

Annexure - I

TECHNICAL BID - COMPLIANCE STATEMENT

A IP TELEPHONY NETWORK EQUIPMENTS

Sr No.	Product Specifications	Compliance	Remarks /Deviations
		Yes /No	
1	IP PBX SERVER MINIMUM TECHNICAL SPECIFICATIONS		
	The system should be based on server-gateway architecture running on Linux OS supporting IP, Analog and Digital Extensions.		
	The servers should be of industry standard makes like DELL/HP/IBM only. The proposed server should be capable of supporting at least 700 extensions in future. The expansion should not require any additional hardware.		
	The system should be capable of deployment on virtualized platforms like VMWare/Xen etc.		
	System should provide call control, mobility, IM and presence, and Messaging, centralized licensing in a single server.		
	System should support secondary/redundant server for additional capacity and resiliency.		
	The system should support standards-based multi-site networking, using QSIG, H.323 trunks or advanced networking, to interoperate with other PABX's, allowing feature transparency.		
	System should be able to provide backup/redundancy options in case of failure of one server.		
	System should be able to provide centralized voicemail with the option of Distributed centralized voicemail in case of connectivity failure.		
	The system should support BRI/ PRI/ T1/ E1/Analog Trunks.		
	The server should have in-built atleast 2 nos auto-sensing 10/100/1000 Mbps LAN		
	The system should support internal MOH (Music on Hold), which should be uploaded using the .Wav file and should have an audio input port for external MOH connectivity.		
	The system should be 19" rack mountable.		
	Smartphone & Tablet Capabilities		
	The proposed hybrid-IP telephone system should have the ability to be used/accessed from a smartphone and/or a tablet device		
	The Softphone should provide full call control from an iPhone or Android powered smartphone.		
	Make and receive phone calls and instant messages, host and attend audio conferences.		
	See employee availability via presence, and use Geo-tracking to determine the location in the field.		
	All of this is done using the corporate directory, so there are no personal cell phone numbers will be involved.		
	The Softphone application should be downloadable from Google Playstore or Apple iTunes without any additional cost for any number of device.		

	Telephony Features		
	Besides the normal Telephony features, the system should support the following features :		
	Absent Text		
	Call Coverage		
	Call Forwarding		
	Call Hold		
	Call Intrude		
	Call Park		
	Call Pickup		
	Ring Back When Free		
	Suspend Call Waiting		
	Reclaim Call		
	Toggle Calls		
	Account Codes		
	Call Barring		
	Authorization codes		
	Bridged Appearance		
	Group Paging		
	Group Listen		
	Hot Desking		
	Mobile Twinning		
	Least Cost Routes		
	Alternate Route Selection		
	Flexible numbering Schemes		
	Time of Day and Date Routing of Calls		
	Call Recording		
	Maximum Call Length		
	PIN Restricted Calling		
	Time Profiles		
	Queuing		
	Queue announcements		
	Call Detail Recording		
	SMDR		
	Data Communication Features:		
	System should have in built-in DHCP Server, which should be able to give IP Addresses to the endpoints.		
	System should support built-in Remote access server (RAS) functionality.		
	System should support Diffserv for QoS (Quality of service) for the voice packets traveling over data networks		
	System should support NAT		
	System should support LDAP (Local Directory Access Protocol)		
	Terminal Support :		
	System should support the following type of terminals :		
	Analog Phones		

	Digital Phones		
	IP Hardphones		
	IP Softphones		
	Wireless IP Phones (802.a/b/g/n)		
	3 rd party SIP telephones		
	Extensions and Trunks:		
	System should be able to support up-to 2000 extensions in any combination.		
	System should have built-in H.323 gatekeeper functionality without the need to put any additional hardware.		
	System should support SIP trunking to Internet Telephony Service Providers, allowing non-SIP phones to make SIP calls.		
	System should support following types of trunks:		
	Analog Trunks		
	PRI		
	BRI		
	T1/ E1/ E1R2		
	Voicemail Features		
	System should have inbuilt voice mail system.		
	Voicemail to email option should be available		
	System should support unified messaging with Microsoft Exchange or any IMAP compliant email application.		
	System should support voicemail access through web-browser		
	External Fax server integration should be possible.		
	VM should support text-to-Speech functionality		
	VM should support Dial-by-Name functionality		
	VM should support Auto Attendant		
	IVR functionality should be available		
	Conferencing Features:		
	The system should have built-in 128 party Meet-Me conferencing bank.		
	Multiple conferences with variable number of users should be possible within each of the conferencing banks.		
	System should be able to generate detailed reports about the conference.		
	System should be able to send emails to all the participants giving them the conferencing details		
	System should support PIN based security for conference calls.		
	Video Capability:		
	System should have IP Soft-phone capability with video support		
	System should be able to provide board-room units as extensions to the system support various types of conference rooms. This unit should also have option for multi-party conference up to 8 parties (MCU).		

	Mobility Support:		
	System should support Mobile Twinning, enabling an extension and an internal/ external number to operate together as a single telephone. It should be possible to set external mobile devices as twinning targets, even if the primary extension is logged out/unplugged.		
	System should be able to provide 'work from home' features like telecommuting and VPN hard phones.		
	Presence/IM/thin-client Application		
	System should support simplified call control features like tap to call, tap to conference etc		
	Visual voice mail, IM, presence		
	Central directory access		
	Support for Android and iOS devices (smartphones, tablets)		
	Wireless Support:		
	System should support wireless IP Phones which will work through the Access Points which are being used for Wireless Data network supporting 802.11a/b/g protocol.		
	System should support IP DECT, wherein the system and the Base Station are connected over the IP Network		
	Management utilities:		
	System should be able to be configured and administered using a GUI based application		
	System should support SNMP based network management		
	In case SNMP management is not available, system should be capable of sending event notifications to up-to 3 email addresses, each with a different set of alarms		
II	IP PHONES		
1	IP Deskphone - Operator's Console with 32 additional buttons		
	IP Deskphone should supports minimum 16 administrable feature buttons on the phone itself – and a 32-button expansion model provides access to a total of 48 feature keys or speed dial buttons.		
	Each of the buttons should feature a dual LED (red, green) providing explicit status for the user		
	The deskphone console should includes several fixed feature keys for common telephone tasks including conference, transfer, drop, hold and mute.		
	It should includes a high quality 2-way speakerphone, and supports a broad portfolio of wired and wireless headsets for the operator through its integrated headset jack		

	It should have context sensitive user interface along with 3 softkeys and a 4-way navigation cluster – ideal for scrolling through the local contacts list or call logs		
	The viewing angle of the display should be adjustable and should measure minimum 4 lines by 24 characters or more.		
	The display should be backlit for easier viewing in all lighting conditions		
2	IP Desk Phone - Type-I		
	Should have backlit display – 3.5” diagonal with minimum 3 rows by 24 characters		
	8 line appearance/feature key buttons – with dual LED’s (red, green)		
	2-way speakerphone		
	Permanently-labeled feature button for call history, contacts, conference, headset, forward, volume, mute, speaker etc.		
	Message waiting indicator		
	Dual position flip stand		
	Four-way navigation cluster button		
	Contacts application – supports up to 100 entries		
	Call log – contains last 100 calls		
	Three contextual softkey buttons		
	Volume button – (separate volume levels in the handset, headset, speaker, and ringer)		
	Quick-access Voicemail Message button		
	Ethernet (10/100) line interface with a secondary 10/100 port for collocated laptop or PC		
	PoE 802.3af class 2 device, also supports a local power supply		
	Headset interface		
	Standards-based codec support: G.711, G.729A/B, G.726		
3	IP Deskphone - Type - II		
	Audio		
	G.722 wideband audio		
	Full-duplex speakerphone		
	Call Handling		
	SIP/H.323		
	Single line, 2 calls/line operated with “flash” key		
	Mute/Unmute		
	Last number redial		
	Transfer / Forward		
	3-way ad-hoc conferencing; supports basic, generic, open-standards SIP features		
	User Interface		

	Monochrome display with minimum two rows		
	Context-sensitive soft keys		
	Status indicators		
	Connections		
	Dual 10/100 Ethernet ports		
	Headset jack (RJ9 connector)		
	Power Requirements		
	Compatible with Power over Ethernet (PoE); requires PoE Class 1 settings		

4	IP Video Phone		
	The proposed video phone must support the following features along with the standard telephony features:		
	Android operating system		
	CMOS camera with privacy shutter		
	Wi-Fi Enabled		
	Minimum 4.0" LCD Graphical Display		
	Dual switched 10/ 100/ 1000 Mbps ports with integrated PoE		
	Touch Screen		
	RJ9 headset jack, USB, SD, Mini HDMI		
	Integrated Bluetooth		
	Function keys for PHONEBOOK, HEADSET, MUTE, HOLD, MESSAGE, TRANSFER, CONFERENCE, SPEAKERPHONE, VOLUME.		
	Video Codec supporting H.264, video resolution up to 480p@30 fps		
	PoE/PoE+ support		
III	Video Conferencing End Point & Display Unit		
1	VC End Point should be from the same OEM as of the IP PBX Proposed for smoother integration with IPT Network and should have minimum following features :		
	The VC Room system must support H.323, and SIP standards for communications		
	The VC Room System must Support High Definition room video up to the 1080p60 format (1920x1080 pixels at 60fps progressive). It should also provide a PTZ (Pan, Tilt Zoom) High Definition autofocus camera with automatic exposure and automatic white balance supporting up to the 1080p60 format, a minimum horizontal field of view of 70°, at least a 5x optical zoom and a minimum range for PAN of +/-100° and for TILT of +/- 25°. Camera parameters must be configurable on the VC system user interface, and in particular white balance, back light compensation, exposure compensation, focus and sharpness.		
	The VC Room System must be able to support up to one camera and two screens, and Support dual video capabilities both in H.323 (H.239) and SIP (BFCP based)		
	The VC Room System must provide full band (20 kHz) audio and support both the ITU standard (G.719), ISO/MPEG low complexity standard (MPEG AAC LC) and ISO/MPEG low delay standard (MPEG AAC LD)		

	The VC Room System must provide one microphone POD echo canceled. The possibility to add a further optional triple microphone POD for larger rooms is desired.		
	The VC Room System must be capable of capturing high definition content from a laptop/PC/DVI source up to 1920x1080 at 60fps, rescaling it at 720p60 when exceeding such resolution		
	The VC Room System must provide the ability to send/receive simultaneously 1080p60 video on the main channel and 1080p60 video on the dual video channel. The user should be able to define the ratio between the bandwidth used for live video and presentation.		
	The VC Room System must Include HD multipoint conferencing capabilities (as option) supporting up to 4 sites in continuous presence (1 local + 3 remote) up to 1080p30. It must provide the capability of handling mixed mode multipoint with H.323 and SIP simultaneously participating terminals, and support for dual video while in a multipoint session. IP VC DESKTOP and MOBILE multipoint videoconferencing support must be available, eventually with an external server PC. H.264 High Profile support during multipoint conferencing is required. Overlay of text with names of participants, and indication of mute and active speaker is required.		
	Double LAN network port for public and private network connection must be available as option		
	Audio I/O interface of the VC Room System must support both Digital and Analog.		
	The VC Room System must include the optional feature to record the conference (up to 1080p resolution) on a USB Key or Disk. The file must be recorded in a standard format, compliant with common multimedia PC/Mac players. Replay of the file from VC Room System interface is required. During a conference, it must be possible sharing recorded file with remote participants using standard data sharing (H.239 / BFCP).		
	It's desired that the User Interface of VC Room system allows an easy control (chair control, roster integration) of multi-conferences hosted by external MCUs		
	A control application with a multi-touch interface like the Apple iPad is desired as option. This interface should enable the user to:		
	Dial an address with a list of the recent outgoing, incoming or missed calls or Access the company directory and place a call from the directory		
	Control the VC Room Camera (PTZ), mute microphone, change volume, set DND, start and stop presenting		
	Inviting another participant by either dialing by address (IP, E.164 or SIP URI) or by accessing the company directory		
	Moderate the meeting when connected to a network MCU		
2	55" LFD LED Display with USB Port, LAN port, HDMI Port & wiFi		
	The Display should have aspect ratio of 16:9.		
	The Display should support true resolution of 1920X1080 pixels.		
	The Display should have minimum (Native) contrast ratio of 5000:1.		
	The Display should have minimum life span of 50,000 Hrs.		

	The Display should have 350cd/m2 Brightness		
	The display should have following input terminals.		
	a) RGB Input –Mini D-Sub 15 PIN x 1		
	b) DVI-D In – 24+1 PIN		
	c) RS-232C - D-Sub 9 PIN X 1		
	c) HDMI In		
	d) Component(CVBS Common) Port		
	e) RJ45		
	The Display should have in-built speakers (minimum 10W rms x 2)		
	The Display should support various types of mounting accessories like:		
	a) Wall Mount Bracket		
	The display should have the following standards certification		
	a) RoHS compliant – For environment		
	b) UL/IEC – For safety		
	c) FCC – For radiations regulation		
	d) Energy Star 6.0 Certified.		
	The display should have the following special features:		
	a) The Auto Source Switching & Recovery		
	b) PIP/PBP, Image Rotation		
	c) Built in Media Player		
	d) Firmware Update by Network		
	e) Magic Clone(to USB)		
	f) Predefined Template for Vertical Usage		
	g) Multi Channel		
	h) Event Schedule, Backup Player		

B Conference Room / Smart Class Room Equipments for Recording, Capturing & Streaming of Lectures, Workshops & Video Conferencing

Sr No.	Product Specifications	Compliance Yes /No	Remarks /Deviations
1	Control System : 3-Series Control System		
	The control processor should support real-time, multi-tasking modular programming architecture that can run 10 independant programs simultaneously. The programming architecture should lets programmers independently develop and run device-specific programs for AV, lighting, HVAC, security, etc., allowing for the optimization of each program, and allowing changes to be made to one program without affecting the whole. Even as your system grows, processing resources can easily be shifted from oneprocessor to another without rewriting any code.		
	Vector floating point coprocessor		
	Onboard 512MB RAM & 4GB Flash memory		
	Expandable storage up to 1TB		
	Rear panel MMC memory card slot		
	High-speed USB 2.0 host port		

	Industry-standard Ethernet wired communications		
	Onboard e-Control Web server		
	It should support the user interfaces made for different platform like iOS, Android & Windows operating systems.		
	Should supports Room scheduler software & touch screens and SNMP remote management support.		
	Minimum One RS-232/422/485 COM port with hardware and software handshaking		
	Two RS-232 COM ports with software handshaking only		
	8 IR/serial, 8 relay, and 8 Versiport I/O ports		
	Should Support IP network		
	Installer setup via same OEM software or Internet Explorer		
	Full Unicode (multi-language) support		
	Secure access through Active Directory integration or standalone account management		
	Should support IIS v.6.0 Web Server		
	should be IPv6 ready		
	should have Front panel USB computer console port		
	should Includes power supply from day 1		
	Connectors		
	RELAY OUTPUT 1 – 8: (2) 8-pin 3.5mm detachable terminal block comprising (8) normally open, isolated relays;		
	Rated 1 Amp, 30 Volts AC/DC;		
	MOV arc suppression across contacts		
	I/O 1 – 8: (1) 9-pin 3.5mm detachable terminal block comprising (8) “Versiport” digital input/output or analog input ports (referenced to GND);		
	Digital Input: Rated for 0-24 Volts DC, input impedance 20k Ohms, logic threshold >3.125V low/0 and <1.875V high/1;		
	Digital Output: 250mA sink from maximum 24 Volts DC, catch diodes for use with “real world” loads;		
	Analog Input: Rated for 0-10 Volts DC, protected to 24 Volts DC maximum, input impedance 21k ohms with pull-up resistor disabled;		
	Programmable 5 Volts, 2k ohms pull-up resistor per pin		
	IR - SERIAL OUTPUT 1 – 8: (2) 8-pin 3.5mm detachable terminal block comprising (8) IR/Serial output ports;		
	IR output up to 1.2 MHz;		
	1-way serial TTL/RS-232 (0-5 Volts) up to 115.2k baud		
	COM 1: (1) 5-pin 3.5mm detachable terminal block;		
	Bidirectional RS-232/422/485 port;		
	Up to 115.2k baud; hardware and software handshaking support		
	COM 2 – 3: (2) 3-pin 3.5mm detachable terminal blocks;		
	Bidirectional RS-232 ports;		
	Up to 115.2k baud; software handshaking support		
	MEMORY: (1) MMC compatible card slot;		
	Accepts Multimedia Memory Cards (MMC) up to 32 GB for memory expansion		
	USB: (1) USB Type A female;		
	USB 2.0 port for storage devices		

	LAN: (1) 8-wire RJ45 jack;		
	10Base-T/100Base-TX Ethernet port		
	NET: (1) 4-pin 3.5mm detachable terminal block, master port;		
	Outputs power to devices if a power pack is connected to the 24VDC power input jack;		
	Receives network power if no power pack is connected to the 24VDC power input jack;		
	24VDC 2.0A: (1) 2.1mm barrel DC power jack, 24 Volt DC power input;		
	PW-2420RU power supply included;		
	G: (1) 6-32 screw, chassis ground lug		
	COMPUTER (front): (1) USB Type B female;		
	USB 2.0 computer console port (6 ft cable should be included included); For setup only		
	Controls & Indicators		
	PWR: (1) Green LED, indicates operating power supplied from power pack or network		
	NET: (1) Amber LED, indicates communication with the system		
	MSG: (1) Red LED, indicates control system has generated an error message		
	HW-R: (1) Recessed pushbutton for hardware reset		
	SW-R: (1) Recessed pushbutton for software reset		
	LAN (rear): (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity		
	Power Pack: 2.0 Amps @ 24 Volts DC;		
	100-240 volts AC, 50/60 HZ power pack, model PW-2420RU included		
	Available Power: 24 Watts (1 Amp @ 24 Volts DC) when using power pack		
	Power Usage: 15 Watts (0.625 Amp @ 24 Volts DC) when using network power		
	Heat Dissipation: 50 BTU/Hr		
	Mounting: Freestanding or 1U 19-inch rack-mountable		
2	Digital Media Switcher : 16 x 16 DigitalMedia™ Switcher		
	QuickSwitch HD® technology manages HDCP keys for fast, reliable switching.		
	Enables device control via CEC.		
	Delivers a unified HD signal distribution solution incorporating both point-to-point wired and IP streaming technologies.		
	Provides lossless HD AV signal routing over twisted-pair wire or fiber.		
	Integrates video, audio, networking, and control over one cat5e/cat6 wire (Allows up to 330 ft) or multi mode fiber (Allows up to 1000 ft) or single mode fibre (Allows up to 7.5 miles (12 km)).		
	Affords full matrix switching with ultra high 12.5 Gbps backplane data rate.		
	Performs automatic AV signal format management via EDID.		
	HDBaseT® Certified — Enables direct connection to third-party HDBaseT.		
	Provides easy setup and diagnostics via front panel or software.		
	Can be communicated via LAN port/Ethernet. Includes integrated Ethernet switch with Gigabit LAN port		
	Allows streaming over Ethernet with no distance limitations.		

	Modular inputs support a complete range of digital (HDMI, DVI-I, 3G SDI) and analog signal types (VGA, Component Video, S-Video, Composite Video, etc.)		
	Enables high-performance H.264 streaming from any input source		
	Auto-Locking™ technology achieves rapid switching between disparate sources		
	Detects and displays detailed video and audio input information		
	Allows independent scaling for every display through select DM receivers		
	Distributes USB HID mouse and keyboard signals		
	Supports expanded USB device support using USB Extenders		
	Allows full audio and USB breakaway switching		
	Enables simultaneous output of stereo and surround sound audio		
	Having 10 HDMI Input with 4K video resolution support ,6HDBaseT inputs with 4K resolution support		
	Having 2HDBaseT output with 4K video resolution support, 6 HDMI output with 4K video resolution support & 2 Multimode fibre outputs		
	Private Network Mode — requires just one IP address for the complete DM system		
	Configurable with up to 8 streaming outputs		
	Configurable with up to 16 DM, HDBaseT, and/or HDMI outputs		
3	4K HDMI® Input Card for DM® Switchers (Plug-in card)		
	Provides a single 4K HDMI® input		
	Handles video resolutions up to 4K and Ultra HD		
	Handles 3D video and Deep Color		
	Handles Dolby® True HD, DTS-HD®, and uncompressed 7.1 linear PCM audio		
	HDCP compliant		
	Includes an HDMI output for pass-through of the input signal		
	Includes a stereo analog line-level audio output with volume control		
	Allows extraction of stereo 2-channel audio signals		
	Enables device control via CEC		
	Enables USB HID signal extension for a local computer		
	Compatible with USB over Ethernet Extenders		
	Occupies a single DM switcher input card slot		
	Provides an HDMI problem solving solution using the optional DMCI card interface		
	Connectors		
	HDMI IN : (1) 19-pin Type A HDMI female; HDMI digital video/audio input; Also supports DVI and DisplayPort Multimode		
	HDMI OUT : (1) 19-pin Type A HDMI female; HDMI digital video/audio output; Also supports DVI		
	USB HID : (1) USB Type B female; USB device port for connection to the USB host interface of a computer or other USB HID-compliant host		
	AUDIO OUT: (2) RCA female; Unbalanced stereo line-level audio output; Output Impedance: 100 Ohms nominal;		

	Maximum Output Level: 2 Vrms		
4	Input Card for Digital Mixer Switchers (Plug-in card) : HDBaseT® Certified 4K DigitalMedia 8G+™ Input Card for DM® Switchers		
	Provides a single DM 8G+® or HDBaseT® input for any Digital Media Switcher with modular input card slots		
	Handles 4K and Ultra HD video resolutions		
	Handles 3D video and Deep Color		
	Handles Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio		
	HDCP compliant		
	Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable		
	Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G cable or CAT5e		
	Includes an HDMI® output for pass-through of the input signal		
	Includes a stereo analog line-level audio output with volume control		
	Allows extraction of stereo 2-channel audio signals		
	Enables device control via CEC		
	Supports PoDM and PoH		
	Occupies a single DM switcher input card slot		
	Provides a rack-mountable DM 8G+ receiver solution using the optional DMCI card interface		
	Conectors on the cards should be :		
	HDMI OUT: (1) 19-pin Type A HDMI female; HDMI digital video/audio output; Also supports DVI		
	DM IN : (1) 8-pin RJ45 female, shielded; DM 8G+ input, HDBaseT compliant; PoDM and PoH PSE (Power Sourcing Equipment) port; Connects to the DM 8G+ output of a DM transmitter or other DM device, or to an HDBaseT device, via CAT5e, DM-CBL-8G, or DM-CBL-ULTRA cable		
	POE IN : (1) 8-pin RJ45 female, PoE input; Connects to a DM-PSU-8 or DM-PSU-16 PoDM Power Supply, or to an 802.3af or 802.3at compliant PoE PSE (Power Sourcing Equipment), to enable PoDM and PoH power sourcing.		
	AUDIO OUT: (2) RCA female; Unbalanced stereo line-level audio output; Output Impedance: 100 Ohms nominal;		
	Maximum Output Level: 2 Vrms		
5	2-Channel HDBaseT® Certified 4K DigitalMedia 8G+® Output Card for DM® Switchers (Plug-in card)		
	Modular output card for a Digital Media -MD16X16 switcher		
	Provides two independent 4K DM 8G+® outputs		
	HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment		
	Includes a parallel HDMI® port on the first output		
	Handles video resolutions up to 4K and Ultra HD		
	Handles 3D video and Deep Color		
	Handles Dolby® True HD, DTS-HD®, and uncompressed 7.1 linear PCM audio		
	HDCP compliant		

	Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM® Ultra cable		
	Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e		
	Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e		
	Enables HDMI and HDBaseT device control via CEC		
	Supports PoDM and PoH		
	Occupies a single output card slot		
	Connectors on the Card should be :		
	DM OUT: (2) 8-pin RJ45 female, shielded, comprising (2) DM 8G+ outputs (HDBaseT compliant); PoDM and PoH PSE (Power Sourcing Equipment) ports; Each connects to the DM 8G+ input of a DM receiver or other DM device, or to an HDBaseT device, via CAT5e, DM-CBL-8G, or DM-CBL-ULTRA cable		
	POE IN : (2) 8-pin RJ45 female comprising (2) PoE inputs; Each connects to one port of a DM-PSU-8 or DM-PSU-16 PoDM Power Supply, or 802.3af or 802.3at compliant PoE PSE (Power Sourcing Equipment), to enable PoDM and PoH power sourcing via the corresponding DM 8G+ output		
	HDMI : (1) 19-pin Type A HDMI, female; HDMI digital video/audio output, DVI compatible; Outputs same signal as the left DM 8G+ output		
6	2-Channel 4K Scaling HDMI® Output Card for DM® Switchers (plug-in card)		
	Modular output card for a DM-MD8X8, DM-MD16X16, or DM-MD32X32 switcher		
	Provides two independent 4K HDMI® outputs		
	Includes a discrete 4K/60 scaler on each output		
	Upscales video and computer sources to match the native resolution of any screen up to Ultra HD and 4K		
	Downscales 4K, UHD, and ultra-high resolution computer signals to enable viewing on 1080p and lower-resolution displays		
	Handles any input resolution from standard NTSC 480i or PAL 576i, to UHD and 4K		
	Provides intelligent frame rate conversion		
	Includes content-adaptive noise reduction		
	Includes motion-adaptive de-interlacing		
	Allows adjustable over-scan or under-scan up to 7.5%		
	Provides automatic 3D to 2D signal conversion		
	Automatically passes 3D video without scaling to 3D capable displays		
	Supports left/right eye steering for dual-projector 3D setups		
	Handles Dolby® True HD, DTS-HD®, and uncompressed 7.1 linear PCM audio		
	HDCP 2.2 compliant		
	Each output includes a balanced analog stereo audio output with volume control		
	Allows extraction of stereo 2-channel audio signals		
	Enables device control via CEC		

	Occupies a single output card slot		
	Card should have following connectors		
	HDMI :(2) 19-pin Type A HDMI, female, comprising (2) HDMI digital video/audio outputs (DVI compatible).		
	Audio (L, R): (2) 5-pin 3.5mm detachable terminal blocks comprising (2) balanced/unbalanced stereo line-level outputs; Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced		
7	Wireless Presentation Solution : Presentation Gateway Device		
	Enables wireless presentation of HD content using laptops, tablets, and smartphones		
	Low cost, easy to use, and easy to deploy across any number of rooms		
	Compatible with Windows®, OS X®, Apple® iOS®, and Android™		
	Allows simultaneous Displays of up to four presentation sources at once in Quad View		
	Integrates with DigitalMedia & High Definition Video Capture Hardware		
	Customizable welcome screen provides clear instructions for presenters		
	Integrates seamlessly with Connected™ displays[2]		
	Compatible with virtually any display device[2]		
	Supports Full HD 1080p and UXGA display resolutions		
	Provides HDMI®, VGA, and analog audio outputs		
	Choice of connection methods accommodates all types of users and organizations		
	Supports up to 32 simultaneous presenter device connections (users)		
	Remote View: Allows up to 40 remote users to connect via a Web browser to view and save images of the presentation		
	Display Control: Controls the display device over IP as part of the presentation [2]		
	Control System Integration: Allows communication over IP with a Control System for remote control and integration with other equipment		
	Windows® and OS X® Client Software		
	OS Support: Windows® XP, Vista, 7, or 8; Mac® OS X® (versions 10.5 thru 10.8)		
	Video Frame Rate: 15 fps (typical), audio supported		
	Mobile Apps		
	OS Support: Apple® iOS®; Android™		
	Supported Files: MS PowerPoint® (.ppt, .pptx), MS Word (.doc, .docx), MS Excel® (.xls, .xlsx), PDF (.pdf), JPEG (.jpg, .jpeg)		
	Shot&Show: Shares a static image of any app by using the screen shot function		
	Video		
	Output Signal Types: HDMI®, RGB		
	Output Formats: HDMI, DVI[3], HD video up to 1080p60, computer up to UXGA		

	Output Resolutions, Progressive: 800x600@60Hz, 1024x768@60Hz, 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1360x768@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1920x1080@60Hz (1080p60)		
	Output Resolutions, Interlaced: 1920x1080@30Hz (1080i30)		
	Underscan: Up to 7.5%		
	Audio		
	Output Signal Types: HDMI, analog stereo		
	Formats, HDMI: PCM 2-channel		
	Formats, Analog: Stereo 2-channel		
	Communications		
	Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, full/half duplex, DHCP, Web server		
	Connectors		
	5VDC 2.6A: (1) 2.0 x 3.0 mm DC power connector, 5 Volt DC power input,		
	AUDIO: (1) 3.5mm TRS mini phone jack, unbalanced stereo line-level audio output		
	HDMI: (1) 19-pin Type A HDMI female, HDMI digital video/audio output,		
	Also supports DVI[3]		
	VGA: (1) DB15HD female, RGBHV (VGA) video output		
	LAN: (1) 8-wire RJ45, female; 10Base-T/100Base-TX Ethernet port		
	SERVICE: (1) USB Type A female, for factory use only		
8	DigitalMedia 8G+™ Transmitter 201		
	It should be Installed in a double-gang electrical box to provide a convenient interface for computers and high-definition AV sources as part of a complete Digital Media system		
	It should functions as a DM transmitter and switcher, providing HDMI®, VGA, and analog audio inputs along with a USB HID host port.		
	It should also compatible with HDBaseT®, allowing it to be connected directly to the input of an HDBaseT certified display device		
	Video Features		
	Switcher : 2x1 combination digital/analog switch, QuickSwitch HD®		
	Input Signal Types: HDMI®, DVI ^[3] , DisplayPort Multimode ^[3] RGB/VGA, component ^[4] , S-Video ^[4] , composite ^[4]		
	Output Signal Types: HDBaseT® ^[1]		
	Formats: HDBaseT, HDMI, DVI, HDCP content protection support, RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, PAL		
	Audio Features		
	Switcher : 2x1 combination digital/analog switch.		
	Input Signal Types: HDMI, DisplayPort Multimode ^[3] , analog stereo		
	Output Signal Types: HD Base T		
	Formats: Dolby Digital®, Dolby Digital EX, DTS®, DTS-ES, DTS 96/24, up to 8ch PCMDigital-To-Analog Conversion: 24-bit 48 kHz .		
	Performance (analog): Frequency Response: 20Hz to 20kHz ±0.75dB;S/N Ratio: >90dB, 20Hz to 20kHz A-weighted; THD+N: <0.05% @ 1kHz;Stereo Separation: >90dB		

9	FlipTop™ Basic, Black Anodized		
	Flush mount tabletop connectivity in a stylish FlipTop™ design		
	An ideal complement to DigitalMedia™ Configurable connection compartment allows versatile combinations of pullout cables, cable retractors, connector plates, and AC power outlets		
	Tapered cable notch allows lid to be closed with cables plugged in		
	Lacing bar for under table cable management		
	Universal cutout size fits all new and future FlipTops™		
	Black anodized or brushed aluminum finish		
10	FlipTop™ AC Power Outlet Module, Single, Universal		
	Single “universal” outlet, which accommodates several different types of plugs.		
	It should be rated for 10 Amps at 100-240 Volts AC, 50/60 Hz		
11	Cable Retractor for FlipTops™, HDMI®		
	Should Provides a refined cable management solution for Own device FlipTops™		
	Eliminates hanging cable loops beneath the table		
	Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract		
	No levers or buttons to press		
	Mechanism to prevent whipping of the cable while retracting		
12	Cable Retractor for FlipTops™, VGA		
	Provides a refined cable management solution for Own device FlipTops™		
	Keeps interface cables at-the-ready		
	Eliminates hanging cable loops beneath the table		
	Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract		
	Mechanism to prevent whipping of the cable while retracting		
13	Cable Retractor for FlipTops™, Audio		
	Provides a refined cable management solution for Own device FlipTops™		
	Keeps interface cables at-the-ready		
	Eliminates hanging cable loops beneath the table		
	Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract		
	Mechanism to prevent whipping of the cable while retracting		
14	Wall Plate DigitalMedia 8G+™ Transmitter 200, Black Textured		
	It Installs in a double-gang electrical box to provide a convenient interface for computers and high-definition AV sources as part of a complete DM system		
	It is ideal for wall, lectern, and floor box applications in a boardroom, classroom, auditorium		

	It should also compatible with HDBaseT®, allowing it to be connected directly to the input of an HDBaseT certified display device		
	Video Features		
	Switcher : 2x1 combination digital/analog switch, QuickSwitch HD®		
	Input Signal Types: HDMI®, DVI ^[3] , DisplayPort Multimode ^[3] RGB/VGA, component ^[4] , S-Video ^[4] , composite ^[4]		
	Output Signal Types: HDBaseT® ^[1]		
	Formats: HDBaseT, HDMI, DVI, HDCP content protection support, RGBHV, RGBS, RGSB, YPbPr, Y/C, NTSC, PAL		
	Audio Features		
	Switcher : 2x1 combination digital/analog switch.		
	Input Signal Types: HDMI, DisplayPort Multimode ^[3] , analog stereo		
	Output Signal Types: HD Base T		
15	2 Gang Decorator Style Faceplates, Black Textured		
	2-Port Face Plate		
16	4K HDMI® over HDBaseT® Extender w/IR & RS-232, Black; includes HD-RX3-C-Band HD-TX3-C-B		
	4K HDMI® over HDBaseT® Extender w/IR & RS-232		
	HDBaseT® Certified 4K Ultra HD signal extender		
	Extends uncompressed digital video and audio over a single CAT type twisted pair cable		
	Supports cable lengths up to 330 ft (100 m) for all resolutions up to 4K and Ultra HD using DM® Ultra cable		
	Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e		
	Supports cable lengths up to 230 ft (70 m) for 4K and UHD using DM 8G cable, or 165 ft (50 m) using CAT5e		
	Compatible with HDBaseT receivers and display devices		
	Compatible with HDMI®, DVI, and DisplayPort Multimode sources [4]		
	Supports Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio		
	HDCP compliant		
	Passes CEC and EDID		
	Enables IR and RS-232 signal extension		
	24VDC power pack included		
	No programming or configuration required		
	Connectors – HD-TX3-C Transmitter:		
	HDMI IN: (1) 19-pin Type A HDMI female;		
	HDMI digital video/audio input;		
	IR IN: 1) 2-pin 3.5mm detachable terminal block;		
	IR repeater input port;		
	COM: (1) 3-pin 3.5mm detachable terminal block;		
	Bidirectional RS-232 port;		

	HDBaseT OUT : (1) 8-pin RJ45 female, shielded;		
	Connects to the HDBaseT IN port of the HD-RX3-C receiver via CAT5e, DM-CBL-8G, or DM-CBL-ULTRA cable		
	Connectors – HD-RX3-C Receiver:		
	OUT: (1) 2-pin 3.5mm detachable terminal block;		
	IR repeater output IR port;		
	COM (1) 3-pin 3.5mm detachable terminal block;		
	Bidirectional RS-232 port;		
	HDMI OUT: (1) 19-pin Type A HDMI female;		
	HDMI digital video/audio output		
	HDBaseT IN: (1) 8-pin RJ45 female, shielded;		
	Connects to the HDBaseT OUT port of the HD-TX3-C transmitter via CAT5e, DM-CBL-8G, or DM-CBL-ULTRA cable		
	Construction: Metal, black finish with white or black polycarbonate label overlay		
	Mounting: Freestanding, surface mount, or attach to a single rack rail		
17	DigitalMedia 8G+ 4K Receiver & Room Controller w/Scaler		
	Provides a controller and interface for an HD or 4K display device as part of a complete Digital Media™ System		
	Digital Media 8G+® receiver, 4K/60 scaler, audio extractor, and display controller		
	Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable		
	HDBaseT® Certified Enables direct connection to other HDBaseT certified equipment		
	Provides one HDMI® or DVI display output		
	Upscales the input signal to match the native resolution of any screen — including 4K and Ultra HD displays!		
	Downscales 4K, UHD, and ultra-high-resolution computer signals to enable viewing on 1080p and other lower-resolution displays		
	Handles any input resolution from standard NTSC 480i or PAL 576i, to UHD and 4K		
	Provides intelligent frame rate conversion		
	Includes content-adaptive noise reduction		
	Includes motion-adaptive de-interlacing		
	Allows adjustable overscan or underscan up to 7.5%		
	Provides automatic 3D to 2D signal conversion [4]		
	Automatically passes 3D video without scaling to 3D capable displays		
	Supports left/right eye steering for dual-projector 3D setups		
	Supports up to 8x8 video wall processing		
	Handles Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio		
	Provides a balanced stereo analog line-level audio output with volume control [6]		
	Allows extraction of stereo 2-channel audio signals		
	HDCP 2.2 compliant		

	Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable		
	Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e		
	Provides a 10/100 Ethernet LAN connection		
	Compatible with USB over Ethernet Extenders		
	Enables device control via CEC, IR, RS-232, and Ethernet		
	Provides two low-voltage relay control ports		
	Allows quick, easy setup and diagnostics		
	Powered via the DM connection or local power pack (included)		
	Low-profile surface mount design		
	SCALER		
	4K video scaler, motion-adaptive de-interlacer, intelligent frame rate conversion, Deep Color support, 3D to 2D conversion , content-adaptive noise reduction, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing up to 8 wide x up to 8 high		
	CONNECTORS		
	COM: (1) 5-pin 3.5mm detachable terminal block, bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support		
	IR(1-2) : (1) 4-pin 3.5mm detachable terminal block comprising (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud		
	AUDIO OUT L, R: (1) 5-pin 3.5mm detachable terminal block; Balanced/unbalanced stereo line-level audio output		
	Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced		
	RELAY 1 – 2: (1) 4-pin 3.5mm detachable terminal block comprising normally open, isolated relays; Rated 1 Amp, 30 Volts AC/DC; MOV arc suppression across contacts		
	LAN: (1) 8-wire RJ45 female, shielded; 10Base-T/100Base-TX Ethernet port		
	HDMI OUT: (1) 19-pin Type A HDMI female; HDMI digital video/audio output; Also supports DVI		
	DM IN: (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence		
	Power Requirement		
	Power Pack: 40 Volts AC, 50/60 Hz power pack, model PW-2412WU included		
	Power over DM (PoDM): PoDM+ PD (Powered Device), capable of being powered by a PoDM+ PSE (Power Sourcing Equipment), conforms to IEEE 802.3at Type 2 Class 4 (25.5W)		
18	High-Definition Capture Recorder		
	It should captures presentation content from a computer or other source along with a live camera image and records them together in full-motion HD. The two images may be composited on screen side-by-side or picture-in-picture (PIP)		
	Records the complete AV presentation, classroom lecture, or training session		

	Captures in high-quality H.264 format at up to HD 1080p resolution		
	Allows live streaming of HD video and audio over an IP network		
	Extremely easy to use and flexible enough to fit any workflow model.		
	Integrates easily into existing AV presentation systems and networks		
	Provides inputs for high-definition digital and analog AV sources		
	Built-in scaling ensures compatibility with a full range of sources		
	Provides a composite video input for the presenter's camera		
	Includes local AV output for confidence monitoring or presentation pass-thru		
	Allows control system integration via Ethernet		
	Gigabit Ethernet enables high transfer rates for uploading of HD media files		
	Easy out-of-the-box setup		
	Single-space 19" rack-mountable		
	Connectors - The device must have following connectors in-built in the chasis and no external device should be required to get these connection :		
	SPEECH IN (Unbalanced): (1) RCA female;		
	Unbalanced line-level audio input;		
	Input Impedance: 10k Ohms nominal;		
	Input Level: 2 Vrms maximum		
	SPEECH IN (Balanced): (1) 3-pin 3.5mm detachable terminal block;		
	Balanced/unbalanced line-level audio input;		
	Input Impedance: 17.5k Ohms nominal balanced/unbalanced;		
	Balanced Input Level: 4 Vrms maximum;		
	Unbalanced Input Level: 2 Vrms maximum		
	CONTENT AUDIO IN (Unbalanced): (1) 3.5mm TRS mini phone jack;		
	Unbalanced stereo line-level audio input;		
	Input Impedance: 18.5k Ohms nominal;		
	Input Level: 1 Vrms maximum		
	CONTENT AUDIO IN (Balanced): (1) 5-pin 3.5mm detachable terminal block;		
	Balanced/unbalanced stereo line-level audio input;		
	Input Impedance: 24k Ohms nominal balanced/unbalanced;		
	Balanced Input Level: 4 Vrms maximum;		
	Unbalanced Input Level: 2 Vrms maximum		
	AUDIO OUT L, R (Unbalanced): (2) RCA female;		
	Unbalanced stereo line-level audio output;		
	Output Impedance: 100 Ohms nominal;		
	Output Level: 2 Vrms maximum		
	AUDIO OUT (Balanced): (1) 5-pin 3.5mm detachable terminal block;		
	Balanced/unbalanced stereo line-level audio output;		
	Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;		

	Balanced Output Level: 4 Vrms maximum;		
	Unbalanced Output Level: 2 Vrms maximum		
	CAMERA IN, COMPOSITE: (1) BNC female analog composite video input;		
	RCA adapter included; Input Impedance: 75 Ohms nominal;		
	Input Level: 1 Vp-p nominal		
	CAMERA IN, 3G-SDI[4]: (1) BNC female, SDI video input;		
	Input Impedance: 75 Ohms nominal		
	CONTENT IN, RGBHV: (1) DB15HD female, RGB (VGA) input;		
	Formats: RGBHV, RGBS, RGsB;		
	Input Levels: 0.5 to 1.5 Vp-p with built-in DC restoration;		
	Input Impedance: 75 Ohms nominal;		
	Sync Detection: RGBHV, RGBS, RGsB; Sync Input Level: 3 to 5 Vp-p;		
	Sync Input Impedance: 511 Ohms nominal		
	CONTENT IN, HDMI: (1) 19-pin Type A HDMI female;		
	HDMI digital video/audio input;		
	Also supports DVI and DisplayPort Multimode[3]		
	LOOP OUT, RGBHV: (1) DB15HD female, buffered pass-thru from RGBHV input		
19	High-Definition Video Scaler, HDMI® In, HDMI Out		
	Provides a cost-effective, high-definition scaler with HDMI in and out, and audio embedding and de-embedding		
	Automatically scales any input signal to match the native resolution of your display		
	Supports a range of display resolutions up to Full HD 1080p and WUXGA		
	Perfect for adapting all kinds of video devices to handle any input resolution		
	Supports any input resolution up to Full HD 1080p and WUXGA		
	Performs deinterlacing of NTSC, PAL, and 1080i sources		
	Handles HDMI® signals with Deep Color and HDCP		
	Also handles DVI and DisplayPort Multimode sources		
	Handles Dolby Digital® 5.1, DTS® 5.1, and uncompressed 7.1 linear PCM audio		
	Includes stereo analog audio input and output		
	Allows embedding of analog stereo audio to HDMI		
	Allows extraction of digital stereo audio to analog		
	Affords easy setup via on-screen display		
	Compact, low-profile surface mount design		
	Universal 100-240V external power pack included		
20	10.1" Surface Mount Touch Screen, Black Smooth		
	Touch Screen Display		
	Display Type: TFT Active matrix color LCD		
	Size: 10.1 inch (257 mm) diagonal		
	Aspect Ratio: 16:10 WXGA		
	Resolution: 1280 x 800 pixels		

	Brightness: 400 nits (cd/m ²)		
	Contrast: 800:1		
	Color Depth: 18-bit, 262k colors		
	Illumination: Edgelit LED		
	Viewing Angle: ±80° horizontal, ±80° vertical		
	Touch Screen: Projected Capacitive		
	Buttons available		
	Hard Keys: (5) Projected capacitive pushbuttons, programmable, pre-labeled with icons for "Power", "Home", "Lights", "Up", and "Down"		
	Reset: (1) Miniature pushbutton on rear panel for hardware reset		
	Memory		
	LPDDR2 RAM: 1 GB		
	Flash: 4 GB		
	Maximum Project Size: 512 MB		
	Communications		
	Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP, IEEE 802.3af and 802.3at Type 1 compliant		
	Video		
	Streaming Formats: H.264 (MPEG-4 part 10 AVC), MJPEG		
	Audio		
	Features: Built-in microphone and speakers, SIP Intercom		
	Audio Feedback Formats: MP3		
	Connectors		
	LAN PoE: (1) 8-wire RJ45 with 2 LED indicators;		
	10Base-T/100Base-TX Ethernet port, Power over Ethernet compliant;		
	Green and yellow LEDs indicate Ethernet port status		
	Power Requirements		
	Power over Ethernet: IEEE 802.3af (802.3at Type 1) Class 3 PoE Powered Device		
21	TableTop Kit for 10.1" Surface Mount Touch Screen		
	A stylish, versatile tabletop enclosure for the 10.1" Touch Screen.		
	Provides a 38° fixed operating angle		
	Allows permanent mounting using the optional swivel mount kit		
	Provides the choice of a rear or bottom wire exit.		
22	PoE Injector, universal 100-250 Volts AC		
	It is an 802.3af compliant Power over Ethernet (PoE) power source designed to support PoE powered devices. Standards-based Power over Ethernet affords a one-wire solution for connecting Ethernet devices, delivering power and data over a single CAT5/6 network cable.		

23	Keypad - International Version, Black Textured		
	Button Events" enable tap, double-tap, and press and hold functionality		
	Customizable backlit button engraving ^[1]		
	White LED feedback indicators		
	Built-in LED blinking and bargraph logic		
	Auto-dimmable backlight and LED intensity		
	Ambient light sensor		
	2 contact closure inputs		
	Connections :		
	NET: (1) 4-pin terminal block;slave port, connects to control network		
	INPUT (1-2): (1) 3-pin terminal block;Comprises (2) dry contact closure sensing inputs		
24	Distribution Hub : DIN Rail Distribution Hub		
	3-segment hub		
	For own networks with more than 20 devices		
	Configurable power distribution		
	should accommodate 6 DIN Module on wide DIN rail mounting		
	No programming required		
25	DIN Rail High-Voltage Switch, 8 feeds, 8 channels		
	8 channels of power switching		
	Supports 120 to 240 Volt 50/60 Hz		
	Override input		
	Own device network communications		
	Setup via front panel or software		
	Fully Programmable functionality		
	9M wide DIN rail mounting		
	Load Ratings		
	Switch Channels: 8		
	Maximum Per Channel: 10 Amps incandescent, 5 Amps fluorescent, 0.5 HP @		
	120 to 240 Volts AC, 50/60 Hz;		
	5 Amps @ 30 Volts DC;		
	16 Amps Resistive		
	Module Total: 80 Amps incandescent, 40 Amps fluorescent @ 120 to 240 Volts		
	AC, 50/60 Hz		
	Load Types : Incandescent, Magnetic Low-voltage, Electronic Low-Voltage, Neon /Cold Cathode, Florescent, Motors		
26	DIN Rail 0-10V Fluorescent Dimmer, 4 feeds, 4 channels		
	4 channels of 0-10 Volt dimming control		
	Supports 120 and 220 to 240 Volt, 50/60 Hz applications		
	Allows switching of lighting and exhaust fan		
	Own device network Communication		

	Maximum per channel: 5 Amps @ 120 to 240 Volts AC, 50/60 Hz;600 Watts @ 120 Volts AC;1150 Watts @ 230 Volts AC; 1200 Watts @ 240 Volts AC, 0.5 HP;16 Amps Resistive		
	Module total:20 Amps @ 120 to 240 Volts AC, 50/60 Hz; 2400 Watts @ 120 Volts AC; 4600 Watts @ 230 Volts AC; 4800 Watts @ 240 Volts AC		
	<u>Switch load types:</u> Incandescent, magnetic low-voltage, electronic low-voltage, neon/cold cathode, fluorescent, motors		
27	IR Emitter Probe w/Terminal Block Connector		
	Designed to adhere directly over the IR sensor window of a television, DVD player, or any other		
	IR controllable device.		
	Connects to any control system with a 2-pin terminal block type control IR port, providing a1-way IR control interface to the device.		
	It is composed of an infrared LED housed in a miniature shell. Its integral 7 foot cable may be extended up to 1000 feet using ordinary twisted pair cable.		
	Includes IR mask and two-sided tape for mounting.		
	Connectors		
	(1) 2-pin 3.5mm detachable terminal block for connection to a Control system IR port		
28	OEM Certified HDMI® Interface Cable, 6 ft		
	High-speed Category 2 HDMI cable		
	Supports 1080p60 HDTV with 16-bit color depth		
	Handles computer resolutions up to WQXGA		
	Supports SACD, DVD-Audio, Dolby® TrueHD, and DTS-HD Master Audio™		
	24k gold-plated 19-pin Type A connectors		
	High-flex CL3-rated jacket		
	RoHS compliant		
29	OEM Certified Computer VGA Interface Cable w/Audio, 6 ft		
	High-bandwidth computer VGA cable w/audio		
	Integrated mini-TRS stereo audio cable		
	Supports computer resolutions up to WUXGA		
	High-density 15-pin connectors		
	RoHS compliant		
30	Locking High-Speed HDMI® Cable, 2 ft		
	A premium HDMI interconnect with an ingenious locking connector design.		
	High-speed HDMI certified		
	Perfect Lock™ connector with 25 lb retention		
	CL2/FT4 rated for in-wall use		
	Supports 3D, Deep Color, 4K, and audio return channel		
31	Controlling Mobile based App for Apple® iOS® & Android™		
	operation without a connection to a own private control system		

	Free download provides a working app with limited functionality		
	Full version enabled through Provides the Own device touch screen experience on an Apple® iOS® or Android™ device		
	Control your home or workplace using your iPhone®, iPad®, iPod touch®, Apple Watch®, Android smartphone, or Android tablet		
	Provides an extensively customizable user interface		
	Enables control of lights, media, climate, security, and more		
	Affords full system control with real-time status feedback and metadata		
	Supports Smart Graphics™ and Rava® SIP Intercom		
	Allows viewing live streaming video from security cameras and servers		
	Integrates seamlessly with third-party apps		
	Allows control of multiple Own private systems from one device		
	Compatible with Wi-Fi® and mobile data networks		
	Utilizes SSL secured communication		
	Requires no special server or 3rd-party service (no extra fees!)		
	Programmed just like a own private touch screen		
	Create one UI and run it on multiple own private touch screens, Apple devices, and Android devices without modification		
32	Streaming Output Card for Digital Media Switchers		
	A modular output card for Digital Matrix 16x16 switchers. Provides one H.264 streaming output.		
	Modular output card for a DM-MD8X8, DM-MD16X16, or DM-MD32X32 switcher		
	Provides a single streaming output		
	Allows high-definition AV signal distribution over IP with no distance limitations		
	Supports streaming at resolutions up to 1080p30 and bitrates up to 25 Mbps		
	Employs high-quality H.264 video and AAC stereo audio encoding		
	Built-in scaler ensures fast, trouble-free switching between disparate sources		
	Supports PIP windowing, audio mixing, and single-frame switching between any two inputs		
	Allows streaming via the Control LAN or a dedicated Content LAN		
	Occupies a single output card slot		
	Connector		
	CONTENT LAN:(1) 8-pin RJ45 female; 10Base-T/100Base-TX/1000Base-T Ethernet port; Provides a dedicated LAN connection for streaming only, used in lieu of streaming via the switcher's main LAN port		
33	Remote Asset Management Software - 5 Rooms		
	The Remote Asset Management Software will be used for AV and technology management View room status, track maintenance on devices, schedule end-of-day shutdown, book meetings in rooms, provide remote help desk assistance, capture and distribute multimedia presentations, and more — all from the web-based interface.		

	Monitor, manage, and schedule meeting rooms enterprise-wide		
	Streamline the help desk with chat and real-time room status		
	Provide remote assistance — control the display, source, volume and more		
	Track and analyze room usage with robust reporting using built-in templates		
	Receive instant e-mail notifications for scheduled maintenance or when a display is offline		
	Schedule rooms via Microsoft® Outlook®, IBM® Notes®, CollegeNET® 25Live® (R25®), and Google Calendar™		
	Room status and ad-hoc booking via touch screen		
	Use instant messaging to communicate through the room's touch screen		
	Auto-discover assets upon deployment for improved tracking		
	Schedule end-of-day shutdown for AV equipment		
	Total Room Support capability : The software should be capable to supports up to 750 connected rooms on one server		
34	Full HD PTZ Camera Type-I : Full HD PTZ Camera with 20X Optical Zoom, 12 x Digital Zoom, 30 fps frame rate, 55 degree horizontal viewing angle and with HD-SDI Video Output		
	Pan Angle : -175 to + 175 degrees		
	Pan Speed : 0.25 to 60 degrees/sec		
	Tilt Angle : -30 to +90 degrees		
	Tilt Speed : 0.25 to 60 degrees/sec		
	Analog Output : RGB / Y/Pb/P(D-sub 15-pin), Y/C (4 pin Mini DIN), VBS (BNC)		
	Angle of View : 3.3 degrees (tele end) to 55.1 degrees (wide end)		
	Backlight Compensation : On/Off		
	Built-in Video Output : D-sub 15 pin: HD video out, Y/Pb/Pr or RGB, HD, VD or SYNC, Mini DIN 4 pin: Y/C , BNC: Composite		
	CCD Effective Pixel : Approx. 2.07 mega pixels		
	Camera Control Interface : RS-232C (VISCA protocol)/RS-422 (VISCA protocol)		
	Effective Pixel : 2.07 mega pixels or better		
	Focal Length : f=4.6 to 82.8mm (F1.6 to F2.8)		
	Focus System : Auto/Manual		
	Image Device : 1/3 type CMOS x1		
	Minimum Illumination : 6 lx (50 IRE, F1.6, 24dB)		

35	Desktop Document Camera : Desktop Visualizer, 2 Mega Pixel, 1080p Full HD, 1/3" CMOS		
	Pick-up Device : CMOS		
	Output Resolution : SXGA (1280x 1024), WXGA (1280 x 800), 1080p		
	Frame Rate : 30 frames/sec.		
	Zooming : Min 16X Optical Zoom and 12 X Digital Zoom		
	Lamp : Top Light: LED x 2. Built-in Back Light for negatives and slides.		
	Built in Storage : Min 240 frames		
	External Storage : Supports USB drive upto 32 GB		
	Recording : One touch Video / Audio recording in standalone mode with built-in microphone.		

	Image Rotation: 0, 180, mirror, flip.		
	Inputs : VGA Input HD-SUB 15 Pins Female x 1, HDMI x 1, Audio In x 1, Buil in MIC x 1		
	Outputs : VGA Output HD-SUB 15 Pins Female x 2, HDMI x 1, Composite Video x 1, USB 2.0 High Speed x 1, Audio Out x 1		
36	6 feet x 4 ft Infrared Interactive White Board with Ceramic Surface		
37	3LCD + Pure Laser WUXGA Projector with 4100 Lumens, Contrast Ratio - 10000:1, Light Source Life : 20,000 Hours and Edge Blending features in-built.		
	Technology : 3LCD + Pure Laser		
	Resolution / Brightness : WUXGA 4,100 Lumens		
	Contrast Ratio : 1000:1		
	Installation Flexibility		
	Wide Zoom : x1.6		
	Lens Shift : V:+60%/0% H:+\32%		
	HV keystone/ Warp : V/H: +-30deg		
	Edge Blending		
	Tilt Free / Portrait		
	Light Source Life : 20,000 Hours		
	Synchronized Lamp/Filter : Filter 12K-20KH		
38	Motorized Hydraulic Projector Lift		
39	Motorized Projector Screen - 8 feet x 6 feet - Wall Mount with IR Remote		
40	85" LED LFD Professional Display with VGA, HDMI, DVI-D, USB & LAN ports with Wall Mounting Bracket. (The diagonal display size should be minimum 85" or above)		
	The Display should have Panel technology : 120Hz Slim Direct LED BLU		
	The Display should support true resolution of 3840 x 2160 (16:9) 4K UHD		
	The Display should have minimum (Native) contrast ratio of 5000:1.		
	The Display should have minimum life span of 50,000 Hrs.		
	The Display should have viewing angle of 178 Degree Horizontal & 178 Degree Vertical		
	The Display should have Brightness of 500 nits		
	The display should have following input terminals.		
	a) RGB Input –Mini D-Sub 15 PIN x 1		
	b) DVI-D In – 24+1 PIN		
	c) RS-232C - D-Sub 9 PIN X 1		
	c) Video : 3 x HDMI In		
	d) AV Port , Stereo Mini Jack Audio In and Stereo Mini Jack - Audio Out		
	e) Display Port 1.1 & Display Port 1.2		
	RJ-45 LAN Port, USB Port		
	The LCD should have in-built speakers (minimum 10W rms x 2)		
	The Display should support various types of mounting accessories like:		
	a) Wall Mount Bracket		

	The display should have the following standards certification		
	a) RoHS compliant – For environment		
	b) UL/IEC – For safety		
	c) FCC – For radiations regulation		
	d) Energy Star 6.0 Certified.		
	The display should have the following special features:		
	a) The Auto Source Switching & Recovery		
	b) Lamp Error Detection		
	c) Super Clear Coating		
	d) Temperature Sensor		
	e) Pivot Display, Image Rotation, Button Lock		
	f) WiFi Embedded, WiDi 2.0		
	Inbuilt/integrated Player with more than 2 Ghz Processor, 2 GB RAM, 32 GB Storage, Windows OS with internet explorer facility		
	Mobile Control, Event Schedule, Backup Player		
	PC-less Touch, MagicPresenter		
	24X7 application		
41	55" LFD LED Display with USB Port, LAN port, HDMI Port & WiFi		
	The Display should have aspect ratio of 16:9.		
	The Display should support true resolution of 1920X1080 pixels.		
	The Display should have minimum (Native) contrast ratio of 5000:1.		
	The Display should have minimum life span of 50,000 Hrs.		
	The Display should have 350cd/m2 Brightness		
	The display should have following input terminals.		
	a) RGB Input –Mini D-Sub 15 PIN x 1		
	b) DVI-D In – 24+1 PIN		
	c) RS-232C - D-Sub 9 PIN X 1		
	c) HDMI In		
	d) Component(CVBS Common) Port		
	e) RJ45		
	The Display should have in-built speakers (minimum 10W rms x 2)		
	The Display should support various types of mounting accessories like:		
	a) Wall Mount Bracket		
	The display should have the following standards certification		
	a) RoHS compliant – For environment		
	b) UL/IEC – For safety		
	c) FCC – For radiations regulation		
	d) Energy Star 6.0 Certified.		
	The display should have the following special features:		
	a) The Auto Source Switching & Recovery		
	b) PIP/PBP, Image Rotation		
	c) Built in Media Player		
	d) Firmware Update by Network		
	e) Magic Clone(to USB)		
	f) Predefined Template for Vertical Usage		

	g) Multi Channel		
	h) Event Schedule, Backup Player		
42	Wall /Ceiling Mounting Bracket for the 55" LFD LED Display		
43	Content Producing, AV Mixing, Final Cut Live Streaming and Recording Device		
	Video Switcher, Content Producer & Audio Mixer as a Single Module (PAL B Format) should support following minimum		
	HD Video Switcher		
	Video format supported : 1080/50i, 720/50p, RGB 1024x768 to 1920 x 1080		
	Video inputs : 4 x HD-SDI/SD-SDI, 2xComposite		
	Computer input : 2 x HDMI / 2xVGA		
	Video output : 3 x HD-SDI, 1 x HDMI, 1 xVGA		
	Video processing : RGB 4:2:2 sampling 10 bit or better		
	Video effects : Mix to Wipe patterns.		
	Display : Display is built-in within the switcher, the display panel must be 15 inch or higher.		
	Recorder : Built-in recorder for Recoding Full HD 1920 x 1080 videos.		
	Microphone : Built-in Omni-directional stereo electret condenser microphone		
	Capture Capabilities : The system should be able to make a PTZ camera motion-based tracking to track the motion of the host.		
	Audio Mixer		
	No. of input channels : 4 Nos. with low noise mic preamp, level, gain, EQ, aux, pan, mute and mono controls		
	Interface : XLR		
	Outputs : 2 Nos.		
	Gain range : 60 dB or higher		
44	Streaming Server & Video on Demand Hardware : Minimum Specifications		
	Server should be based on Intel X86 architecture, Red Hat Enterprise Linux OS, Storage : 1 TB internal HDD		
	Should include video on demand functionality		
	Form Factor : 1 RU Form Factor		
	Input Interface		
	IP Stream input over multiple Ethernet Ports		
	Input Stream		
	Live : MPEG2TS (SPTS & MPTS), MPEG TS/RTP, RTMP		
	File : MPEG2 TS/ MPEG2 PS, MP4, MKV, FLV, WAV, 3GP		
	INPUT Video CODEC : MPEG2 HL/ML, MPEG4 SP/ASP, H264 BP/MP/HP		
	INPUT Audio Codec : AAC-LC, HE-AAC v1, HE-AAC v2, AC3, MP3, MP2, LPCM		
	OUTPUT INTERFACE		
	IP stream output over multiple Ethernet ports		
	OUTPUT STREAMING FORMATS		

	Apple HLS, Microsoft Smooth Streaming, Flash RTMP, RTSP, MPEG TS over UDP, File Mode		
	Output Video through Tru-Transcode using RAFT, HELM and SAND		
45	Podium to accommodate Laptop, Desktop Visualizer, 10.1" Display (for controlling the conference room equipments), Goose neck Microphone, Table top Light,etc. - custom made.		
	Podium should have Desktop Box with RJ 45 x 2, Audio Jack x 1, HDMI x 2, VGA x 1 and Universal Power Socket x 2		
C	Audio System Components		
Sr No.	Product Specifications	Compliance	Remarks /Deviations
		Yes /No	
1	Gooseneck Microphone with a lightring indicates the spokesperson that is allowed to take the floor, 40cm length , XLR 5M connector, Pre - polarized condenser microphone for transducer principle, Accoustic : Cardioid, Frequency rersponse : 50 Hz - 20 KHz, Nominal Impedance : <100 ohm, MSPL : 130 db SPL, Connectivity : XLR 5M.		
	The microphone shall be a pre-polarized condenser designed for permanent installation or portable applications.		
	It shall have a microphone capsule with a cardioid polar pattern with uniform 120° angle of acceptance (-3dB)		
	It shall have a frequency response of 50 Hz to 20,000 Hz and be capable of handling sound input levels up to 130 dBspl		
	Nominal equivalent noise level shall be 26 dBA (37 dB weighted as per CCIR 468-3)		
	Output shall be low impedance balanced (<100 ohms).Operating temperature shall be 32° to 104° F (0° to 40° C)		
	The microphone shall operate from an external 12V to 48V DC phantom power source; current consumption shall be 3 mA		
	The microphone shall offer radio frequency interference (RFI) shielding against intermodulation from wireless equipment or devices.		
	It shall incorporate a self-contained power module with an XLR3M-type connector at the base.		
	The microphone shall be a gooseneck design ensuring precise alignment of the microphone and noiseless operation		
2	The table stand for connecting and operating XLR gooseneck microphones shall be rugged and unobtrusive.		
	It shall have a programmable microphone button (Toggle on/off, PTM, PTT and permanent on) and a bi-color LED ring for status indication shall be provided.		
	The table stand shall feature an XLR-5F microphone input, an XLR-5M microphone output and a TTL logic connector with logic inputs and outputs		
	The logic output voltage shall be high level > 2.4 and low level < 0.4 V		
	the logic input voltage shall be high level > 2.0 V and low level < 0.8 V.		
	The table stand shall operate on 48 V phantom power. Current consumption shall be 3.7 mA.		

3	Wireless Hanheld Microphone with frequency Transmission / receiving frequencies : 20 channels bank, 1 fixed bank, 12 factory preset channels each, AF frequency response : 25 - 18.000Hz, S/N ratio (at 1mV and peak deviation) : >110dBA.		
4	Wireless clip-on microphone (Collar Microphones) , frequency response : 80 - 18000Hz, Presets : 12, Sound pressure level : 120 dB (SPL) max., THD < 0.9%, RF output power : 30 mW.		
5	8" wooden design cabinet loudspeaker, 8ohm/300watt full range, wall bracket and pole mount tube included, black - priced per piece and sold per piece		
6	2-channel power amplifier 2 x 600Watts @ 4Ohms, convection cooled, 1U 19" rackmount		
7	Digital signal Processor with 8 microphone input and 2 speaker with inbuilt programming. DSP must be of the same make as microphones		
8	Bose QuietComfort 25 Acoustic Noise Cancelling headphones		
9	Cables from the beow mentioned brands which includes Speaker cable, HDMI cable, Audio Cable and power cable . Approved makes: Extron, kramer, Beldon, Percon, nT		

D	NETWORKING EQUIPMENT REQUIRED FOR THE CONFERENCE ROOM		
----------	--	--	--

Sr No.	Product Specifications	Compliance	Remarks /Deviations
		Yes /No	
1	24-Port PoE+ Switch with 10/100/1000 Base-T PoE Ports + 2 XFP Ports		
	Architecture		
	The switch should have 24 x 10/100/1000 Base-T PoE ports with 2 SFP+ Ports		
	The Switch should support Stacking from day 1.		
	The stacking port should be separate from that of uplink SFP + Ports.		
	The switch should support stacking for minimum 8 switch stack and support a stacking bandwidth/throughput of 60 Gbps . The stacking should support single IP address management.		
	The switch should support GE SFP and 10 GE SFP+ on any 2 ports		
	Should have at least 100Gbps of forwarding bandwidth		
	Should have switching throughput of up to 65 million pps		
	MAC Address table size of 12000 entries		
	The Switch should be 19" Rack-Mountable / 1 rack unit (RU)		
	Resiliency and high availability		
	Should support IEEE 802.3ad Link Aggregation Control Protocol (LACP)		
	Should support IEEE 802.1s Multiple Spanning Tree Protocol		
	Should support Redundant Power Supply		
	Layer 2 and Layer-3 features		

	Should support IEEE 802.1Q (4K VLAN IDs) and 250 VLANs simultaneously		
	Should support feature allowing automatic learning and dynamic assignment of VLANs and dynamic trunk configurations across all switches		
	Should support Jumbo frames		
	Should support Inter-VLAN Routing and Static IP routing		
	Should be IPv6 Capable supporting IPv6 host, Dual stack (IPv4/IPv6) and MLD snooping		
	Security		
	Should support Port security and MAC address lockout		
	Should support Access control lists (ACLs) to provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number		
	Should support IEEE 802.1X user authentication, Web-based authentication and MAC-based authentication		
	Should support DHCP Snooping		
	Should support Dynamic ARP protection to block ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data		
	DHCP protection to block DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks		
	Should support Secure FTP for secure file transfer to/from the switch		
	Should support Source Port Filtering allowing only specified ports to communicate with each other		
	Should support TACACS+ and RADIUS authentication for secure switch CLI logon		
	Should support SSHv2 and SSL allowing secure access to the switch		
	Convergence and QoS		
	Should support IP multicast Snooping (data-driven IGMP)		
	Should support IEEE 802.1AB Link Layer Discovery Protocol (LLDP)		
	Should support LLDP-MED (Media Endpoint Discovery)		
	Should support IEEE 802.1p Traffic prioritization allowing real-time traffic classification into 4 priority levels mapped to 4 queues		
	Should be able to set the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), TCP/UDP port number, source port, and DiffServ		
	Should support per-port Rate Limiting setting ingress enforced maximums		
	The switch should support 4 queues and one of them should be strict priority queue which helps ensure that the highest-priority packets are serviced ahead of all other traffic.		
	Advance Features		
	The switch should have feature to provide real-time network event detection and onboard automation		
	The switch should support Multicast VLAN Registration		
	The Switch should support IEEE 802.1AE MACsec. MACsec should provide Layer 2, line rate Ethernet data confidentiality and integrity on host facing ports, protecting against man-in-the-middle attacks (snooping, tampering, and replay).		

	The switch should support Enhanced Energy management feature for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network. The Energy management feature should enable NIT Nagaland to measure the power consumption of network infrastructure and network-attached devices and manage power consumption with specific policies, reducing power consumption to realize increased cost savings, potentially affecting any powered device. The switch should have support capabilities to support energy consumption, energy reports and energy management.		
	The switch should support feature allowing unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.		
	The switch should have feature to provide automatic configuration as devices connect to the switch port, allowing auto detection and plug and play of the device onto the network.		
	The switch should support feature which should be a transparent plug-and-play technology to configure the OS Software image and switch configuration without user intervention. This feature should utilize dynamic IP address allocation and the assistance of other switches to facilitate installation providing transparent network plug and play.		
	The switch should support feature to provide a single point of management for a group of switches and in addition adds the ability archive and backup configuration files to a file server or switch allowing seamless zero touch switch replacement.		
	The switch should support feature which should simplify QoS configuration in voice over IP (VoIP) networks by issuing interface and global switch commands to detect IP phones, classify traffic, and help enable egress queue configuration.		
	Manageability		
	Should support Port mirroring		
	Should support command authorization leveraging RADIUS to link a custom list of CLI commands to individual network administrator's login		
	Should support Multiple configuration files		
	Should support DLDAP / UDLD		
	Should support SNMP v1, v2 & v3		

Sr No.	Product Specifications	Compliance	Remarks /Deviations
		Yes /No	
2	Wireless Access Point - 802.11ac - Indoor		
	The APs should support the 802.11a, 802.11b, 802.11g and 11n and ac standards. It should also support 802.11ac standard in the 5 GHz band.		
	Operation in dual band radio is essential		
	Should support minimum 2x2 or higher MIMO with 2 spatial streams on both radio bands to provide up to 867mbps data rate in ac		
	The access points should be centrally managed.		

	In some small isolated environments the AP should be able to function as a full-fledged stand-alone access point without the requirement of a controller.		
	Security mechanisms should be in place to protect the communication between the Access Point controller and the Access Points.		
	Since most radio interference come from the WLAN network itself the vendor should specify what mechanisms such as beam steering/ adaptive antenna technology/ beamforming are available in combination to focus the energy on the destination STA and minimize radio interference with the surrounding of the AP. The vendor should specify if the activation of such feature is still compatible with 802.11n spatial multiplexing.		
	Since the WLAN network will be using an unlicensed band the solution should have mechanisms that reduce the impact of interference generated by other radio equipment operating in the same band. Describe techniques supported.		
	The access point should be able to detect clients that have dual band capability and automatically steer those client to use the 5GHz band instead of the 2.4GHz band.		
	The antennas to be dual polarised and should be integrated inside the access point enclosure to minimize damage and create a low profile unit that does not stand out visually.		
	The access point should have 1 Gigabit Ethernet port.		
	The access point should support 802.1q VLAN tagging		
	The access point should support WPA2 enterprise authentication and AES/CCMP encryption. AP should support Authentication via 802.1X and Active Directory.		
	Implement Wi-Fi alliance standards WMM, 802.11d, 802.11h and 802.11e		
	The Access Point should provide for concurrent support for high definition IP Video, Voice and Data application without needing any configuration. This feature should be demonstrable.		
	Support RF auto-channel selection by the following three methods: a) measuring energy levels on the channel; b) monitoring for 802.11 signal structures and; (c) detecting radar pulses. Other similar forms of smart selection shall also be accepted.		
	Channel selection based on measuring throughput capacity in real time and switching to another channel should the capacity fall below the statistical average of all channels without using background scanning as a method.		
	Should support Transmit power tuning in 1dB increments in order to reduce interference and RF hazards		
	Device antenna gain (integrated) must be at least 4dBi and should provide automatic interference rejection of about 10dB.		
	Should support up to 200 clients per AP		
	Should support DHCP Option 82 in standalone mode (without Controller) as well as in Managed mode (with Controller)		
	For troubleshooting purposes, the administrator should have the ability to remotely capture 802.11 and / or 802.3 frames from an access point without disrupting client access.		
	Operating Temperature: 0°C - 40°C		
	Operating Humidity: 10 % - 95% non-condensing.		
	Should be plenum rated and comply to RoHS		
	Should be WiFi certified; WiFi certificate to be enclosed		

	Should be WPC approved; ETA certificate to be enclosed		
	Mechanism for physical device locking using padlock /Kensington lock / equivalent		
3	24-Port Loaded Patch Panel UTP Cat 6		
4	Cat 6 UTP Cables		
5	Informationa Outlet - UTP Cat 6 - RJ-45 Inserts for I/O		
6	I/O Face Plate		
7	Cat 6 UTP Patch Cord - 1 mtr		
8	Cat 6 UTP Pacth Cord - 2 mtr		

E Furnishing of Seminar Hall - Electrical Lighting, Acoustic Wall & Ceiling Panelling,etc.

(a) Lighting Requirement of the Seminar Hall			
Sr No.	Product Specifications	Compliance	Remarks /Deviations
		Yes /No	
1	16W LED downlighter with High power, high efficiency Chip-On-Board (COB) LED module lumens >=1200 Lumens,High transmitivity, non-yellowing PMMA diffuser,Pressure die cast aluminum housing with special wave shaped radial fins, black powder coated for superior thermal performance,Aesthetic white rim molded in engineering plastic.Driver will be 1-10 V Analog dimmable driver integrated with fixture.		
2	2' x 2' LED Fixutre with high efficient LEDs - 31.6 Watts ,seamlessly designed to integrated with grid ceiling with HET duffuser (high efficient translucense) diffuser for better light output.Driver will be 1-10 V Analog dimmable driver integrated with fixture.		
3	Required Electrical Wiring for connecting all the above LED lights in the conference room and terminating them in termination block including all necessary accessories		
(b) Acoustic panelling of Walls & Ceiling of the Seminar Hall			
Sr No.	Product Specifications	Compliance	Remarks /Deviations
		Yes /No	
1	For Acoustics Wall Panel		
	Supply and installation of Reputed Brand Superfine wood wool panel of size 1200 x 600 x 15mm mounted on proprietary supplied G I Frame work consisting of basic profile, main profile,edge profile and spacer.		
	Tile Specification :		
	Tile description : Magnesite bonded wood wool acoustic panel with fibre width of 1mm		
	1200 * 600 * 15mm thickness		
	Edge Detail : Square Edge (GK)		
	Reaction to fire acc to EN 13501-1 B-s1,d0		
	Sound Absorption Value a_w up to 1.00		
	Thickness/Weight : 15 mm 7.8 Kg/m ²		

2	For False Ceiling		
	Supply and installation of Reputed Make Ceiling Tiles made of mineral wool of size 600x600x 15 mm suspended by using OEM supplied ceiling suspension system to consist of 2mm or 3mm GI suspension rod/wire with adjustable Butterfly Clips of 4mm dia securely affixed to structural ceiling using 10mm dia hook type anchor fastener . Ceiling Suspnsion System to be fixed at interval (grid) of 1200mm in both directions. Supplied ceiling suspension system to consist of Main Runners @ 600mm and joined by Cross Tees @ 600mm to form overall grid opening of 600mm * 600mm centre to centre. Additional cross tees are to be placed where appropriate for light fixtures, AC diffusers etc. The grid width can be 15mm or 24mm. The main runners and cross tees to have click installation system. The Grid system shall be hot dipped galvanized steel sections, with exposed surfaces chemically cleaned and capped prefinished in high - gloss polyster enamel with two coat system on cold rolled steel		
	Tile Specification :		
	Tile Type : Lay - in ceiling type.		
	600 * 600 * 15mm thickness		
	Edge Detail : Recessed Bevelled Edge (VT)		
	Light Reflectance : upto 90%.		
	Humidity Resistance : up to 95% RH		
	Colour : White Similar to RAL 9010.		
	Thermal Conductivity : 0.040 W/mK as per EN 12667		
	NRC = 0.60 as per ASTM C 423		
	Sound Attenuation : 34 dB as per EN 20140-9		
	Thickness/Weight : 15 mm 4.5 Kg/m ²		
3	Curtains for the 6 nos of Windows of size 4 feet x 4 feet - Curtain size : 5 feet x 6 feet with thick light stopping linel and curtain clothes to match the fabric of the wall paneling		

