Document camera. |
| 6 | Video and Audio Outputs | 2 x HDMI output for connecting primary and secondary 4K(UHD)/Full HD displays. |
| | | 2 x USB for two touch display support |
| 7 | Other Interfaces | 1 x 10/100/1000 Ethernet port |
| | | 1 x USB for software upgrade |
| | | Bluetooth 5.0 and WiFi 802.11a/b/g/n/ac (MIMO) |
| 8 | Camera | Integrated UHD 2160p (4K) capture resolution |

| | | |
|---|---|---|
| | | Minimum 5x automatic digital zoom and 120° FOV |
| | | The camera should support automatic speaker framing and people framing. |
| | | The Camera should have privacy cover/shutter. |
| 9 | Microphone and Speaker | Stereo Microphone and Stereo Speaker |
| | | Should support at least one external tabletop microphone from same OEM |
| 10 | USB Device Mode | Single USB port functionality to use the system as an external camera, microphone and speaker when connected to a Laptop/PC. |
| 11 | Network Features | H.323 and SIP bandwidth supporting 64 kbps to 6 Mbps or more. |
| | | Must support IPv4 and IPv6 from day one on both H.323 and SIP. |
| | | Auto Gatekeeper Discovery, Lost Packet Recovery (LPR) technology, IP Precedence and DiffServ, Configurable MTU size |
| 12 | Security | Media Encryption (H.323, SIP): AES-128, AES-256 |
| | | Authenticated access to admin menus, web interface and telnet API |
| | | Local account password policy configuration |
| | | Global Directory/Centralized Directory/LDAP support |
| 13 | Other Standards/features | H.460.18, H.460.19, SSL, TLS |
| 14 | Touch Control | Min 8" display screen & WXGA resolution with call control option |

## 1.20.    BOQ ITEM NO. 22

**Sleek Digital Podium built in Metallic Frame and Wooden Top with built-in 22" Interactive Panel (Electromagnetic Technology) with annotation feature.**

Podium should have Motorized Tilting, Motorized Height Adjustment of the Podium as per user height, Built-in Connectivity for HDMI, USB, Power for External Laptop at the Top, Space to place CPU. Podium touch monitor shall have built in annotation feature.

Podium touch monitor shall be compatible with Annotator hardware device for future expansion if required.

## 1.21.    BOQ ITEM NO. 23

**Desktop PC** with Intel Core i7 or higher with min. 8GB of RAM DDR4, 1TB SATA II hard drive, 10/100/1000 Mbps Ethernet Network Interface Card, including additional 2-port Matrox or NVidia Graphics Card with minimum 1GB dedicated Graphics RAM for providing HDMI output to switcher for projection and another HDMI output for connecting 21" LED PC monitor for local display supporting minimum resolution up to 1920x1200 and inclusive of 21" HDMI LED monitor with mounting accessories and customization for flush mounting in furniture.

It shall be supplied with Licensed Operating System Windows 10 or above, Licensed Microsoft Office latest version, USB wireless Keyboard, USB wireless Mouse, minimum 1 x USB2.0 spare port

1.22.        **BOQ ITEM NO. 24**

**ULTRA SHORT THROW PROJECTOR**

**Ultra Short Throw Projector -1 Chip DLP laser minimum 5000 Lumens, 16:10 Aspect Ratio, WUXGA display Resolution, Minimum Ports – HDMI/ HD BaseT, USB and RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.**

**Inclusive of standard or optional lens as per OEM to project on a 120" diagonal screen.**

- Type of projection technology: DLP laser phosphor
- Should support wall installation, and shall be supplied with all requisite mounting accessories such as brackets, rods and cables
- Lens specification: 0.25 UST or better.
- Brightness: Minimum 5000 lumens or better
- Resolution: 1200 or better with 16:10 Aspect ratio
- Supported Interfaces: HDMI/ HDBaseT,

1.23.        **BOQ ITEM NO. 25**

**6000 LUMENS PROJECTOR**

**Laser type Projector - 1-Chip DLP Technology, minimum 6,000 Lumens, 16:10 Aspect Ratio, Resolution: WUXGA (1920 x 1200), contrast ratio 500000:1 (500000:1 is measured as per Full On/Off method), Minimum Ports - HDMI and HDBaseT, RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.**

**Inclusive of standard or optional lens as per OEM to project on a 150" diagonal (3320mm W x 1868mm H) size screen from a throw distance of not more than 4000mm from the screen.**

- Type of projection technology: 1-chip DLP, Laser phosphor based.
- Contrast ratio" 500000:1 (**(500000:1 is measured as per Full On/Off method)**)
- Should support ceiling suspended installation, and shall be supplied with all requisite mounting accessories such as brackets, rods and cables
- Lens specification: It should permit projection on an approximately 150" diagonal screen from a throw distance of not more than 4000mm from the screen. Lens may be a standard or optional accessory; however, cost for the same shall be inclusive

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- For providing projection on a High Gain Material Tubular Motorized Projection screen of size approximately 150" diagonal (3320mm W x 1868mm H, 3810mm diagonal approx.) having aspect ratio of 16:9
- Brightness: Minimum 6000 lumens or better
- Resolution: WUXGA (1920 x 1200) or better with 16:10 Aspect ratio
- Supported Interface: 1 x HDMI, 1 x HDBaseT (RJ-45), 1 x VGA on 15 pin, 1 x 3.5 mm audio, 1 x RS232 or 1 x USB for control.

1.24.  **BOQ ITEM NO. 25A**

**Laser type Projector - 1-Chip DLP Technology, minimum 17,000 Lumens,16:10 Aspect Ratio, Resolution: WUXGA 1920x1200, Minimum Ports - 1 x HDMI, 1 x HD BaseT (RJ-45) 1 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required. Auto keystone correction: Yes; Quick corner: Yes; Contrast ratio: 500000:1 or better**

**Inclusive of standard or optional lens as per OEM to project on a 226" diagonal size screen.**

- Type of projection technology: 1-chip DLP, Laser based
- Contrast ratio: 500000:1
- Should support ceiling suspended installation, and shall be supplied with all requisite mounting accessories such as brackets, rods and cables
- Lens specification: It should permit projection on an approximately 226" diagonal screen.
- For providing projection on a High Gain Material Tubular Motorized Projection screen of size approximately 226" diagonal having aspect ratio of 16:9
- Brightness: Minimum 17000 lumens or better
- Resolution - WUXGA (1920 x 1200) or better with 16:9 Aspect ratio
- Supported Interface: 1 x HDMI, 1 x HDBaseT (RJ-45) ,1 x USB or 1 x RS232 for control.

| | |
|---|---|
| ITEM No-26 | Minimum 80" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. (approx. 1771mm x 996mm, 2032mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other I/Os for motorized operation as required. (Tab tensioned for short throw projectors) |
| ITEM No - 26A | Minimum 106" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. inclusive of all items such as relay box, LVC unit or any other I/Os for motorized operation as required. (Tab tensioned for short throw projectors) |
| ITEM No -27 | Minimum 136" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. (approx. 3010mm x 1694mm, 3454mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other I/Os for motorized operation as required. (Tab tensioned for short throw projectors) |
| ITEM No -28 | Minimum 150" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. (approx. 3320mm x 1868mm, 3810mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other I/Os for motorized operation as required. (Tab tensioned for short throw projectors) |

| ITEM No -<br>28A | Minimum 226" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. Inclusive of all items such as relay box, LVC unit or any other I/Os for motorized operation as required. (Tab tensioned for short throw projectors) |
|---|---|
| ITEM No -29<br>& 30 | 65" narrow bezel LED Professional 4K UHD display, Brightness- Min 400 , Contrast- 5000:1 , Viewing Angle – 178/178, 16:9 Aspect ratio, min. 2 x HDMI , 2-USB, 1DP/ DVI, Inbuilt wifi/ Bluetooth , 1- RJ 45 , 1- Audio in & out and 1-RS 232/IR Interfaces, inclusive of all mounting bracket. |
| ITEM No -31 | SITC of 55" narrow bezel LED Professional Display, 4K Resolution, Brightness- Min 400 , Contrast- 5000:1 , Viewing Angle – 178/178, 16:9 Aspect ratio, min. 2 x HDMI , 2-USB, 1DP/ DVI, Inbuilt wifi/ Bluetooth , 1- RJ 45 , 1- Audio in & out and 1-RS 232/IR Interfaces, inclusive of all mounting bracket. |

1.25.        **BOQ ITEM NO. 33**

**Gooseneck Microphone**

**Gooseneck Microphone consisting of - 1 x Gooseneck Microphone with base and ON/OFF switch; Min. Frequency Response - 80Hz - 16 KHz, Polar Pattern : Cardioid; Transducer : Condenser type; Max SPL: 130 dB SPL ; with 3 pin XLR connectivity, complete with Foam Windscreen and standard accessories.**

- Frequency response:        80Hz to 16 KHz
- Transducer Type:        Condenser
- Polar pattern:        Cardioid
- Dynamic range  :        >105dB or better
- Max SPL:        >130dB or better

1.26.        **BOQ ITEM NO. 34**

**UHF Wireless Lapel Microphone**

**UHF Wireless Lapel microphone System with body-pack transmitter and Cardioid Condenser Lavalier microphone , No. of Channel - 40 channels per band ,UHF tuning bandwidth : 60 MHz,  Minimum Frequency Step : 25 kHz, Receiving System - True Diversity, Image Rejection 60 dB nominal, RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Frequency Response : 35 Hz to 15,500 Hz ,Dynamic Range 115 dB or higher (A-weighted), typical ,switch function : Mute/unmute  & On/OFF, RF Power Output High: 30 mW, Low: 10 mW (switchable), Antenna Power 12 V DC, 160 mA (combined), Maximum Output Level XLR, balanced : +14 dBV 6.3 mm (1/4"), unbalanced : +8 dBV, Antenna Input BNC-type 50 ohms, Input Connections screw-down 4-pin connector, operating range of 100m or better, complete with all cables and standard accessories.**

- Diversity:        True diversity or better
- Tuning Bandwidth        60MHz or more
- Channels :        minimum 40 Channels per band
- Frequency response:        35 Hz to 15 KHz

- Radiated Transmitter Power: High: 30mW; Low: 10 mW (switchable)
- Transducer Type: Condenser
- Polar pattern: Cardioid
- Dynamic Range: Dynamic Range 115 dB or higher

### 1.27.      BOQ ITEM NO. 35

**UHF Wireless Head-worn Microphone**

**UHF Wireless Lapel microphone System with body-pack transmitter and Omnidirectional Condenser Headworn Microphone , No. of Channel - 40 channels per band ,UHF tuning bandwidth : 60 MHz, Minimum Frequency Step : 25 kHz, Receiving System - True Diversity, Image Rejection 60 dB nominal, RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Frequency Response : 35 Hz to 15,500 Hz ,Dynamic Range 115 dB or higher (A-weighted), typical ,switch function : Mute/unmute & On/OFF, RF Power Output High: 30 mW, Low: 10 mW (switchable), Antenna Power 12 V DC, 160 mA (combined), Maximum Output Level XLR, balanced : +14 dBV 6.3 mm (1/4"), unbalanced : +8 dBV, Antenna Input BNC-type 50 ohms, Input Connections screw-down 4-pin connector, operating range of 100m or better, complete with all cables and standard accessories.**

- Diversity: True diversity or better

- Tuning Bandwidth: 60MHz or more
- Channels : Minimum 40 Channels per band
- Frequency response: 35 Hz to 15 KHz
- Radiated Transmitter Power: High: 30mW; Low: 10 mW (switchable)
- Transducer Type: Condenser
- Polar pattern: Omnidirectional
- Dynamic Range: Dynamic Range 115 dB or higher

### 1.28.      BOQ ITEM NO. 36

**UHF Wireless Handheld Microphone**

**UHF Wireless Handheld Microphone with handheld transmitter with cardioid dynamic microphone capsule, No. of Channel - 40 channels per band, UHF tuning bandwidth : 60 MHz, Minimum Frequency Step : 25 kHz , Receiving System True Diversity, Mute/unmute & On/OFF Switch, Frequency Response : 30 Hz to 16,700 Hz, Unique multifunction button to switch to a backup frequency , RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Antenna Power 12 V DC 160 mA (combined), Modulation : FM, Maximum Output Level XLR, balanced: +14 dBV 6.3 mm (1/4"), unbalanced: +8 dBV , Antenna Input BNC-type, 50 ohms, Transmitter RF Power Output High: 30 mW, Low: 10 mW (switchable), at 50 ohms, operating range of 100m or better, complete with all cables and standard accessories.**

- Diversity: True diversity or better
- Tuning Bandwidth: 60MHz or more
- Channels: Minimum 40 Channels per band

- Frequency response:            30 Hz to 16 KHz
- Radiated Transmitter Power:    High: 30mW; Low: 10 mW (switchable)
- Transducer Type:               Dynamic
- Polar pattern:                 Cardioid
- Dynamic Range:                 Dynamic Range 115 dB or higher

## 1.29.       BOQ ITEM NO. 44

### 10 x 6 AUDIO DSP (with AEC feature)

**Audio DSP with DANTE with min 10 No's Mic/Line Input, 6 line level outputs, Support Min 16 channels of AEC processing, Built in/ Supported 64 x 64 DANTE channel, dual-redundant DANTE/AES67 audio transport, USB Audio Interface 24Bit, 48Khz, Frequency Response: 20Hz to 20KHz, Dynamic range: > 105 dB, Ethernet Port, RS232 connector for interfacing with 3rd party control systems, 6 No's or better GPIO, Embedded media engine for audio playback and recording etc complete with accessories**
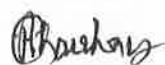
- No. of Inputs Channels: should have minimum 10 mic/line inputs
- Audio Input DC Phantom Power: should have +48 VDC
- Audio Output Interface: should have minimum 6 balanced/unbalanced outputs
- **Minimum 16 channels** of Acoustic echo cancellation (AEC) shall be supported on single DSP.
- Dante channel of 64x64 shall be supported
- It shall have USB audio interface port
- Control Interface : Minimum 1 x RS232 for third party control, 1 x RJ-45 based Ethernet port supporting TCP/IP for configuration. 6 x GPIO ports
- Gain Range  : 0 to +66 dB with step 6 dB
- Frequency Response : should be between 20 Hz to 20 kHz
- THD + Noise : should have <0.005%, 20 Hz to 20 kHz
- Input Impedance : should be minimum 10K ohm or better
- Output Impedance : should be 200 Ohms or better
- Dynamic range : should have >105 dB, 20 Hz to 20 kHz
- Mounting Type : should be rack mountable

## 1.30.       BOQ ITEM NO.45

### 8 x 3 AUDIO DSP

**8x3 DSP - Digital Processors with 4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input; 1 stereo and 2 mono outputs; 2-channel USB audio interface, Full digital processing on inputs and outputs; Dynamic Range 110 dB or higher, Onboard 6 nos. acoustic echo canceler (AEC) processing ; Front panel direct operation and Web Remote functionality; LAN Port for third-party control**

- No. of Inputs Channels: should have minimum 4 mic inputs, 2 Mic/Line Inputs and 1 x Stereo input
- Audio Input DC Phantom Power: should have +48 VDC
- Audio Output Interface: should have minimum 1 Stereo and 2 mono outputs
- Control Interface: Minimum 1 x RJ-45 based Ethernet port , 1 x USB Interface
- Maximum Gain : 64 dB
- Frequency response : should be between 20 Hz to 20 kHz
- THD + Noise : should have <0.03%, 20 Hz to 20 kHz

- Input Impedance : should be minimum 10K ohm or better
- Output Impedance : should be 150 Ohms or better
- Dynamic range : should have >110 dB
- Mounting Type : should be rack mountable

## 1.31.        BOQ ITEM NO. 46

**30W Ceiling Mount Speaker**

**Full-range or 2-way minimum 4" ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 80 Hz - 16 kHz (-10dB), Power handling@70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 86 db or better, Max SPL@1 Mtr - 100dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories.**

- Frequency range (-10dB) : should be between 80 Hz to 16 kHz or better
- Power Rating : minimum 30 W or better
- Maximum Peak SPL @ 1m : 100dB or better
- Drivers: Full range driver or 2-way - minimum 1 x 4" LF Driver & minimum 1 x 0.75" HF Driver
- Coverage (conical):        100 degrees or higher
- Sensitivity 1W @1m : 86dB or better
- Impedance : 4/8 Ohms or 70/100V tapping operation

## 1.32.        BOQ ITEM NO. 47

**30W Surface/Wall Mount Speaker**

**Full-range, minimum 4"-5" LF or better surface/wall mount loudspeaker, 4 to 8 ohms low impedance and 70V/100V operation, Frequency Response - 60 Hz - 19 KHz (-10dB), Power handling@ 70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 84 dB SPL or better, Max SPL(peak) - 106dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories.**

- Frequency range (-10dB) :        should be between 60 Hz to 19 kHz or better
- Power Rating :        minimum 30 W or better
- Maximum Peak SPL @ 1m :        106dB or better
- Drivers:        Full range driver or 2-way - minimum 1 x 4"-5" LF Driver & minimum 1 x 0.75" HF Driver
- Coverage (conical):        110 degrees or higher
- Sensitivity 1W @1m :        84dB or better
- Impedance :        4 to 8 Ohms and 70/100V tapping operation

## 1.33.        BOQ ITEM NO. 48

**Minimum 100 Watt or more Column Loudspeaker**

**Passive Multi driver Column Array Speaker with 5 or more Full range drivers with power output 100 Watt @ 70V /100V , frequency response : 130 Hz - 15 kHz (-10 dB), Sensitivity : SPL/W@1 Mtr - 89 dB SPL or better, Max SPL (peak) 116 dB or better, Coverage - 120 degree Horizontal x 30-45 degree Vertical and inclusive of**

17

**Pan Tilt Wall mounting brackets, assemblies, hardware and standard accessories.**

- Frequency range :                    should be between 130 Hz to 15 kHz or better
- Power Rating  :                      minimum 100 W or better@70V/100V
- Maximum Peak SPL @ 1m :              116dB or better
- Sensitivity 1W @ 1m :                89dB or better
- Coverage (conical):                  **120H x 20-25 V degrees or better**
- Driver :                             5 or more full range drivers or combination of LF/HF

## 1.34.        BOQ ITEM NO. 49

**Four Channel Power Amplifier 4 x 240 W**

**Multi Channel Class D Power Amplifier with DANTE and Energy Star Certification delivering  4 x 240 W , Selectable 4/8 Ohms or 70V/100V operation , distortion <0.05%, Frequency response 20 Hz to 20 kHz, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc**

*( In case OEM is quoting dual channel amplifier configuration in that case they have to quote multiple Qty. to match the minimum power requirements per Channel)*

- Frequency Response : should be between 20 Hz to 20 KHz
- No. of Channels : should have 4 channels or equivalent
- Output Power per Channel: minimum 240 Watts per channel
- Should have DANTE Networking port
- selectable 4/8 ohms or  70/100V operation
- S/N Ratio :  > 101 dBA
- THD 20 Hz - 20 kHz, 1 W: less than 0.1%
- Channel Separation (Crosstalk) : > 72 dB
- Amplifier Class: Class D Amplifier
- Cooling requirement: temperature level controlled fans for front to rear airflow
- Protection: should have overload protection, Thermal Protection etc
- Should have energy star certification

## 1.35.        BOQ ITEM NO. 50

**Dual Channel Power Amplifier 2 x 60 W**

**Dual Channel Commercial Class D Amplifier with DANTE and  Energy Star Certification delivering  2 x 60 W @ 4/8 Ohms and 70V/100V, distortion <0.05%, Frequency response 20 Hz to 20 kHz, +0.5 / -1 dB, Crosstalk >72 dB, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc.**

- Frequency Response : should be between 20 Hz to 20 KHz
- No. of Channels : should have 2 channels
- Output Power per Channel: minimum 60 Watts per channel
- Should have DANTE Networking
- selectable 4/8 ohms or  70/100V operation
- S/N Ratio :  > 101 dBA
- THD 20 Hz - 20 kHz, 1 W: less than 0.1%
- Channel Separation (Crosstalk) : > 72 dB
- Amplifier Class: Class D Amplifier
- Cooling requirement: temperature level controlled fans for front to rear airflow

- Protection: should have overload protection, Thermal Protection etc
- Should have energy star certification

## 1.36.      BOQ ITEM NO. 51, 52, 53

### 19" Floor Standing AV Racks – 15U, 22U, 36U

- Construction shall be high strength robust aluminum extruded frame structure with ventilation slots on the sides and top & bottom covers with provision to mount 4 fans on top cover.
- The thickness of the CRCA sheets used for doors and side panels shall be 1.2mm and 1mm respectively.
- Front and rear open-able doors shall be provided.
- Top and bottom covers and side panels shall be of sheet steel and shall be powder coated.
- Vertical 19" metric panel mounts and door trims shall be of sheet steel and powder coated.
- The top and bottom covers shall be provided with number of 50mm and 75mm round cable knockouts for cable entry and cable knockouts shall be edge protected with rubber grommets.
- Perforation - for full / split perforated doors the style should be" Honeycomb" type of perforation for maximum air circulation and stiffness.
- Cabinet shall be capable of dismantling and reassembling at the site, i.e., SKD or semi-knocked-down condition.
- Locks options shall be available such as slam lock - common key, unique key or a swing handle lock.
- Side panels must contain slam latches for locking purpose and option of providing slam locks, if required.
- Two pairs of 19" Equipment mounting angles with mounting holes conforming to IEC 2973 shall be provided.
- Front glass door shall be made of toughened glass, tinted with easily detachable hinges.
- Two Pair of slotted vertical cable channel shall be provided at front and back for managing cables.
- Lockable industrial grade castors with foot brakes.
- Rack shall be supplied with 2 x 90 CFM fans at top (for 15U) and 4 x 90 CFM fans at top (for 22U and 36U).
- Rack shall be supplied with equipment mounting hardware in pack of 100s such as mounting nuts and screws either 12-24 or M6 type as applicable
- Rack shall be equipped with minimum 2 nos. of 8 x 5/15 Amps power supply sockets, 2 nos. of vertical cable managers and 2 no. of 19" 1U size horizontal cable managers.
- Finish – cabinet shall be black or grey epoxy powder-coated of durable quality.

- Powder Coating – at least 80 Microns.
- Rack sizes – 600mmW x 600mmD for 15U & 22U, 800mmW x 800mmD for 36U.

## 1.37.      BOQ ITEM NO. 54

### Fully Digital Conference Control Unit (minimum 50 units)

**Central Conference Controller with integrated Recording facility & Web Server for control, built-in Digital Signal Processing, control up to minimum 50**

Discussion Unit and expandable up to 150 Discussion Unit , USB port to connect USB Storage Device for Direct Recording of the Meeting.

LCD display to implement several Conference Mode: Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input & Output for connectivity with external system, LAN connection for web server or camera control protocol,4 digital RJ 45 ports, XLR out, XLR in, RCA in and two RCA out, Power connector with locking, complete with External power supply. OEM-specific cable shall be inclusive.

## 1.38.        BOQ ITEM NO. 55

### Fully Digital Chairman Unit

Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital.

Frequency Response: 30Hz-15kHz, Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length

## 1.39.        BOQ ITEM NO. 56

### Fully Digital Delegate Unit

Delegate Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signaling ,User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital.

Frequency Response: 30Hz-15kHz, Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length

## 1.40.        BOQ ITEM NO. 41, 42, 43 & 57 THRU 66

### Various AV Cables

Cables should meet following minimum specifications or better:

| | | |
|---|---|---|
| 1 | Microphone Cable | 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum |
| 2 | Speaker Cable | 14 AWG Speaker Cable in existing conduit. Two X 14 AWG conductors, High performance cable for audio signals, Non-Plenum |
| 3 | Control Cable | Kindly read as : Minimum 4 core, 0.5 Sq. mm. or better cable, ATC, untwisted, PVC sheathed cable is required for control cable. |
| 4 | HDMI Cables (1.5mtr/5ft, 5mtr/15ft, 10mtr/30ft, 15mtr/50ft, 20mtr/75ft) | Male to Male - Moulded Connector, 1080p/60 verified, Gold plated contacts |
| 5 | VGA with Audio (1.5mtr/5ft) | Male to Male VGA Cables With Audio- Moulded Connectors. VGA Cable: 15-pin HD Male to Male Moulded & Mini Stereo Audio Cable: 3.5 mm Stereo- 6' (1.5 m) |
| 6 | VGA Cable (5mtr/15ft, 10mtr/30ft) | Male to Male VGA Cables - Moulded Connectors, High performance cable designed for transmission of computer video and ID bit signals, Pin 9 is passed through from end to end, Terminated with high quality VGA moulded connectors |
| 7 | Shielded Twisted Pair Cable | 24 AWG solid copper construction Shielded Twisted Pair Cable, SF/UTP design with four unshielded twisted pairs inside an overall braid and foil shield, IEEE/EIA/TIA 568.C2 |

## 1.41.  BOQ ITEM NO. 69

### 16 PORT POE LAYER 2 MANAGEABLE NETWORKING SWITCH

**Layer2 manageable networking switch, minimum 16 # 10/100/1000Tx ports, all ports capable of providing PoE+ as per 802.3at, switch having a PoE power budget of minimum 240 Watts, minimum 2 dedicated SFP ports.**

### Switch Architecture

- The switch should have 16 X 10/100/1000 Base-Tx ports; all ports shall be 802.3at-compliant PoE+ capable, with the switch capable of providing minimum 240 Watts of PoE power budget.
- The switch should also support PoE as per 802.3af on all ports.
- Switch should have 16 Nos. 10 Base-T/100Base-Tx/1000Base-Tx auto-sensing ports complying to IEEE 802.3, IEEE 802.3at, IEEE 802.3u and 802.3ab standard, supporting half duplex mode, full duplex mode and auto-negotiation on each port.
- Switch should have minimum 2 dedicated SFP ports.
- The switching fabric for all the LAN ports shall be non-blocking and each port shall run at wire-speed / line-rate. Switching fabric capacity of the switch should be capable to run all the ports at line-rate.

21

- Switch should support both IPv4 and IPv6 – Switch should support features like Neighbour Discovery, Syslog, Telnet, SSH, Web GUI, SNMP, NTP, DNS, RADIUS over IPv6
- Switch should have non-blocking switching bandwidth of minimum 24 Gbps.
- Switch should have forwarding rate of minimum 26Mpps.
- Switch should be IPv6-Ready from Day 1

## Layer 2 Features

- IEEE 802.1Q VLAN tagging
- 802. 1Q VLAN on all ports with support for minimum 255 VLANs.
- Support for minimum 16k MAC addresses.
- Spanning Tree Protocol as per IEEE 802.1d.
- Multiple Spanning-Tree Protocol as per IEEE 802.1s.
- Rapid Spanning-Tree Protocol as per IEEE 802.1w.
- Self-learning of unicast & multicast MAC addresses per switch port.
- Jumbo frames up to 9000 bytes.
- Link Aggregation Control Protocol (LACP) as per IEEE 802.3ad.

## Security Features

- Switch should support MAC Address based Filters / Access Control Lists (ACLs) on all switch ports.
- Switch should support Port based Filters / ACLs.
- Switch should support RADIUS and TACACS+ for access restriction and authentication.
- Secure Shell (SSH) Protocol, HTTP and DoS protection.
- ARP spoofing, DHCP snooping etc.
- Switch should support static ARP, Proxy ARP, UDP forwarding and IP source guard.

## Management Features

- The switch should support CLI as well as web-based Management.
- Switch should be SNMP manageable with support for SNMP Version 1, 2 and 3.
- Switch should support all the standard MIBs (MIB-I & II).
- Switch should support TELNET and SSH Version-2 for Command Line Management.
- Switch should support 4 groups of embedded RMON (history, statistics, alarm and events).
- Switch should support System & Event logging functions as well as forwarding of these logs to multiple syslog servers.
- Switch should support on-line software reconfiguration to implement changes without rebooting. Any changes in the configuration of switches related to Layer-2 & 3 functions, VLAN, STP, Security, QoS should not require rebooting of the switch.
- Switch should have comprehensive debugging features required for software & hardware fault diagnosis.
- Switch should support multiple privilege levels to provide different levels of access.
- Switch should support SNTP (Network Time Protocol).
- Switch should support FTP/TFTP for software upgrade.
- Switch support multiple configuration file & backup configuration file.

**1.42.**        **BOQ ITEM NO. 70**

**WIRELESS ACCESS POINT**

- IEEE 802.11ac compliant, dual radio (2.4 GHz & 5GHz) concurrent operation
- 2x2 Multiple Input / Multiple Output (MIMO) access point
- Internal/external antennas for 2.4Ghz & 5GHz operations
- One 10/100/1000 Base-Tx auto-sensing (RJ45) PoE port
- AP must have two radios (2.4GHz & 5GHz)
- Maximum Associated Users: 240 (120 per radio)
- Power Supply: via an 802.3at POE switch port or OEM supplied Power Injector
- IEEE 802.3 10-BASE-T, IEEE 802.3u 100BASE-TX, 1000BASE-T, IEEE 802.3ab 1000BASE-T
- AP must include OEM supplied mounting brackets and accessories for both mounting options such as ceiling or wall

**Security:**

- WPA
- IEEE 802.11i WPA2
- WPA3 (Enterprise, Personal)
- Captive Portal (External RADIUS, Click-Through)
- IEEE 802.1X authentication and accounting

**Encryption:**

- WEP – 64 and 128 bit, TKIP-MIC: RC4 40 bit, 104 bit and 128 bit.
- PHY data rates up to 2.1Gbps per AP
- Support for band steering, client load balancing.
- Should support 802.1X authentication
- Should support centralized configuration and management and reporting
- Should support Wi-Fi Alliance Protected Access 1.0 (WPA) and 2.0 (WPA2)

1.43.          **BOQ ITEM NO. 71**

**32 CHANNEL AUDIO MIXER**

**Min. 32 Channel high performance Audio Mixer unit with 16 Mic/Line + 8 Mic/Stereo Line Channels, 4 x AUX, USB-Audio Interface, with integrated digital FX processors and Dual Graphic-EQ's, low noise and low distortion discrete microphone preamps built-in, Group-switch-able +48V phantom power, AES in and out, Delay on inputs and outputs,**

- No. of Channels: Should have Min 32 channel
- Inputs : 16 Mic / Line + 8 Mic / Stereo Line Channels, 4 x AUX
- Frequency response : Should have 20 Hz to 20 kHz
- THD + Noise : Should have <0.1%, @ 1 KHz
- USB-Audio Interface with integrated digital FX processors and Dual Graphic-EQ's.
- Shall have built in low noise and low distortion discrete microphone preamps.

1.44.          **BOQ ITEM NO. 72**

**Smart Lesson Capture & Faculty Development/Reflection System for 40 seater classroom**

- (A) Lesson Observation, Feedback with 360-degree Camera
- (B) Lesson Audio Recording Microphone.
- (C) Smart & Intelligent Lesson Capture Recording System.
- (D) Smart & Intelligent Lesson Capture System Solution Software.
- ( E) Teacher/Instructor Learning & Development Digital Online Training.

| (A) Lesson Observation, Feedback with 360-degree Camera | | | | |
|---|---|---|---|---|
| Sr. No. | Parameter | Detailed Specification | | |
| 1 | Field of View | 180+-degree Surface 2D, complete classroom captured from single ceiling mounted camera recording the entire classroom scene with no blind spots. | | |
| 2 | V Cams | Optional de warped virtual views as separate video stream direct from camera. | | |
| 3 | Technology | Digital Technology | | |
| 4 | Video resolution | Minimum 3200 x 3000 | | |
| 5 | Frame rate | Minimum 10 fps | | |
| 6 | Video Compressio n | H.264 | | |
| 7 | Mount | Multiple ceiling mounting options including: Surface mount, discreet flush concealed mount and hanging pendant mount. | | |
| 8 | Motion Recording | Provide recording triggers based on motion in the scene. Including polygonal motion regions. | | |
| 9 | Privacy Regions | Facilitate admin specified privacy regions which are not recorded or streamed. | | |
| 10 | Power | <10 W supported | | |
| 11 | Image Features | 1. Automatic white balance (AWB): 2,500K to 8,000K | | |
| | | 2. Wide Dynamic Range (WDR): Electronic WDR 60dB | | |
| | | 3. Brightness | | |
| | | 4. Sharpness | | |
| | | 5. Contrast | | |
| | | 6. Saturation | | |
| | | 7. Exposure compensation | | |
| 12 | Robustness | Fixed, precision factory-focused, thermally stable optical system. | | |
| 13 | Vandal Resistance | Optional vandal resistant dome | | |

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| 14 | Multiple Purposes of the Cameras | It shall be possible for the camera to generate minimum two streams which can be separately used for general surveillance software and Lesson Capture system software | | |
|---|---|---|---|---|
| 15 | Warranty | Comprehensive warranty for 3 years | | |
| 16 | Certifications | IEEE802.3af, CE, AS/NZS CISPR 22:2009+A1:2010, CISPR 24:2010 (Class A), FCC, ICES-003, KCC, CU, RCM, SASO UL 60950-1(ed.2) & CAN/CSA C22.2 No. 60950-1-07, RoHS, REACh | | |
| | | | | |

**Lesson Audio Recording Microphone**

| Sr. No. | Parameter | Detailed Specification | | |
|---|---|---|---|---|
| 1 | Type | Studio-grade boundary microphone | | |
| 2 | Transmission mode | Cable | | |
| 3 | Polar Pattern | Semi Cardioid | | |
| 4 | Audio Freq mode | 30-20000 Hz | | |
| 5 | SPL | Support up to 140 dB | | |
| 6 | Power Input | 48 VDC, phantom power | | |
| 7 | Sensitivity | 22mV/Pa | | |
| 8 | Cable Length | 6 m | | |
| 9 | Warranty | Comprehensive warranty for three years | | |
| 10 | Mounting | Wall or desk mounting. | | |
| | | | | |

**C) Smart & Intelligent Lesson Capture Recording System.**

| Sr.No. | Parameter | Detailed Specification | | |
|---|---|---|---|---|
| 1 | Smart IOT | Status reporting of equipment to cloud including connected devices and their status, internal temperature, network status. | | |
| | | Remote control and system management including passwords, system updates, camera power control. | | |
| | | Single unit plug and play solution. | | |
| 2 | Networking | DHCP Client or Manual configuration for the system connection to the School network. | | |
| | | Auto network configuration of camera network settings including DHCP Router. | | |
| 3 | Security | Advanced internal physical firewall protection to prevent unauthorized access to camera and recordings. | | |
| | | Limit network access to video to specific source endpoints. | | |
| 4 | Asset tracking | Automatic Reporting of MAC address of connected devices. | | |
| 5 | Camera Connection | Power over Ethernet supply to camera, power and network to camera provided on single cable. IEEE standard 802.3af | | |

| | | | | |
|---|---|---|---|---|
| 6 | Power | DC 12-48 V power. | | |
| 7 | Audio Pre-Amplifier | +48 V Phantom power for condensing boundary microphone | | |
| | | Microphone gain control | | |
| | | Microphone Input XLR | | |
| 8 | Audio encoding | PCM audio, minimum sample rate 22050/s, AAC codec, minimum 16kbps | | |
| 9 | Recording Video | Capture and record video from the camera 24/7 | | |
| 10 | Recording Audio | Capture and record audio 24/7 from the microphone | | |
| 11 | Storage | Provide storage for a minimum 4 weeks continuous recording of school day. 2TB HDD per camera | | |
| 12 | Encryption | Encryption of all recorded video and audio to PyCrypto, AES-256 (32-byte key) | | |
| 13 | Secure communication | All user interactions, login and video communication are sent over https with SSL and encryption. | | |
| 14 | Physical Security | Facilitate physical security of recorded content. | | |
| 15 | Certifications | CE, FCC/CFR 47, ICES-003, IEC 60950-1(ed.2), IEC 60950-1(ed.2); am1, IEC 60950-1(ed.2); am2, CAN/CSA C22.2 No. 60950-1-07, RoHS, Reach | | |
| 16 | Warranty | Comprehensive warranty for three years | | |
| 17 | System software features | Remote management and software updates | | |
| | | Continuous uninterrupted recording of video and audio | | |
| | | Automatic encryption of recorded video and audio | | |
| | | Seamless communication with cloud infrastructure | | |
| | | Secure Encrypted Transfer of recorded video to cloud storage | | |
| | | Local Live stream of video and audio | | |
| | | Local archive video access | | |
| | | Accessible from any point on the same school network. | | |
| | | Software provided by same solution as cloud service. | | |
| 18 | Cloud infrastructure | System will seamlessly communicate with Smart & Intelligent Lesson Capture Cloud | | |
| | | Seamless video viewing whether video is in cloud or local, same user interface, experience, login and features. | | |
| | | Provision for 2 hours of video stored in the cloud per classroom at any time | | |
| | | Provision for 2 hours of viewing from cloud per classroom per month | | |
| | | Optional additional cloud storage and viewing available with additional charges | | |
| | | | | |
| **d) Smart & Intelligent Lesson Capture System Solution Software.** | | | | |
| Sr. No. | Parameter | Detailed Specification | | |

| 1 | Application Usability | Web browser delivered SAAS user software | | |
|---|---|---|---|---|
| | | No requirement for installed software on user's PC | | |
| 2 | Management | Remote automated management and software updates | | |
| | | Secure user management and authentication | | |
| 3 | Cloud Capabilities | Support Local and Cloud Live camera streaming | | |
| | | Support Local and Cloud recorded video access | | |
| | | User-selective moving of video clips to cloud storage and sharing | | |
| | | Support optional provision of additional cloud storage to facilitate long-term or larger-scale lesson storage and sharing. At additional charge. | | |
| 4 | Access Management | Users can access multiple organization from a single login | | |
| 5 | Teacher Calendar Management | Users/Teachers provided with a calendar view, highlighting lessons they have or will have access to, clips they have created or been shared. They can use this calendar interface to access video from a specific time and day. | | |
| 6 | User Based Camera Management | Smart scrubber for video interrogation including zooming | | |
| | | Role based permissions structure | | |
| | | Restricted Camera Access based on users' predefined timeslots with 1-minute granularity | | |
| | | Allocate single or recurring camera access timeslots retrospectively or in advance | | |
| | | User can request and have approved via the system timeslots to access specific cameras | | |
| | | Access recorded video directly from user friendly calendar showing video access slots | | |
| | | Comprehensive classroom recording schedule management | | |
| | | Secure user-based camera management | | |
| | | Automatic camera password management | | |
| 7 | Activity Tracking & Management | Email notifications of assigned camera access | | |
| | | System alert emails | | |
| | | Full user activity auditing and tracking | | |
| | | Granular auditing of user activity on videos including, zooming and video position, play, pause and seek events | | |
| 8 | Clip Creation & Management | Create and save clips of video | | |
| 9 | | Store and organize clips in customizable folders and folder tree | | |
| | | Advanced sharing options of clips and folders to internal and external users, via the local gateway or via the cloud (by permission only) | | |
| | | Seamless optional synchronization of clips and folders to the cloud by available permissions only | | |
| | | Creating and sharing of clips all facilitated within the system without external export of content, to maintain security. | | |

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| | | | | |
|---|---|---|---|---|
| | | Ability to remove a user's access to clips retrospectively. | | |
| | | When creating a clip the user can zoom and change their view from the camera and this moving view is shared with the viewer of a clip to facilitate following a teacher or student round the room. The viewer can still look around the full scene if they choose. | | |
| | | Share comments in clips and collaborate with other users | | |
| 10 | Camera Viewing | View camera from multiple views simultaneously, such as zoomed in on two separate students | | |
| | | Store predefined views and groups of views for recall and sharing | | |
| | | View multiple cameras and classrooms simultaneously | | |
| | | Dynamic user interface supporting traditional and touch displays and full screen viewing modes | | |
| 11 | Record and produce graphical outputs of moments | While reviewing live or recorded lessons, manually create and record moments against the timeline of the lesson. | | |
| | | Provide search for moments and display moments against a section of recorded video, link from moment to the video for easy review of the event. | | |
| | | When creating moments, choose from specified list of key moments specified by the teacher development methodology as described in the Training and Development section. Add specific text as needed. | | |
| | | Or create basic moments with user generated comments | | |
| | | Produce smart dynamic graphical output of those manually created moments to aid in the reflection and assessment of the lesson and the teacher's progress. Output to be as required by the methodology as described in the Training and Development section. | | |
| 12 | Enhancing teacher's smart development & professional growth | Strengthening teachers 'capabilities for implementing Smart Education. These centres around lesson observation, self-reflection and peer review of the dynamic learning environment. This should be implemented in three below mentioned ways | | |
| | | Step 1: Machine generated smart reports on basic activity levels of the lesson. These reports shall be audio and motion histograms showing volume of audio and intensity of video motion on the timeline only. | | |
| | | Step 2: Self-reflection, review and recording of the lesson environment using the creation of key moments in line with the Training Methodology. Creating and reviewing this metadata via the graphical timeline outputs along with the outputs from step 1 allows for self and coach review of the lesson and teacher improvement. | | |
| | | Step 3: It shall be possible to share, videos and graphical metadata with internal or external coaches / mentors for teacher training and development. | | |

| Sr. No. | Parameter | Detailed Specification | | |
|---------|-----------|------------------------|---|---|
| E) Faculty /Instructor Learning & Development Digital Online Training. | | | | |
| 1 | Online Accessibility | Training content should be provided online and accessed and administered via secure administrator and user IDs and passwords | | |
| 2 | Multi-platform access | Training provided with multi-platform accessibility to all courses and content | | |
| 3 | System Setup Guidance | Online training to provide comprehensive setup, configuration and user guidance manual for the lesson capture system administrator | | |
| 4 | System Usage Guidance | Online training to provide comprehensive instruction and guidance for teacher users on how to use the lesson capture system to record, review, share and interrogate the captured classroom video | | |
| 5 | Learning Management | Online training courses provided via a learning management system facilitating user invitation or allocation, saved progress and staged progression. | | |
| | | The system shall present reports in such a way that senior leaders in the schools could track the progress of their teachers doing the courses and training. For example a Principal at a school or HOD at a college could be set up as a "team leader" and then supervise their teachers/ instructor/professors progress through the course. | | |
| 6 | Teacher Development, Self-reflection training. | Online training courses for teacher users on how to review, reflect and notice and record critically important moments from the video of the classroom. Advice for teachers and coaches/mentors on how to analyse and reflect on the data produced. | | |
| 7 | Academic Credibility | Teacher development, training and progress monitoring course and methodology, based on evidence from recent academic research and recent educational published literature. | | |
| 8 | Peer Credibility | Methodology being used will have established examples by other institutes of repute globally. | | |
| 9 | Integration | Teacher development training, to be fully bespoke and relevant to the Smart & Intelligent Lesson Capture System including best usage of the features of the system to achieve improvement. | | |
| 10 | External mentorship and coaching | External mentors trained in the methodology shall be available for hire for such services at separate & additional cost. It is beyond the scope of this tender. | | |
| 11 | Additional training and development | Additional training courses and coaching shall be available at separate & additional cost to develop further usage and skills within the methodology for more advanced teachers, heads of department or internal teacher trainers. | | |

## LIST OF ACCEPTABLE MAKES / MANUFACTURERS

| Sr. No. | Item Description | Acceptable Make/Brand/Manufacturer |
|---|---|---|
| 1 | Video Signal Equipment – Switcher, Cable Cubby, Scalars, Extenders for HDMI, VGA, Distribution Amplifiers, Control Processor, Wired Button Panel etc. | Crestron, Extron, Kramer |
| 2 | Wireless Touch Screen device for Control (iOS or Android based). | Apple, Samsung |
| 3 | Lecture Recording and Streaming Device | Extron, Lumens, Mediasite, Panopto |
| 4 | Live Streaming and VoD Application Software Platform, Hosting Solution | |
| | ii)Servers and Storage for Live Streaming and VoD Platform as above; OS platform and other environment such as databases etc., if any, shall be as per software application OEM requirements | Dell, HPE, Lenovo |
| 5 | Annotator | Extron/ Similar equivalent |
| 6 | Wireless Presenter System | Barco, Vivitek, Crestron |
| 7 | Lecture Capture Camera (AV Camera) | Lumens, Sony, Panasonic |
| 8 | Document Camera – Ceiling Mounted and Desktop Mountable | Lumens, Vaddio, WolfVision |
| 9 | Video Conferencing Endpoints – Codecs, Camera & Mic POD | Cisco, Polycom, Avaya, |
| 10 | Digital Podium with 22" Interactive Panel | AHA, Tecom, UNI |
| 11 | 19" Touch Enabled Display | Acer, Planar, Parblo, Viewsonic |
| 12 | Desktop PC for AV | Dell, HP, Lenovo |
| 13 | Ultra Short Throw /Laser Projectors – 5000, 6000 and 17000 Lumens, 1-Chip DLP | Barco, Christie, Digital Projection |
| 14 | Motorized Projection Screens | Dalite, Draper, Prima |
| 15 | 19", 55", 65" LED Display | Panasonic, Samsung, LG |
| 16 | Wired and Wireless Microphone System including cables for wireless antenna | Beyerdynamic, Electrovoice, Sennheiser, Audio Technica |
| 17 | Microphone, Speaker ,Shielded CAT6 and Control Cable | Belden, Klotz, Kramer, Tasker, Crestron, Extron |
| 18 | Audio DSP | Bi-amp, Bose, Audio Technica/ Klark Technik, BSS |
| 19 | 3 inch or more 4-5" Ceiling & Wall mount Speakers | Bose, Electrovoice, JBL, Tannoy |
| 20 | Column Speakers | Bose, Renkus-Heinz, Tannoy |
| 21 | Audio Amplifiers | Bose, Dynacord, Labgruppen, Power Soft |
| 22 | AV Racks | APW Vero President, Panduit, Rittal, Dynamic |
| 23 | Digital Audio Conferencing System | Beyerdynamic, Bosch, Sennheiser, Shure, Telvic |
| 24 | Video Cables (HDMI, VGA+Audio, DisplayPort DP/miniDP) and USB | Crestron, Extron, Kramer, Kanex Pro |

| 25 | AV Networking Switch and AV-Wireless Access Point | Cisco, HPE, Juniper, Allied Telesis |
|---|---|---|
| 26 | Mixer | Behringer, Allen & Heath, Yamaha/ Soundcraft |
| 27 | AV Connectors as may be required | OEM Standard or MX, Amphenol, Neutrik, |
| 28 | Smart Lesson Capture & Faculty Development/Reflection System | IRIS/ Onvu Learning/ Similar equivalent |

## SECTION V: BOQ & Technical compliance format

| BOQ & Technical Compliance _Format | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Name of Work: Tender for SITC OF AV WORKS AND OTHER RELATED WORKS AT VARIOUS BUILDINGS AT NALANDA UNIVERSITY, RAJGIR, BIHAR | | | | | | | | |
| Sr. No. | RA/D SR -2018 | DESCRIPTION OF ITEMS (Particular for SITC Include design and preparation of the shop drawing as per the available room/ halls. Comprehensive annual maintenance , Onsite support and dedicated staff and spare for Two year of defect liability period.) | U O M | Total Qty. | Make | Model No. | Compliance (Yes/No) as per NIT specification | Remarks/ Deviation, if any |
| 1 | RA-1 | Modular configurable type flush mount/table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc. for min. requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10/ 2x5Amps power outlet. | N o s . | 43 | | | | - |
| 2 | RA-2 | 3 I/P Switcher cum Transmitter with Audio embedding; supporting video output on a cable length up to 330 ft. (100 meters) on CAT6; Minimum 2 x HDMI, 1 x VGA on 15-pin D /Display Port + Audio 3.5mm; Output: 1 x HD Base-T, video output shall be on a single CAT6 shielded twisted pair cable; Auto switching between inputs; the device shall be HDCP compliant and with EDID support. | N o s . | 45 | | | | - |

| 3 | RA-3 | HDMI Twisted Pair Receiver, for receiving HDMI, RS232 & IR control up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45; Outputs: One HDMI; the device shall be HDCP compliant and with EDID support. | Nos. | 107 | | | | | - |
|---|---|---|---|---|---|---|---|---|---|
| 4 | RA-4 | HDMI Twisted Pair Extender, Transmits HDMI and control signal up to 230 feet (70 meters) over a shielded CAT6 cable, Output: One CAT6 twisted pair output on RJ-45, Inputs: One HDMI, Supports EDID and HDCP transmission. | Nos. | 82 | | | | | - |
| 5 | RA-5 | HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft. (70 meters), device should support HDCP and EDID transmission. | Nos. | 16 | | | | | - |
| 6 | RA-6 | SITC of passive HDMI plate. | Nos | 16 | | | | | - |
| 7 | RA-7 | Wireless Presentation Unit of HD content using laptops, tablets, and smartphones. Compatible with Windows OS X, Apple iOS, and Android, Supports 4K display resolutions; shall provide minimum 1 x HDMI output | Nos. | 26 | | | | | - |
| 8 | RA-8 | HDMI scalar cum matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 DVI-U /(HDMI, DVI, VGA supported) and minimum two video outputs - 2 x HDMI with parallel 2 x CAT6, 1 x audio output. It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant. | Nos. | 18 | | | | | - |
| 9 | RA-9 | HDMI scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+ Audio, 2 x DisplayPort and minimum Output 2 x HDMI with parallel Display/VGA/USBC and 1- | Nos. | 8 | | | | | - |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | audio Port outputs. It shall support resolutions up to 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant. | | | | | | | |
| 10 | RA-10 | SITC of 1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant. | N o s . | 3 | | | | | - |
| 11 | RA-11 | SITC of 1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant. | N o s . | 23 | | | | | - |
| 12 | RA-12 | Control Processor, with minimum ports as follows: 4 x bidirectional RS-232 serial ports, with hardware and software handshaking, 4 x IR/Serial ports (Inbuilt/ External), 4x Digital I/O ports, 4 x relays for controlling room functions, 1 x RJ-45 Ethernet monitoring and control, Supports 10/100/1000Base-T. | N o s . | 18 | | | | | - |
| 13 | RA-13 | WIRED CONTROL PANEL - Podium mountable, minimum 12-Button wired control panel for controlling various devices; it shall have - one volume control knob; minimum 3 x RS 232, 4 x Relays and 2 x IR ports, 2 I/O, 1 x LAN, to control the devices. A wired button control panel shall be provided for control of devices - minimum 12 buttons or more, with required no. of RS232, IR and RJ-45 based Ethernet IP Ports to control up to 1 projector, 1 screens, 1 - video switcher, 1 video recording device, 1 – 3 Input transmitter + receiver for (input switching) and audio system DSP as per the requirements of individual room. Note: External Module can be added to meet the above specification and will be accepted. | N o s . | 8 | | | | | - |

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| 14 | RA-14 | SITC of minimum 9'" 32GB, Wireless Touch Screen device for Control (iOS or Android based). | Nos. | 18 | | | | - |
| 15 | RA-15 | SITC of Lecture Recording and Streaming device having minimum three video inputs - 2 x HDMI and 1 x HDMI/HD-SDI as per OEM, minimum 1 x audio feed port & 1 x HDMI output for confidence monitor and 1 x RJ-45 (LAN) port for streaming and recording application. record up to 3 full motion video inputs in single frame along with audio, Should have minimum 1TB inbuilt/ External storage. | Nos. | 23 | | | | - |
| 16 | RA-16 | SITC of Lecture Recording and Video Live Streaming Solution - It shall be inclusive of Live Recording Application Software, industry grade Intel based Server Hardware for hosting the recording application and storage of Video for VoD, Hosting Platform and associated charges as per the technical specifications. The AV integrator shall provide a complete end-to-end solution by integrating mix of platforms.

Any onsite customization, development and integration such as providing YouTube type of experience over intranet, proprietary media player, customer's logo etc. shall be within the scope of the AV integrator. | Set | 2 | | | | - |
| 17 | RA-17 | Full HD/1080p, PTZ Camera for presenter capturing having minimum 20 x optical zoom, minimum 60 presets and minimum output- 1 x HDMI or HD-SDI or OEM specific output, 1 x RS- 232/422 for control. However, if supported output format is other than HDMI, same shall be converted to HDMI using suitable interface unit or cable convertor. | Nos. | 23 | | | | - |

| 18 | RA-18 | Full HD/1080p, ceiling mounted Document Camera with minimum 14 x optical zoom — 1 x HDMI or DVI output and 1 x LAN port. DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable. | Nos. | 1 | | | | | - |
|----|-------|---|---|---|---|---|---|---|---|
| 19 | RA-19 | SITC of Full HD/1080p, Table Top Mountable Document Camera with minimum 14x optical zoom — 1 x HDMI or DVI output. DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable. | Nos. | 26 | | | | | - |
| 20 | RA-20 | SITC of full HD Video Conferencing System endpoints (codecs), capable of multi-party conferencing Minimum (1+5) Party.  the codec shall have minimum 2 video inputs (1 x HDMI and 1 x HDMI /as per OEM's camera), minimum 2 x HDMI video outputs, output resolution supported shall be minimum upto 1920 x1080, 30 fps (Tx and Rx).. Audio Inputs - Min 3 x IP Microphone, 1 X HDMI/ 1 X 3.5mm stereo line in; Audio Outputs - 1 x HDMI, 1 x 3.5 mm stereo /RCA line out. The device shall be supplied with required licenses. All components of the VC system like Codec, Camera, Touch panel and Microphones should be from the same OEM. The system shall be inclusive of - 1 x Codec, minimum 1 x Full HD 1920 x 1080 resolution supporting camera providing HDMI output having min. 10x optical zoom with connecting cable, Microphone array with audio connecting cable and any other cables as may be required as per OEM to make system completely functional. The codec must be based on ITU standards & hardware based and must be compatible with software based solution. It should support latest video | Nos. | 7 | | | | | - |

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| | | standards H.264/H.265.<br><br>System should be scalable of enhancing video conferencing experience with advanced Speaker & face-recognition technology such that it automatically scans the room and seamlessly commands the main camera to appropriately frame the users/speaker during a call without any manual intervention. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21 | RA-21 | Hybrid VC system able to call over IP and soft VC with integrated camera and speakers and a touch panel/ Remote to accommodate call dialing and other features, should have minimum 2 stereo inbuilt / external speakers, minimum 5x camera zoom with external mic support. Should have Aux/ audio In and Aux/Audio Out | Nos. | 5 | | | | | - |
| 22 | RA-22 | Sleek Digital Podium built in Metallic Frame and Wooden Top with built-in 22" Interactive Panel (Electromagnetic Technology) with annotation feature.<br><br>Podium should have Motorized Tilting, Motorized Height Adjustment of the Podium as per user height, Built-in Connectivity for HDMI, USB, Power for External Laptop at the Top, Space to place CPU. Podium touch monitor shall have built in annotation feature from day 1. | Nos. | 24 | | | | | - |
| 23 | RA-22A | SITC of 19" Full HD touch enabled display for annotation having 1 x HDMI input port and 1 x USB port. | Nos. | 2 | | | | | - |

*Bhaskar* (signature)

| 24 | RA-23 | Desktop PC with Intel Core i7 or higher with min. 8GB of RAM DDR4, 1TB SATA II hard drive, 10/100/1000 Mbps Ethernet Network Interface Card, including additional 2-port Matrox or NVidia Graphics Card with minimum 1GB dedicated Graphics RAM for providing HDMI output to switcher for projection and another HDMI output for connecting 21" LED PC monitor for local display supporting minimum resolution up to 1920x1200 and inclusive of 21" HDMI LED monitor with mounting accessories and customization for flush mounting in furniture. It shall be supplied with Licensed Operating System Windows 10 or above, Licensed Microsoft Office latest version, USB wireless Keyboard, USB wireless Mouse, minimum 1 x USB2.0 spare port | Nos. | 24 | | | | - |
| 25 | RA-24 | Ultra Short Throw Projector -1 Chip DLP laser minimum 5000 Lumens, 16:10 Aspect Ratio, WUXGA display Resolution, Minimum Ports – HDMI/ HDBaseT, USB and RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.<br><br>Inclusive of standard or optional lens as per OEM to project on a min 106" diagonal screen. Inclusive of standard or optional lens as per OEM to project on a 226" diagonal size screen. this is including all mounting and fixing ( as per tech design confirmation by the client during shop drawing preparation by the SI suitably for the respective space.) | Nos. | 6 | | | | - |

| 26 | RA-25 | SITC of Laser type Projector - 1-Chip DLP Technology, minimum 6,000 ANSI Lumens,16:9 Aspect Ratio, Resolution : WUXGA 1920 x 1080, Minimum Ports - 1 x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x HD BaseT (RJ-45) for receiving video over CAT6 twisted pair, 1 x wired (RJ-45) LAN port or wireless connectivity for configuration; 1 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.<br><br>Inclusive of standard or optional lens as per OEM to project on a 150" diagonal (3320mm W x 1868mm H) size screen from a throw distance of not more than 4000mm from the screen. Inclusive of standard or optional lens as per OEM to project on a 226" diagonal size screen. this is including all mounting and fixing (floor or ceiling as per tech design confirmation by the client during shop drawing preparation by the SI suitably for the respective space.) | Nos. | 14 | | | | - |
| 27 | RA-25A | SITC of Laser type Projector - 1-Chip DLP Technology, minimum 17,000 Lumens,16:10 Aspect Ratio, Resolution: WUXGA 1920x1200, Minimum Ports - 1 x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x HD BaseT (RJ-45) for receiving video over CAT6 twisted pair, 1 x wired (RJ-45) LAN port or wireless connectivity for configuration; 1 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling | Nos. | 2 | | | | - |

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|---|---|---|---|---|---|---|---|---|
| | | installation, as may be required. Auto keystone correction: Yes; Quick corner: Yes.<br><br>Inclusive of standard or optional lens as per OEM to project on a 226" diagonal size screen. this is including all mounting and fixing (floor or ceiling as per tech design confirmation by the client during shop drawing preparation by the SI suitably for the respective space.) | | | | | | |
| 28 | RA-26 | SITC of minimum 80" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. (approx. 1771mm x 996mm, 2032mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors) | N o s . | 1 | | | | | - |
| 29 | RA-26A | SITC of minimum 106" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. Inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors) | N o s . | 4 | | | | | - |
| 30 | RA-27 | SITC of minimum 136" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. (approx. 3010mm x 1694mm, 3454mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors) | N o s . | 1 | | | | | - |
| 31 | RA-28 | SITC of minimum 150" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. (approx. 3320mm x 1868mm, 3810mm diagonal minimum), | N o s . | 14 | | | | | - |

| | | inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 32 | RA-28A | SITC of minimum 226" diagonal High Gain Material Tubular Motorized Projection screen with 16:9 Aspect Ratio. Inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors) | Nos. | 2 | | | | | - |
| 33 | RA-29 | SITC of 65" narrow bezel LED Professional 4K UHD display, Brightness- Min 450 nits, Contrast- 5000:1 , Viewing Angle – 178/178, 16:9 Aspect ratio, min. 2 x HDMI , 2-USB, 1DP/ DVI, Inbuilt wifi/ Bluetooth , 1- RJ 45 , 1- Audio in & out , video out and 1-RS 232/IR Interfaces, inclusive of all mounting bracket. | Nos. | 4 | | | | | - |
| 34 | RA-30 | SITC of 65" narrow bezel LED Professional 4K UHD display, Brightness- Min 450 nits , Contrast- 5000:1 , Viewing Angle – 178/178, 16:9 Aspect ratio, min. 2 x HDMI , 2-USB, 1DP/ DVI, Inbuilt wifi/ Bluetooth , 1- RJ 45 , 1- Audio in & out , Video out and 1-RS 232/IR Interfaces, inclusive of all mounting bracket. | Nos. | 38 | | | | | - |
| 35 | RA-31 | SITC of 55" narrow bezel LED Professional Display, 4K Resolution, Brightness- Min 450 nits , Contrast- 5000:1 , Viewing Angle – 178/178, 16:9 Aspect ratio, min. 2 x HDMI , 1-USB, 1DP/ DVI, Inbuilt/ external wifi/ Bluetooth , 1- RJ 45 , 1- Audio in & out, video out and 1-RS 232/IR Interfaces, inclusive of all mounting bracket. | Nos. | 10 | | | | | - |
| 36 | RA-32 | SITC of maximum 19" LED Monitor, minimum 1366 X 768 Resolution, 16:9 Aspect ratio, should have minimum 1 x | Nos. | 4 | | | | | - |

Arunkey

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| | | HDMI port, inclusive of all mounting brackets and customization for flush mounting as required at site. | . | | | | | | |
| 37 | RA-33 | Gooseneck Microphone consisting of - 1 x Gooseneck Microphone with base and ON/OFF switch; Min. Frequency Response - 80Hz - 16 KHz, Polar Pattern : Cardioid; Transducer : Condenser type; Max SPL: 130 dB SPL ; with 3 pin XLR connectivity, complete with Foam Windscreen and standard accessories. | N o s . | 28 | | | | | - |
| 38 | RA-34 | UHF Wireless Lapel Microphone UHF Wireless Lapel microphone System with body-pack transmitter and Cardioid Condenser Lavalier microphone , No. of Channel - 40 channels per band ,UHF tuning bandwidth : 60 MHz, Minimum Frequency Step : 25 kHz, Receiving System - True Diversity, Image Rejection 60 dB nominal, RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Frequency Response : 35 Hz to 15,500 Hz ,Dynamic Range 115 dB or higher (A-weighted), typical ,switch function : Mute/unmute & On/OFF, RF Power Output High: 30 mW, Low: 10 mW (switchable), Antenna Power 12 V DC, 160 mA (combined), Maximum Output Level XLR, balanced : +14 dBV 6.3 mm (1/4"), unbalanced : +8 dBV, Antenna Input BNC-type 50 ohms, Input Connections screw-down 4-pin connector, operating range of 100m or better, complete with all cables and standard accessories. Wireless Microphone system shall support simultaneous operation of 4 or more wireless microphone per room/ area. | N o s . | 23 | | | | | - |

| 39 | RA-35 | UHF Wireless Head-worn Microphone UHF Wireless Lapel microphone System with body-pack transmitter and Omnidirectional Condenser Head worn Microphone , No. of Channel - 40 channels per band ,UHF tuning bandwidth : 60 MHz,  Minimum Frequency Step : 25 kHz, Receiving System - True Diversity, Image Rejection 60 dB nominal, RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Frequency Response : 35 Hz to 15,500 Hz ,Dynamic Range 115 dB or higher (A-weighted), typical ,switch function : Mute/unmute & On/OFF, RF Power Output High: 30 mW, Low: 10 mW (switchable), Antenna Power 12 V DC, 160 mA (combined), Maximum Output Level XLR, balanced : +14 dBV 6.3 mm (1/4"), unbalanced : +8 dBV, Antenna Input BNC-type 50 ohms, Input Connections screw-down 4-pin connector, operating range of 100m or better, complete with all cables and standard accessories. Wireless Microphone system shall support simultaneous operation of 4 or more wireless microphone per room/ area. | N o s . | 16 | | | | - |
| 40 | RA-36 | UHF Wireless Handheld Microphone UHF Wireless Handheld Microphone with handheld transmitter with cardioid dynamic microphone capsule, No. of Channel - 40 channels per band, UHF tuning bandwidth : 60 MHz,  Minimum Frequency Step : 25 kHz , Receiving System True Diversity, Mute/unmute  & On/OFF Switch, Frequency Response : 30 Hz to 16,700 Hz, Unique multifunction button to switch to a backup frequency , RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Antenna | N o s . | 72 | | | | - |

| | | Power 12 V DC 160 mA (combined), Modulation : FM, Maximum Output Level XLR, balanced: +14 dBV 6.3 mm (1/4"), unbalanced: +8 dBV , Antenna Input BNC-type, 50 ohms, Transmitter  RF Power Output High: 30 mW, Low: 10 mW (switchable), at 50 ohms, operating range of 100m or better, complete with all cables and standard accessories.<br><br>Wireless Microphone system shall support simultaneous operation of 4 or more wireless microphone per room/ area. | | | | | | | |
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| 41 | RA-37 | SITC of UHF antenna divider, 4-way, active, 19" housing, 1 U, for wireless systems with TNC connector, incl. mic. cable set and rack mount brackets. All cables and connectors for wireless system shall be original OEM supplied. | N o s . | 32 | | | | | - |
| 42 | RA-38 | SITC of UHF directional wideband antenna, 1/2W for wireless systems and in-ear systems, active and passive connectors, inclusive of antennae cable, minimum 20mtrs. All cables and connectors for wireless system shall be original OEM supplied. | N o s . | 64 | | | | | - |
| 43 | RA-39 | Supply and Laying of Antenna Cable 25 m (82 ft.). All cables and connectors for wireless system shall be original OEM supplied. | N o s . | 64 | | | | | - |
| 44 | RA-40 | SITC of Antenna Combiner (2 inputs / 1 output), to combine the antenna signals of a maximum of 4 transmitters. All cables and connectors for wireless system shall be original OEM supplied. | N o s . | 48 | | | | | - |
| 45 | RA-41 | Supply and laying of 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for | N o s . | 1030 | | | | | - |

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| | | microphones. | | | | | | | - |
| 46 | RA-42 | Supply and Laying of 2 core 14 AWG conductors non-plenum speaker cable for high performance audio. | Nos. | 2910 | | | | | - |
| 47 | RA-43 | Supply and Laying 4x0.5 Sqmm 4 core, 0.5 Sqmm. Or better cable, ATC, untwisted, PVC sheathed cable is required for control cable. for Rs-232/Control/IR. | Nos. | 3700 | | | | | - |
| 48 | RA-44 | 10 x 6 AUDIO DSP (with AEC feature) Audio DSP with DANTE with min 10 No's Mic/Line Input , 6 line level outputs, Support 16 Min. channels of AEC processing, Built in/ Supported 64 x 64 DANTE channel, dual-redundant DANTE/AES67 audio transport, USB Audio Interface 24Bit, 48Khz, Frequency Response: 20Hz to 20KHz, Dynamic range: > 105 dB, Ethernet Port, RS232 connector for interfacing with 3rd party control systems, 6 No's or better GPIO, Embedded media engine for audio playback and recording etc complete with accessories | Nos. | 10 | | | | | - |
| 49 | RA-45 | 8 x 3 AUDIO DSP 8x3 DSP - Digital Processors with 4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input; 1 stereo and 2 mono outputs; 2-channel USB audio interface, Full digital processing on inputs and outputs; Dynamic Range 110 dB or higher, Onboard 6 nos. acoustic echo canceler (AEC) processing ; Front panel direct operation and Web Remote functionality; LAN Port for third-party control | Nos. | 16 | | | | | - |
| 50 | RA-46 | 30W Ceiling Mount Speaker Full-range or 2-way minimum 4" ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 80 Hz - 16 kHz (-10dB), Power handling@70/100V : 30W or | Nos. | 1 | | | | | - |

*Abraham*

| | | better, Sensitivity : SPL/W@1 Mtr - 86 db or better, Max SPL@1 Mtr - 100dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories. | | | | | | |
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| 51 | RA-47 | 30W Surface/Wall Mount Speaker Full-range, minimum 4"-5" LF or better surface/wall mount loudspeaker, 4 to 8 ohms low impedance and 70V/100V operation, Frequency Response - 60 Hz - 19 KHz (-10dB), Power handling@ 70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 84 dB SPL or better, Max SPL(peak) - 106dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories. | N o s . | 28 | | | | | - |
| 52 | RA-48 | 100 Watt Column Loudspeaker Passive Multi driver Column Array Speaker with 5 or more Full range drivers with power output 100 Watt @ 70V /100V , frequency response : 130 Hz - 15 kHz (-10 dB), Sensitivity : SPL/W@1 Mtr - 89 dB SPL or better, Max SPL (peak) 116 dB or better, Coverage - 120 degree Horizontal x 20-25 degree Vertical and inclusive of Pan Tilt Wall mounting brackets, assemblies, hardware and standard accessories. | N o s . | 78 | | | | | - |
| 53 | RA-49 | Four Channel Power Amplifier 4 x 240 W Multi Channel Class D Power Amplifier with DANTE and Energy Star Certification delivering  4 x 240 W , Selectable 4/8 Ohms or 70V/100V operation , distortion <0.05%, Frequency response 20 Hz to 20 kHz, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc | N o s . | 18 | | | | | - |

| 54 | RA-50 | Dual Channel Power Amplifier 2 x 60 W Dual Channel Commercial Class D Amplifier with DANTE and Energy Star Certification delivering 2 x 60 W @ 4/8 Ohms and 70V/100V, distortion <0.05%, Frequency response 20 Hz to 20 kHz, +0.5 / -1 dB, Crosstalk >72 dB, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc. | Nos. | 12 | | | | - |
| 55 | RA-51 | SITC of 15U AV Rack: AV equipment rack, minimum 600mm x 600mm floor mounted rack, castor wheels for free movement, front glass door, heat dissipation fans minimum 2 x 90cfm; power distribution units minimum 8 x 6/16Amps sockets. | Nos. | 10 | | | | - |
| 56 | RA-52 | SITC of 22U AV Rack: AV equipment rack, minimum 600mm x 600mm floor mounted rack, castor wheels for free movement, front glass door, heat dissipation fans minimum 2 x 90cfm; power distribution units minimum 8 x 6/16Amps sockets. | Nos. | 1 | | | | - |
| 57 | RA-53 | SITC of 36U AV Rack: AV equipment rack, minimum 800mm x 800mm floor mounted rack, castor wheels for free movement, front glass door, heat dissipation fans minimum 4 x 90cfm; power distribution units minimum 8 x 6/16Amps sockets. | Nos. | 16 | | | | - |
| 58 | RA-54 | Fully Digital Conference Control Unit (minimum 50 units) Central Conference Controller with integrated Recording facility & Web Server for control, built-in Digital Signal Processing, control up to minimum 50 Discussion Unit and expandable up to 150 Discussion Unit ,USB port to connect USB Storage Device for Direct Recording of the Meeting. | Nos. | 2 | | | | - |

| | | LCD display to implement several Conference Mode: Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input & Output for connectivity with external system ,LAN connection for web server or camera control protocol,4 digital RJ 45 ports, XLR out, XLR in, RCA in and two RCA out, Power connector with locking, complete with External power supply. OEM-specific cable shall be inclusive. | | | | | | - |
|----|-------|-----|-----|-----|-----|-----|-----|-----|
| 59 | RA-55 | Fully Digital Chairman Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signaling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital. Frequency Response: 30Hz-15kHz,Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length | N o s . | 2 | | | | | - |
| 60 | RA-56 | Fully Digital Delegate Unit Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signaling ,User Button with Feedback, Integrated loudspeaker, | N o s . | 24 | | | | | - |

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| | | Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital. Frequency Response: 30Hz-15kHz,Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61 | RA-57 | Supply and Laying Flexible High Speed HDMI Cables. 20 Mtrs. | N o s | 16 | | | | - |
| 62 | RA-58 | Supply and Laying Flexible High Speed HDMI Cables. 15 Mtrs. | N o s | 43 | | | | - |
| 63 | RA-59 | Supply and Laying Flexible High Speed HDMI Cables. 10 Mtrs. | N o s | 29 | | | | - |
| 64 | RA-60 | Supply and Laying Flexible High Speed HDMI Cables. 5 Mtrs. | N o s | 26 | | | | - |
| 65 | RA-61 | Supply and Laying Flexible High Speed HDMI Cables. 1.5 Mtrs. | N o s | 368 | | | | - |
| 66 | RA-62 | Supply and Laying of VGA + Audio Cables. 1.5 Mtrs. | N o s | 45 | | | | - |
| 67 | RA-63 | Supply and Laying of VGA + Audio Cables. 5 Mtrs. | N o s | 2 | | | | - |
| 68 | RA-64 | Supply and Laying of VGA + Audio Cables. 10 Mtrs. | N o s | 2 | | | | - |
| 69 | RA-65 | Supply and Laying Flexible High Speed Display port Cables. 1.5 Mtrs. | N o s | 45 | | | | - |
| 70 | RA-66 | Supply and Laying 24 AWG, 4 Pair, Shielded UTP Category 6 Cable (300mtr/1000ft box). | N o s | 14.19 | | | | - |
| 71 | RA-67 | Supply and Laying of USB cable 1.5 Mtrs. | N o s | 26 | | | | - |
| 72 | RA-68 | SITC of USB Extender, Pair of Transmitter and Receiver to transmits and receive the USB signal upto 230 feet (70 meters) over a shielded CAT6 | N o s | 4 | | | | - |

| | | cable. | | | | | | | - |
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| 73 | RA-69 | 16 PORT POE LAYER 2 MANAGEABLE NETWORKING SWITCH Layer2 manageable networking switch, minimum 16 # 10/100/1000Tx ports, all ports capable of providing PoE+ as per 802.3at, switch having a PoE power budget of minimum 245 Watts, minimum 2 dedicated SFP ports. | N o s | 26 | | | | | - |
| 74 | RA-70 | SITC of Wireless IEEE 802.11ac Wave2 compliant Access Point supporting dual radios (2.4GHz & 5GHz) operation, 2 x 2 MIMO, One 10/100/1000 Base-Tx auto-sensing (RJ45) PoE port. The AP shall be wall mountable as well as ceiling mountable (provide both options). | N o s | 18 | | | | | - |
| 75 | RA-71 | 32 CHANNEL AUDIO MIXER Min. 32 Channel high performance Audio Mixer unit with 16 Mic/Line + 8 Mic/Stereo Line Channels, 4 x AUX, USB-Audio Interface, with integrated digital FX processors and Dual Graphic-EQ's, low noise and low distortion discrete microphone preamps built-in, Group-switch-able +48V phantom power, AES in and out, Delay on inputs and outputs | N o s | 2 | | | | | - |
| 76 | RA-72 | Smart Lesson Capture & Faculty Development/Reflection System for 40-60 seater classroom a) Lesson Observation, Feedback with 360-degree Camera b) Lesson Audio Recording Microphone. c) Smart & Intelligent Lesson Capture Recording System. d) Smart & Intelligent Lesson Capture System Solution Software. e) Teacher/Instructor Learning & Development Digital Online Training. | N o s | 8 | | | | | - |

| 77 | RA-73 | Supply and Fixing of RS Pro Aluminum Floor Cable Trunking - Self Adhesive From RS Pro, a range of aluminum floor cable trunking designed for mounting on floors for routing low voltage and signal wires in high traffic areas. This trunking consists of a warp proof self-extinguishing PVC inner rail and a low profile high impact decorative convex extruded aluminum top cover. RS PRO Grey Floor Trunking, W50 mm x D9.8mm, L1m, Aluminum Alloy (Lid), PVC (Base), Color as per the surroundings matching with interior aesthetics, approval by client before supply | N o s | 10 | | | | | - |
|----|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|--|--|--|--|---|
| 78 | RA-74 | Vertical Cable Manager or floor to table : Supply and Fixing of 10 x 15mm 1m Cable Drag Chain Wire Carrier, Material: Nylon. Length: 1000mm. Inside Diameter : 10 x 15 mm. Outer Dimensions: 13 x 25 mm. A thickness of material: 1.25 mm. Color as per the surroundings matching with interior aesthetics, approval by client before supply | N o s | 50 | | | | | - |
| 79 | RA-75 | Supply and Fixing of Protective wires, AV cables and electrical cords up to 5/8" in outside diameter Manufactured from durable rubber and approx.. weighs 20 lbs. Includes 3 channels to easily manage multiple cables and wires Can be easily cut down to desired lengths, Designed to meet office and residential cable management needs and reduce trip hazards,  Slit on the underside to easily insert cords. Approx lenght Length approx 348-1/2", Width3-1/4" Height1" Weight20 lbs. Number of Channels1 Outside Diameter5/8" Material Rubber , 29foot -1 Coil, Color as per the surroundings matching with | N o s | 20 | | | | | - |

| | | interior aesthetics, approval by client before supply | | | | | | | - |
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| 80 | RA-76 | Supply and Fixing of J Channel Desk Cable Organizer by Simple Cord – 5 Black Raceway Channels - Cord Cover Management Kit for Desks, Offices, and Kitchens. Desk Cable Management System, Conceal and organize unsightly cords in the foffice with the J Channel Cable Organizer. Features Easy to install with extra-strength self adhesive tape, this kit includes five black raceways to conceal up to 80 inches of cable. Includes five 16-inch raceway channels with self adhesive tape , Channels fit up to 8 cables and cords, depending on thickness, Raceway channels can be custom cut to fit any space, Designed to work behind, under, or around desks. Color as per the suooroundings matching with interior asthetics, approval by client before supply. | N o s . | 50 | | | | | - |
| 81 | RA-77 | Supply and Fixing of Aluminum Cable Raceway, Width 120mm, 240mm, 360mm, Length 2000mm, Rail Height 100mm, Color as per the suooroundings matching with interior asthetics, approval by client before supply | S q f | 2000 | | | | | - |
| 82 | RA-78 | GROUP Videoconferencing System: Including the entire boardroom in your video conference calls with the GROUP Videoconferencing System. The system combines a speakerphone unit, a camera, a remote control, minimum two expandable mic and a hub for connecting all the components with the computer via USB 2.0. The camera included with | S e t | 4 | | | | | - |

Barkay

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| | | this kit features sharp full-HD image. Logitech and equivalent | | | | | | - |
| 83 | RA-79 | Interactive white board (For smart classroom) with professional stylus. for fixing below ultrashort throw projectors. The good quality of products and best service. Interactive whiteboard can be used in various applications such as, Education, Meetings, Conferences, Training, etc for multiple points touch bring multiple users to collaboration at the same time. Min Size 82inch, for rate contract so that if required at any point of time during contract execution then this can be supplied and fixed by the SI as per the conformation by the University, make: LG, ICT as per GEM, hitevission, and equivalent | S e t | 1 | | | | - |
| 84 | RA-80 | Comprehensive Maintenance + O&M of all the AV Systems and other related BoQ items executed under the scope of this NIT installed in various buildings in the Nalanda University Campus, inclusive of all materials and spare parts, which are to be provided by the integrator/bidder free of cost for the following years after the Defects Liability Period as specified in the GCC of this NIT, inclusive of all integrator's resources such as trained manpower and operational personnel's for all services including routine maintenance, preventive maintenance, breakdown maintenance, software/ firmware upgrade, repair and replacement of defective or damaged or worn-out items for the specified years after the DLP.1st Year After Defects Liability Period, i.e., 2 years' DLP + additional 1 year up to 3rd year of CAMC | 1 J O B | 1 | | | | - |

| 85 | RA-81 | 4th Year of CAMC as above | J O B | 1 | | | | - |
|----|-------|---------------------------|-------|---|--|--|--|---|
| 86 | RA-82 | 5th Year of CAMC as above | J O B | 1 | | | | - |

**Note:**

1. If there is a discrepancy between the unit price and total price THE UNIT PRICE shall prevail.
2. The bidder has to submit technical compliance along with make & model no as per given format. failing which bid shall be rejected by Nalanda University.
3. In case of specification mentioned in BOQ vary from the NIT specification/ Corrigendum, NIT specification/ Corrigendum shall be considered.
4. Bidder has to Submit OEM compliance as per NIT/ Corrigendum documents for Video Signal Equipment's, recording streaming device, Video Conference System, Cameras, Podium, Projectors, Display, Audio Systems, Smart Lesson Capture & Faculty Development System, Audio conference system and Switches/WAP, Presentation system, failing which bid shall be rejected by Nalanda University.
5. MAF: The bidder should enclose tender specific Manufacturer authorization letter from Original Equipment Manufacturer as per format given in the tender document for the products listed below failing which bid shall be rejected by Nalanda University
   5.1. Video Signal Equipment's – Switcher's, Tx/ Rx Control panel, Button Panel.
   5.2. Lecture Recording & Streaming System
   5.3. Lecture Capture PTZ & Document Camera.
   5.4. Video Conference System.
   5.5. Digital Podium.
   5.6. Projector's,
   5.7. 65" and 55" LED Display's,
   5.8. Microphone's,
   5.9. Speaker's,
   5.10. Amplifiers and DSP
   5.11. Digital Audio Conference System
   5.12. Network Switch/WAP,