

HIMACHAL PRADESH
STATE ELECTRONICS
DEVELOPMENT
CORPORATION
LIMITED



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Corrigendum-I

(Tender No. SEDC/HC/Webcasting/2k24-7956)

HPSEDC published e-tender for Supply and Installation/Setup of Hybrid Video Conferencing and Live Streaming Solution for 12 Courtrooms in Himachal Pradesh on 10/09/2024.

Based on the queries received from the bidders, the changes/ modifications/ clarifications/ specifications in the tender Section(s)/ Clause(s) are incorporated in the tender document by issuing Corrigendum and is attached as **Annexure-A**.

Last date for bid submission is extended from 09-10-2024 to 24-12-2024 till 2.30 PM and same will be opened on 26-12-2024 at 2.30 PM.

Data Controller, HPSEDC

Hon'ble C.J. Court	
Item Name	Item Description
<p>PTZ Camera (with mount) (Facing towards Hon'ble Bench)</p>	<ol style="list-style-type: none"> 1. Resolution: 1920 x 1080 px or higher 2. Zoom: 15 x Optical or higher. 3. PTZ: +/- 170° Pan and +/-30 Tilt or higher 4. Output Ports Supported: USB/HDMI 5. Control: Remote Control (IR), Web Client /PC Client. 6. Power: Runs on PoE+ or DC Power 7. IP Streaming: H.264/ H.265/ RTMP & RTMPS/ RTP/ RTSP/ SRT/ TCP or equivalent 8. Comprehensive On-Site Warranty: 1 Year or as per the product warranty. 9. Frame Rate: 50 fps at 50Hz or higher in all resolutions. 10. Image Device: 1/2.5" CMOS or better 11. Horizontal resolution: 5MP or better 12. Streaming: Minimum single stream or better <p>Streaming requirement:</p> <ol style="list-style-type: none"> 1. Physical Layer: 10/100/1000 base TX Ethernet 17 or higher 2. Protocol: Minimum TCP/IP /HTTP/ RTP/ RTSP 3. IP Support: Static/Dynamic or both 4. Lens Type: Varifocal minimum 5-100 mm or better 5. Shutter speed: 1/50–1/1000 or better 6. Approvals: CE, FCC, RoHS & BIS 7. Compatibility: Compatible with various Video Conferencing software (e.g., Zoom/ Microsoft Teams/ Webex or VC platform used/approved in the govt./semi govt. Organizations or any other VC platforms). <p>Adjustment Features for Wall/Ceiling mount:</p> <ul style="list-style-type: none"> ▪ 180-degree rotation for optimal camera positioning
<p>PTZ Camera (with mount) (Facing towards Advocates)</p>	<ol style="list-style-type: none"> 1. Resolution: 1920 x 1080 px or higher. 2. Zoom: 10x Optical or higher. 3. PTZ: +/- 170° Pan and +/-30 Tilt or higher 4. Output Ports Supported: USB/HDMI

	<ol style="list-style-type: none"> 5. Remote Control: Remote Control (IR), Web Client /PC Client 6. Power: Runs on PoE+ or DC Power 7. IP Streaming: H.264/ H.265/ RTMP & RTMPS/ RTP/ RTSP/ SRT/ TCP por equivalent 8. Comprehensive On-Site Warranty: 1 Year or as per the product warranty. 9. Frame Rate: 50 fps at 50Hz or higher in all resolutions. 10. Image Device: 1/2.5” CMOS or better 11. Horizontal resolution: 5MP or better 12. Streaming: Minimum single stream or better <p>Streaming requirement:</p> <ol style="list-style-type: none"> 1. Physical Layer: 10/100/1000 base TX Ethernet 17 or higher 2. Protocol: TCP/IP /HTTP/ RTP/ RTSP or equivalent 3. IP Support: Static/Dynamic or both 4. Lens Type: Varifocal minimum 5-100 mm or better 5. Shutter speed: 1/50–1/1000 or better 6. Approvals: CE, FCC, RoHS & BIS 7. Compatibility: Compatible with various Video Conferencing software (e.g., Zoom/ Microsoft Teams/ Webex or VC platform used/approved in the govt./semi govt. Organizations or any other VC platforms). <p>Adjustment Features for Wall/Ceiling mount:</p> <ul style="list-style-type: none"> ▪ 180-degree rotation for optimal camera positioning
<p>Wired Gooseneck Microphones (with stand for Hon’ble Bench)</p>	<ol style="list-style-type: none"> 1. Microphone Type: Gooseneck Condenser Microphone 2. Polar Pattern: Cardioid 3. Frequency Response Range: 50 Hz to 17 - 20 kHz Sensitivity: -30 to -40 dB 4. Maximum SPL tolerance: 120 -130 dB <p>Output:</p> <ol style="list-style-type: none"> 1. Type: Balanced XLR Output 2. Flexible Gooseneck: 3. Length: 18-21 inches 4. Material: Durable metal alloy construction

	<p>Integrated Features:</p> <ol style="list-style-type: none"> 1. LED Indicator: High-visibility LED for microphone status (active/on/off) 2. RF Rejection: Integrated RF shielding to minimize interference. <p>Shock Mount:</p> <ol style="list-style-type: none"> 1. Integrated shock mount to reduce handling noise and vibrations 2. Type: Balanced XLR Output 3. Flexible Gooseneck: 4. Length: 30-36 inches 5. Material: Durable metal alloy construction 6. Integrated Features: 7. LED Indicator: High-visibility LED for microphone status (active/on/off) 8. RF Rejection: Integrated RF shielding to minimize interference 9. Compatibility: Compatible with standard DSP mixers and audio equipment <p>Power Requirements:</p> <ol style="list-style-type: none"> 1. Phantom Power: Requires +48V phantom power 2. Comprehensive On-Site Warranty: 1 Year or as per the product warranty.
<p>Wired Gooseneck Microphones (With stand for Advocates)</p>	<ol style="list-style-type: none"> 1. Microphone Type: Gooseneck Condenser Microphone 2. Polar Pattern: Cardioid 3. Frequency Response Range: 50 Hz to 17 - 20 kHz 4. Sensitivity: -30 to -40 dB 5. Maximum SPL tolerance: 120 -130 dB <p>Output:</p> <p><u>Shock Mount:</u></p> <ol style="list-style-type: none"> 1. Integrated shock mount to reduce handling noise and vibrations <p>Compatibility:</p> <p>Power Requirements:</p> <ol style="list-style-type: none"> 2. Phantom Power: Requires +48V phantom power

	<p>3. Comprehensive On-Site Warranty: 1 Year or as per the product warranty.</p> <p>(Each microphone should be able to capture clear and intelligible sound from approximately 3-5 feet)</p>
<p>Speakers (with mount)</p>	<ol style="list-style-type: none"> 1. Wired Passive Speaker: Ensure compatibility with the amplifier's power output. 2. Maximum SPL Tolerance: 120-130 dB <p>Frequency Response</p> <ol style="list-style-type: none"> 1. Range: 50 Hz to 17-20 kHz (+/- 3 dB) <p>Power Handling</p> <ol style="list-style-type: none"> 1. Continuous Power: 100W RMS 2. Peak Power: 200W 3. Sensitivity: ≥ 95 dB (1W/1m) <p>Drivers</p> <ol style="list-style-type: none"> 1. Woofer: 8-inch or 10-inch high-performance woofer for low and mid frequencies. 2. Integrated Tweeter: 1-inch compression driver or dome tweeter for high frequencies. <p>Coverage Pattern</p> <ol style="list-style-type: none"> 1. Horizontal Coverage: 90 degrees 2. Vertical Coverage: 60 degrees <p>Inputs</p> <ol style="list-style-type: none"> 1. Types: Balanced XLR. 2. Compatibility: Allows connection from various audio sources and mixers. 3. Material: Robust ABS plastic or wood 4. Design: Bass reflex or sealed design for enhanced bass response. 5. Wall Mount: wall mount brackets for fixed installations. 6. Rigging Points: Integrated rigging points for suspended installations. <p>Connectivity and Controls</p> <ol style="list-style-type: none"> 1. Volume Control: Independent volume control on the speaker. 2. EQ Controls: Basic EQ settings (bass, treble) for on-the-fly adjustments. 3. Protection and Reliability

	<ol style="list-style-type: none"> 4. Overload Protection: Protects the speaker from damage due to excessive power. 5. Thermal Protection: Prevents overheating during prolonged use. 6. Short Circuit Protection: Ensures speaker safety in case of wiring faults. 7. Weight: Lightweight for easy installation and handling. <p>Additional Features</p> <ol style="list-style-type: none"> 1. Integrated Handles: For easy transportation and setup 2. LED Indicators: Power and signal indicators for monitoring status 3. Remote Control: IR Enabled Remote Control or equivalent. 4. Comprehensive On-Site Warranty: 1 Year or as per the product warranty.
<p>Amplifier & Digital Signal Processor</p>	<p>Digital Multi-Channel Amplifier:</p> <ol style="list-style-type: none"> 1. Channels: 6 Input / 6 Output. 2. Minimum Output Power: 100W RMS per channel (into 8 ohms) 3. Total Harmonic Distortion (THD): Less than 0.1% at rated power 4. Frequency Response Range: 50 Hz to 17-20 kHz (+/- 1 dB) 5. Signal-to-Noise Ratio (SNR) 6. High SNR: $\geq 90 - 110$ dB 7. Input Types: 6 Balanced XLR. 8. Output Types: 6 Balanced XLR, Binding posts, Speak on connectors. 9. Flexibility: Provides multiple output options for connecting to various speakers and audio systems. <p>Digital Signal Processing (DSP)</p> <p>Functions:</p> <p>Input and Output Channels:</p> <ol style="list-style-type: none"> 1. Input Channels: 6 balanced analog inputs (Balanced XLR) for connecting microphones and audio sources. 2. Output Channels: 6 balanced analog outputs (Balanced XLR) for sending processed audio

to amplifiers, speakers, or recording equipment.

3. DSP Cores: Multi-core DSP architecture with sufficient processing power to handle real-time audio processing for all 6 input and output channels simultaneously.
4. Echo Cancellation: Built-in automatic echo cancellation.
5. Noise Reduction: Advanced noise reduction algorithms.
6. Automatic Gain Control (AGC): To maintain consistent audio levels
7. Processing Capability: Capable of implementing complex audio algorithms such as EQ (Equalization), dynamics processing, and feedback suppression without introducing noticeable latency.

Audio Processing Features:

1. EQ (Equalization): Parametric EQ with adjustable frequency bands (typically 4 to 8 bands per channel), Q factors, and gain levels.
2. Dynamics Processing: Includes compressors, limiters, and expanders for managing audio dynamics.
3. Feedback Suppression: Advanced algorithms for detecting and automatically suppressing feedback frequencies.

Audio Quality and Resolution:

1. Sample Rate and Bit Depth: 24-bit/44.1kHz or 24-bit/48kHz or higher.
2. Audio Latency: Low-latency audio processing to minimize delay between audio input and output.

Connectivity Options:

1. Analog Inputs/Outputs: 6 balanced analog inputs and outputs (Balanced XLR) for direct connection to microphones, mixers, and other audio equipment.
2. Digital Inputs/Outputs: Digital inputs/outputs (AES/EBU, SPDIF) for interfacing with digital audio sources and equipment or equivalent.

	<p>3. Network Connectivity: Ethernet port for remote control, monitoring, and integration into networked audio systems.</p> <p>Control and Interface:</p> <ol style="list-style-type: none"> 1. User Interface: Front panel controls with LCD display for intuitive navigation and real-time monitoring of input and output levels, processing status, and settings. 2. Remote Control: Support for remote control via dedicated software application (e.g., web-based interface or proprietary control software). 3. Presets Storage: Ability to store and recall multiple presets for different courtroom setups or audio configurations. <p>Power Requirements:</p> <ol style="list-style-type: none"> 1. Power Supply: Standard AC mains power (110V/220V/ or above) or Power over Ethernet (PoE+). 2. Mounting: Rack-mountable design with included mounting brackets. 3. Comprehensive On-Site Warranty: 1 Year or as per the product warranty.
<p>Display (with Mount)</p>	<ol style="list-style-type: none"> 1. Resolution: 1920 x 1080 pixel's resolution or higher 2. Aspect Ratio: 16:9 widescreen format. 3. Screen Size: 55 inches 4. Brightness: 400 nits or more. 5. Contrast Ratio: Standard contrast ratios of 1000:1 or higher for vivid image quality. 6. Response Time: Typical Response Time: 8ms or lower. 7. Viewing Angles: Horizontal/Vertical Viewing Angles: Wide viewing angles (typically 178 degree's horizontal and vertical) for clear visibility from different positions. 8. Color Depth: Color Support: 16.7 million colors (8-bit) for accurate color representation. 9. Refresh Rate: Standard Refresh Rate: 60Hz, suitable for most general-purpose applications. 10. Connectivity: HDMI in port minimum 2, USB in port minimum 2, Ethernet LAN (RJ-45), Audio Out Stereo Mini Jack, Wi-Fi, Bluetooth.

	<p>11. Panel Type: Technology: LED-backlit LCD panel for energy efficiency and vibrant colors.</p> <p>12. IPS (In-Plane Switching) or TN (Twisted Nematic): Depending on the model, IPS for better colour accuracy and wider viewing angles, or TN for faster response times.</p> <p>Power Specifications:</p> <ol style="list-style-type: none"> 1. Power Consumption: Energy-efficient with power management features. 2. Power Supply: Supports standard AC mains power (110V/220V/ or above, 50/60Hz). <p>Connectivity Options:</p> <ol style="list-style-type: none"> 1. Video Inputs: HDMI, DisplayPort inputs for versatile connectivity to various devices. 2. Audio: Built-in speakers or audio-out ports for connecting external speakers or headphones. 3. Display Working/Operations Hours: 16X7 hours or higher. 4. Full motion Mount: Wall /Ceiling Mount 5. Pan: 180/360 degrees 6. Tilt: -15 to +15 degrees 7. Weight capacity: As per the display screen size. 8. Warranty Period: As per the default warranty of the component or minimum 1 year
<p>Smart Table Monitors (With Mount for Hon'ble Bench)</p>	<ol style="list-style-type: none"> 1. Screen Size: 21 inches or higher (diagonal measurement). 2. Resolution: Full HD (1920 x 1080 pixels) 3. Panel Type: IPS (In-Plane Switching) 4. Brightness: 300 cd/m² 5. Contrast Ratio: 1000:1 6. Response Time: 8ms (Gray-to-Gray) or less 7. Viewing Angles: 1780 horizontal/vertical 8. Power Consumption: Energy-efficient with power management features. 9. Connectivity: USB, HDMI, DisplayPort 10. Features: Slim design, wide colour gamut 11. Panel Type: LED (Light Emitting Diode) or higher, anti-glare display. 12. Connectivity: HDMI, DisplayPort, USB inputs Response Time:5ms or less, Ethernet Port for network connectivity. 13. Refresh Rate: Standard 60Hz refresh rate or higher.

	<p>14. Operating System: Built-in OS (such as Android or proprietary OS) for smart functionality.</p> <p>15. Browser: Pre-installed web browser for internet access.</p> <p>16. Warranty Period: As per the default warranty of the component or minimum 1 year.</p> <p>Table Mount/Stand Design:</p> <ol style="list-style-type: none"> 1. Wider and Longer Arm: Support monitors from 21"-35" with load capacity up to 12KG or higher. 2. VESA Support: Support 75x75mm and 100x100mm or equivalent. 3. Ergonomic Design: +85° to -30° screen tilt adjustment, 360° rotations for landscape or portrait mode; Upright lift 9.8" (250mm) and +90° to -90° swivel. 4. Easy Installation: C-clamp or Grommet hole installation or equivalent.
<p>HDMI Distribution Amplifier</p>	<ol style="list-style-type: none"> 1. Configuration: 1 input, 4 outputs (1x4) 2. HDMI Input: 1 x HDMI Type A (19-pin) 3. HDMI Outputs: 4 x HDMI Type A (19-pin) 4. Resolution Support: Up to 4K (3840 x 2160 pixels) at 60Hz 5. Supported Formats: Full HD (1920 x 1080 pixels), Ultra HD or higher. 6. HDMI Version: HDMI 2.0 or higher 7. Colour Depth: Supports 8-bit, 10-bit, and 12-bit Deep Colour. 8. Audio Pass-through: Supports audio pass-through to all outputs. 9. HDCP Version: HDCP 2.2 compliant or higher 10. Backward Compatibility: HDCP 1.4 compatible 11. EDID Management: Supports EDID management for compatibility with different displays 12. CEC Pass-through: Consumer Electronics Control (CEC) pass-through support 13. Power Supply: DC/External DC/inbuilt AC or generic 14. Input Voltage: 100-240V AC, 50/60Hz 15. Output Voltage: 5V DC or 12V DC.

	<p>16. Power Consumption: Energy-efficient with power management features.</p> <p>Physical and Environmental Specifications:</p> <ol style="list-style-type: none"> 1. Operating Temperature: 0°C to 40°C (32°F to 104°F) 2. Storage Temperature: -20°C to 60°C (-4°F to 140°F) 3. Humidity: 20% to 90% RH (non-condensing) 4. Mounting: Rack-mountable design with included mounting brackets. 5. LED Indicators: Power, signal status for each output 6. Firmware Upgradable: Via USB or network connection 7. Signal Amplification: Built-in signal amplification for extended cable lengths. 8. Remote Control: IR remote control or web-based management interface or RS232 and Ethernet 9. Warranty Period: As per the default warranty of the component or minimum 1 year.
<p>HDMI Extender (As per requirements)</p>	<p>HDMI Extender:</p> <ul style="list-style-type: none"> ▪ Compatibility: HDMI 1.4, HDMI 2.0 or better <p>Maximum Distance:</p> <ul style="list-style-type: none"> ▪ Over CAT6: Up to 70 meters (230 feet) for 1080p; up to 40 meters (131 feet) for 4K <p>Resolution Support:</p> <ol style="list-style-type: none"> 1. Up to 4K UHD (3840 x 2160) at 60Hz 2. HDCP 2.2 compliance or higher <p>Audio Formats Supported:</p> <ul style="list-style-type: none"> ▪ LPCM, DTS-HD Master Audio, Dolby True HD <p>Ports:</p> <ol style="list-style-type: none"> 1. Transmitter: 1 x HDMI input, 1 x RJ45 output 2. Receiver: 1 x RJ45 input, 1 x HDMI output <p>Power Supply:</p> <ol style="list-style-type: none"> 1. External power adapter included 2. PoE (Power over Ethernet) options available

	<p>Additional Features:</p> <ol style="list-style-type: none"> 1. EDID pass-through for seamless communication between devices 2. IR pass-through for remote control extension 3. LED indicators for power and link status <p>Environmental Specifications:</p> <ol style="list-style-type: none"> 1. Operating Temperature: 0°C to 50°C (32°F to 122°F) 2. Storage Temperature: -20°C to 70°C (-4°F to 158°F) 3. Humidity: 10% to 90% non-condensing 4. Safety Standards: UL listed 5. Warranty Period: As per the default warranty of the component or minimum 1 year.
<p>USB Extender (As per requirements)</p>	<p>General Specifications:</p> <ol style="list-style-type: none"> 1. Type: USB3.0 2. Transmission Method: CAT6/7 Ethernet cables or fiber optics or other high speed cable extenders. <p>USB Extender:</p> <ol style="list-style-type: none"> 1. Compatibility: USB 2.0, USB 3.0 or better <p>Maximum Distance:</p> <ol style="list-style-type: none"> 2. Over CAT6: Up to 100 meters 3. Data Transfer Rate: USB 3.0: Up to 5 Gbps <p>Ports:</p> <p>Power Supply:</p> <ol style="list-style-type: none"> 1. External power adapter included 2. USB-powered options available for shorter distances <p>Additional Features:</p> <ol style="list-style-type: none"> 1. Plug and play, no driver installation required 2. LED indicators for power and data transmission status <p>Environmental Specifications:</p> <ol style="list-style-type: none"> 1. Operating Temperature: 0°C to 50°C (32°F to 122°F) 2. Storage Temperature: -20°C to 70°C (-4°F to 158°F)

	<ol style="list-style-type: none"> 3. Humidity: 10% to 90% non-condensing 4. Safety Standards: UL listed 5. Warranty Period: As per the default warranty of the component or minimum 1 year.
Cables	<ul style="list-style-type: none"> ▪ Generic Cables (Lump Sum)
Codec/Computer System/ or similar	<p>Codec</p> <p>Video Standards and Resolutions:</p> <ol style="list-style-type: none"> 1. Standards Supported: H.323 & SIP for video conferencing protocols. 2. Video Compression: Supports bandwidth-efficient video compression formats such as H.264 AVC, H.264 High Profile, and H.265 (HEVC). 3. Resolution Support: Capable of transmitting video up to 4K resolution at 30 frames per second (fps) or higher. <p>Content Standards and Resolutions:</p> <ol style="list-style-type: none"> 1. Content Sharing: Supports wired /wireless content sharing with/without requiring additional applications on user devices. 2. Content Transmission: Ability to transmit content to remote locations at up to 4K resolution (30fps or higher). 3. AES-128 bit or AES-256-bit encryption <p>Audio Standards and Features:</p> <ol style="list-style-type: none"> 1. Audio Codecs Supported: G.711, G.719, G.726, AAC-LD (Advanced Audio Codec – Low Delay), or higher for clear audio transmission. 2. Microphone Inputs: Includes one or more mic inputs with support for digital omnidirectional microphones with at least 10-20 feet pickup range. 3. Line Inputs: RCA/3.5mm stereo line-in for connecting to DSP or audio mixer. <p>Video and Audio Inputs:</p> <ol style="list-style-type: none"> 1. Video Inputs: 3 x HDMI/USB/HDCI inputs for connecting Full HD or better cameras. 2. Content Input: 1 x HDMI/USB input for sharing 4K/Full HD content from various

sources (PC, laptop, document camera, PTZ camera).

Video and Audio Outputs:

1. Video Outputs: 2 x HDMI outputs for connecting primary and secondary 4K(UHD)/Full HD displays.
2. Audio Outputs: 1 x RCA/3.5mm stereo line-out for connecting to amplifiers and speakers.

Touch Panel:

1. Display: Includes a minimum screen size 7” or higher.
2. Power: Supports Power over Ethernet (PoE) with IEEE 802.3af standard.

USB Pass-Thru:

1. Functionality: System supports using the VC system as an external camera and microphone when connected to a laptop or PC via USB.
2. Seamless Integration: USB pass-thru functionality with major cloud-based VC platforms like Zoom/ Microsoft Teams/ Webex or VC platform used/approved in the govt./semi govt. organizations or any other VC platforms, with or without the need for external hardware.
3. Included Cable: Supplied with a 10 meters single USB 3.0 cable from the OEM for USB pass-thru mode.

Cloud Integration:

- Native Registration: Capable of natively registering with Zoom/ Microsoft Teams/ Webex or VC platform used/approved in the govt./semi govt. Organizations or any other VC platforms

Or

Type: Tower Computer System/Desktop

1. Processor: Processor x86Processor i.e. Intel i5,12000series/AMDRyzen5, 5000 series (Six Core and Twelve thread or higher), 4.4 GHz or higher turbo frequency) or better.

	<ol style="list-style-type: none"> 2. Chipset: Suitable chipset for quoted processor with upgradable support. 3. Memory: 8GB DDR-53200 MHz or higher expandable up to 64GB. 4. Storage: 512GB SSD or higher 5. Graphics Card: Integrated HD Graphics or better Graphic controller. 6. Network: Integrated Gigabit Ethernet controller with RJ-45 connector, WIFI and Bluetooth 5.0 or higher. 7. External Ports: 2xUSB2.0 or higher and 3xUSB 3.0 or higher ports, 2 HDMI ports, 1 DP port. 8. Audio: Integrated sound controller. 9. Keyboard: Standard 104 Keys OEM Keyboard with Rupee Symbol and USB Interface 10. Mouse: OEM Optical USB Scroll Mouse with Mousepad Display: 23” or higher LCD/TFT display non-touch having FHD (1920x1080) or better resolution and TCO/BIS certified. 11. Webcam: Full HD with integrated mic 12. Power Management & DMI: System with Power management features & Desktop Management Interface implementation 13. Power efficiency: Minimum 85% 14. OS Support: Latest version of Windows 64 bit Accessories: System user manual and all other necessary accessories 15. Compliance & Certifications: Complete system should be BIS registered, BEE / Energy Star certified and RoHS Complied and EPR Complied 16. Stand: Standard Height adjustable 17. Warranty Period: As per the default warranty of the component or minimum 1 year.
<p>24U Rack</p>	<p>Type and Size:</p> <ol style="list-style-type: none"> 1. Rack Height: 24U 2. Rack Width: Standard 19-inch 3. Rack Depth: Adjustable, minimum 24 inches 4. Construction Material: High-quality SPCC cold-rolled steel with black powder-coated finish <p>Dimensions and Weight Capacity:</p> <ol style="list-style-type: none"> 1. Height: 42 inches (106.68 cm)

2. Width: 23.6 inches (60 cm) outer, 19 inches (48 cm) inner
3. Depth: Adjustable, minimum 24 inches (61 cm)
4. Weight Capacity: Minimum 75 kg (165 lbs)

Note: The bidder can quote the rack with dimensions compatible with computer hardware required in the proposed solution.

Doors and Panels:

1. Front Door: Perforated and lockable
2. Rear Door: Perforated and lockable
3. Side Panels: Removable with quick-release latches

Cooling and Ventilation:

1. Pre-installed Fans: One 120mm top-mounted fan
2. Ventilation: Perforated doors for passive airflow
3. Optional Fans: Additional fan mounts available

Cable Management:

1. Vertical Cable Management: Included (bars or rings)
2. Horizontal Cable Management: Included (bars or rings)
3. Cable Entry Points: Top and bottom with grommets

Mounting and Rails:

1. Mounting Rails: Adjustable depth, with U markings
2. Compatibility: Standard 19-inch rack equipment
3. Grounding: Grounding points included

Additional Features:

1. Casters: Optional, with locking brakes
2. Leveling Feet: Included
3. Colour: Black
4. Compliance and Standards:

	<p>5. Certifications: Must comply with relevant industry standards and certifications for safety and durability.</p> <p>6. Warranty: Complete system with minimum Three (3) / Five (5) Years OEM on site comprehensive warranty support. MAF from OEM is a must.</p>
Court No. 1	
Items	Item Details
PTZ Camera (with mount)	<ol style="list-style-type: none"> 1. Resolution: 1920x1080px or higher. 2. Zoom: 10x Optical or higher. 3. PTZ: +/- 170° Pan and +/-30 Tilt or higher 4. Output Ports Supported: USB/HDMI 5. Control: Remote Control (IR), Web Client /PC Client. 6. Power: Runs on PoE+ or DC Power 7. IP Streaming: H.264/ H.265/ RTMP & RTMPS/ RTP/ RTSP/ SRT/ TCP or equivalent 8. Comprehensive On-Site Warranty: 1 Year or as per the product warranty. 9. Frame Rate: 50 fps at 50Hz or higher in all resolutions. 10. Image Device: 1/2.5” CMOS or better 11. Horizontal resolution: 5MP or better 12. Streaming: Minimum single stream or better <p>Streaming requirement:</p> <ol style="list-style-type: none"> 1. Physical Layer: 10/100/1000 base TX Ethernet 17 or higher 2. Protocol: Minimum 3. IP Support: Static/Dynamic or both 4. Lens Type: Varifocal minimum 5-100 mm or better 5. Shutter speed: 1/50–1/1000 or better 6. Approvals: CE, FCC, RoHS & BIS 7. Compatibility: Compatible with various Video Conferencing software (e.g., Zoom/ Microsoft Teams/ Webex or VC platform used/approved in the govt./semi govt. Organizations or any other VC platforms). <p>Adjustment Features for Wall/Ceiling mount:</p> <ul style="list-style-type: none"> ▪ 180-degree rotation for optimal camera positioning

<p>Wired Gooseneck Microphones (with stand for Hon’ble Bench)</p>	<ol style="list-style-type: none"> 1. Microphone Type: Gooseneck Condenser Microphone 2. Polar Pattern: Cardioid 3. Frequency Response Range: 50 Hz to 17 - 20 kHz Sensitivity: -30 to -40 dB 4. Maximum SPL tolerance: 120 -130 dB <p>Output:</p> <ol style="list-style-type: none"> 1. Type: Balanced XLR Output 2. Flexible Gooseneck: 3. Length: 18-21 inches 4. Material: Durable metal alloy construction <p>Integrated Features:</p> <ol style="list-style-type: none"> 1. LED Indicator: High-visibility LED for microphone status (active/on/off) 2. RF Rejection: Integrated RF shielding to minimize interference <p>Shock Mount:</p> <ul style="list-style-type: none"> ▪ Integrated shock mount to reduce handling noise and vibrations <p>Compatibility:</p> <ul style="list-style-type: none"> ▪ Compatible with standard DSP mixers and audio equipment’s <p>Power Requirements:</p> <ol style="list-style-type: none"> 1. Phantom Power: Requires +48V phantom power 2. Comprehensive On-Site Warranty: 1 Year or as per the product warranty.
<p>Wired Gooseneck Microphones (with stand for Advocates)</p>	<p>Microphone Type: Gooseneck Condenser Microphone</p> <p>Polar Pattern: Cardioid</p> <p>Frequency Response Range: 50 Hz to 17 - 20 kHz Sensitivity: -30 to -40 dB</p> <p>Maximum SPL tolerance: 120 -130 dB</p> <p>Output:</p>

	<p>Type: Balanced XLR Output</p> <p>Flexible Gooseneck:</p> <p>Length: 30-36 inches</p> <p>Material: Durable metal alloy construction</p> <p>Integrated Features:</p> <ol style="list-style-type: none"> 1. LED Indicator: High-visibility LED for microphone status (active/on/off) 2. RF Rejection: Integrated RF shielding to minimize interference <p>Shock Mount:</p> <ul style="list-style-type: none"> ▪ Integrated shock mount to reduce handling noise and vibrations <p>Compatibility:</p> <ul style="list-style-type: none"> ▪ Compatible with standard DSP mixers and audio equipment's. <p>Power Requirements:</p> <ol style="list-style-type: none"> 1. Phantom Power: Requires +48V phantom power 2. Comprehensive On-Site Warranty: 1 Year or as per the product warranty. 3. (Each microphone should be able to capture clear and intelligible sound from a distance of approximately 3-5 feet.) 	
Speakers	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court 	2
Amplifier & Digital Signal Processing	<ol style="list-style-type: none"> 1. Digital Multi-Channel Amplifier: 2. Channels: 4 Input / 4 Output. 3. Minimum Output Power: 100W RMS per channel (into 8 ohms) 4. Total Harmonic Distortion (THD): Less than 0.1% at rated power 5. Frequency Response Range: 50 Hz to 17-20 kHz (+/- 1 dB) 6. Signal-to-Noise Ratio (SNR) 7. High SNR: $\geq 90 - 110$ dB <p>Inputs</p> <ul style="list-style-type: none"> ▪ Types: 4 Balanced XLR. <p>Outputs</p>	

1. Types: 4 Balanced XLR, Binding posts, Speakon connectors
2. Flexibility: Provides multiple output options for connecting to various speakers and audio systems.

Digital Signal Processing (DSP)

Functions:

1. Input Channels: 4 balanced analog inputs (Balanced XLR) for connecting microphones and audio sources.
2. Output Channels: 4 balanced analog outputs (Balanced XLR) for sending processed audio to amplifiers, speakers, or recording equipment.
3. DSP Cores: Multi-core DSP architecture with sufficient processing power to handle real-time audio processing for all 4 input and output channels simultaneously.
4. Echo Cancellation: Built-in automatic echo cancellation.
5. Noise Reduction: Advanced noise reduction algorithms.
6. Automatic Gain Control (AGC): To maintain consistent audio levels
7. Processing Capability: Capable of implementing complex audio algorithms such as EQ (Equalization), dynamics processing, and feedback suppression without introducing noticeable latency.
8. Audio Processing Features:
9. EQ (Equalization): Parametric EQ with adjustable frequency bands (typically 4 to 8 bands per channel), Q factors, and gain levels.
10. Dynamics Processing: Includes compressors, limiters, and expanders for managing audio dynamics.
11. Feedback Suppression: Advanced algorithms for detecting and automatically suppressing feedback frequencies.

Audio Quality and Resolution:

1. Sample Rate and Bit Depth: 24-bit/44.1kHz or 24-bit/48kHz or higher.

	<ol style="list-style-type: none"> 2. Audio Latency: Low-latency audio processing to minimize delay between audio input and output. 3. Connectivity Options: 4. Analog Inputs/Outputs: 4 balanced analog inputs and outputs (Balanced XLR) for direct connection to microphones, mixers, and other audio equipment. 5. Digital Inputs/Outputs: Digital inputs/outputs (AES/EBU, SPDIF) for interfacing with digital audio sources and equipment or equivalent. 6. Network Connectivity: Ethernet port for remote control, monitoring, and integration into networked audio systems. <p>Control and Interface:</p> <ol style="list-style-type: none"> 1. User Interface: Front panel controls with LCD display for intuitive navigation and real-time monitoring of input and output levels, processing status, and settings. 2. Remote Control: Support for remote control via dedicated software application (e.g., web-based interface or proprietary control software). 3. Presets Storage: Ability to store and recall multiple presets for different courtroom setups or audio configurations. <p>Power Requirements:</p> <ol style="list-style-type: none"> 1. Power Supply: Standard AC mains power (110V/220V/ or above) or Power over Ethernet (PoE+). 2. Mounting: Rack-mountable design with included mounting brackets. 3. Comprehensive On-Site Warranty: 1 Year or as per the product warranty.
<p>Display</p>	<ol style="list-style-type: none"> 1. Resolution: 1920 x 1080 pixel's resolution or higher 2. Aspect Ratio: 16:9 widescreen format. 3. Screen Size: 43 inches 4. Brightness and Contrast: Brightness: Typically ranges from 250 to 350 cd/m² for indoor use. 5. Contrast Ratio: Standard contrast ratios of 1000:1 or higher for vivid image quality.

	<ol style="list-style-type: none"> 6. Response Time: Typical Response Time: 8ms or lower. 7. Viewing Angles: Horizontal/Vertical Viewing Angles: Wide viewing angles (typically 178 degree's horizontal and vertical) for clear visibility from different positions. 8. Colour Depth: Colour Support: 16.7 million colours (8-bit) for accurate colour representation. 9. Refresh Rate: Standard Refresh Rate: 60Hz, suitable for most general-purpose applications. 10. Connectivity: HDMI in port minimum 2, USB in port minimum 2, Ethernet LAN (RJ-45), Audio Out Stereo Mini Jack, IR in, Wi-Fi, Bluetooth. 11. Panel Type: Technology: LED-backlit LCD panel for energy efficiency and vibrant colours. 12. IPS (In-Plane Switching) or TN (Twisted Nematic): Depending on the model, IPS for better colour accuracy and wider viewing angles, or TN for faster response times. <p>Power Specifications:</p> <ol style="list-style-type: none"> 1. Power Consumption: Energy-efficient with power management features. 2. Power Supply: Supports standard AC mains power (110V/220V/ or above, 50/60Hz). <p>Connectivity Options:</p> <ol style="list-style-type: none"> 1. Video Inputs: HDMI, DisplayPort inputs for versatile connectivity to various devices. 2. Audio: Built-in speakers or audio-out ports for connecting external speakers or headphones. 3. Display Working/Operations Hours: 16X7 hours or higher. 4. Full motion Mount: Wall /Ceiling Mount 5. Pan: 180/360 degrees 6. Tilt: -15 to +15 degrees 7. Weight capacity: As per the display screen size. 8. Warranty Period: As per the default warranty of the component or minimum 1 year.
<p>Wall /Ceiling Mount for existing Displays</p>	<ol style="list-style-type: none"> 1. Full motion Mount: Wall /Ceiling Mount 2. Pan: 180/360 degrees 3. Tilt: -15 to +15 degrees

	<ol style="list-style-type: none"> 4. Weight capacity: As per the display screen size. 5. Compatibility: Compatible with existing Display
Smart Table Monitors	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court
HDMI Distribution Amplifier	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court
HDMI Extender (as per requirements)	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court
USB Extender (as per requirements)	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court
Cables	<ul style="list-style-type: none"> ▪ Generic Cables (Lump Sum)
Computer System/ Codec/ or similar	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court
24U Rack	<ul style="list-style-type: none"> ▪ As per Hon'ble C.J. Court
NOTE: Displays will be used from existing hardware.	
Court No. 2, 3, 4, 5, 6 and 7	
Items	Item Details
PTZ Camera (with mount)	<ul style="list-style-type: none"> ▪ As per Court No. 1
Wired Gooseneck Microphones (with stand facing towards Hon'ble Bench)	<ul style="list-style-type: none"> ▪ As per Court No. 1
Gooseneck Microphones (with stand facing towards Advocates)	<ul style="list-style-type: none"> ▪ As per Court No. 1
Speakers	<ul style="list-style-type: none"> ▪ As per Court No. 1
Amplifier & Digital Signal Processor	<ul style="list-style-type: none"> ▪ As per Court No. 1
Display (with Mount)	<ol style="list-style-type: none"> 1. Resolution: 1920 x 1080 pixel's resolution or higher 2. Aspect Ratio: 16:9 widescreen format. 3. Screen Size: 32 inches 4. Brightness and Contrast: Brightness: Typically ranges from 250 to 350 cd/m² for indoor use. 5. Contrast Ratio: Standard contrast ratios of 1000:1 or higher for vivid image quality. 6. Response Time: Typical Response Time: 8ms or lower.

	<p>7. Viewing Angles: Horizontal/Vertical Viewing Angles: Wide viewing angles (typically 178 degree's horizontal and vertical) for clear visibility from different positions.</p> <p>8. Colour Depth: Colour Support: 16.7 million colours (8-bit) for accurate colour representation.</p> <p>9. Refresh Rate: Standard Refresh Rate: 60Hz, suitable for most general-purpose applications.</p> <p>10. Connectivity: HDMI in port minimum 2, USB in port minimum 2, Ethernet LAN (RJ-45), Audio Out Stereo Mini Jack, Wi-Fi, Bluetooth</p> <p>11. Panel Type: Technology: LED-backlit LCD panel for energy efficiency and vibrant colours.</p> <p>12. IPS (In-Plane Switching) or TN (Twisted Nematic): Depending on the model, IPS for better colour accuracy and wider viewing angles, or TN for faster response times.</p> <p>Power Specifications:</p> <ol style="list-style-type: none"> 1. Power Consumption Energy-efficient with power management features. 2. Power Supply: Supports standard AC mains power (110V/220V/ or above, 50/60Hz). <p>Connectivity Options:</p> <ol style="list-style-type: none"> 1. Video Inputs: HDMI, DisplayPort inputs for versatile connectivity to various devices. 2. Audio: Built-in speakers or audio-out ports for connecting external speakers or headphones. 3. Display Working/Operations Hours: 16X7 hours or higher. 4. Full motion Mount: Wall /Ceiling Mount 5. Pan: 180/360 degrees 6. Tilt: -15 to +15 degrees 7. Weight capacity: As per the display screen size. 8. Warranty Period: As per the default warranty of the component or minimum 1 year
Wall /Ceiling Mount for existing Camera	<ul style="list-style-type: none"> ▪ As per Court No. 1
Smart Table Monitors	<ul style="list-style-type: none"> ▪ As per Court No. 1
HDMI Distribution Amplifier	<ul style="list-style-type: none"> ▪ As per Court No. 1

HDMI Extender (as per requirements)	▪ As per Court No. 1
USB Extender (as per requirements)	▪ As per Court No. 1
Cables	▪ Generic Cables (Lump Sum)
Codec/Computer System/ or similar	▪ As per Court No. 1
24U Rack	▪ As per Court No. 1
NOTE: if required, Computer System will be used from existing hardware for VC and Live Streaming Solution control/monitor or any other device required, may be added to the BOQ sheet, one camera in each court will be used from existing hardware.	
Court No. 8, 9 and 10	
Items	Item Details
PTZ Camera (with mount)	▪ As per Court No. 1
Gooseneck Microphones (with stand for Hon'ble Bench)	▪ As per Court No. 1
Gooseneck Microphones (with stand for Advocates)	▪ As per Court No. 1
Speakers	▪ As per Court No. 1
Amplifier	▪ As per Court No. 1
Digital Signal Processor	▪ As per Court No. 1
Displays	▪ As per Court No. 2
Wall /Ceiling Mount for existing Camera	▪ As per Court No. 1
Wall /Ceiling Mount for existing Displays	▪ As per Court No. 1
Smart Table Monitors	▪ As per Court No. 1
HDMI Distribution Amplifier	▪ As per Court No. 1
HDMI Extender (as per requirements)	▪ As per Court No. 1
USB Extender (as per requirements)	▪ As per Court No. 1
Cables	▪ Generic Cables (Lump Sum)
Computer System/Codec/similar	▪ As per Court No. 1

24U Rack	▪ As per Court No. 1
NOTE: if required, Computer System will be used from existing hardware for VC and Live Streaming Solution control/monitor or any other device required, may be added to the BOQ sheet, one camera and one Display in each court will be used from existing hardware.	
Court No. 11	
Items	Item Details
PTZ Camera (with mount)	▪ As per Court No. 1
Microphones	▪ As per Court No. 1
Speakers	▪ As per Court No. 1
Amplifier and audio Interface	▪ As per Court No. 1
Digital Signal Processor	▪ As per Court No. 1
Displays	▪ As per Court No. 2
Wall /Ceiling Mount for existing Displays	▪ As per Court No. 1
Wall /Ceiling Mount for existing Camera	▪ As per Court No. 1
Smart Table Monitors	▪ As per Court No. 1
HDMI Distribution Amplifier	▪ As per Court No. 1
HDMI Extender (as per requirements)	▪ As per Court No. 1
USB Extender (as per requirements)	▪ As per Court No. 1
Cables	▪ Generic Cables (Lump Sum)
Computer System/Codec/similar	▪ As per Court No. 1
24U Rack	▪ As per Court No. 1
NOTE: if required, Computer System will be used from existing hardware for VC and Live Streaming Solution control/monitor or any other device required, may be added to the BOQ sheet, Microphones, speakers, amplifier, audio interface, Displays and one camera will be used from existing hardware.	
Video Backup server	<ol style="list-style-type: none"> 1. Total Capacity: 30 TB usable storage space or higher. 2. Drive Type: Enterprise-grade SATA or SAS HDDs, with each drive having a minimum of 4 TB capacity.

3. Redundancy: RAID 6 or RAID 10 for redundancy and fault tolerance.

Processor

1. Type: Dual Intel Xeon Scalable processors or equivalent.
2. Cores: Minimum 16 cores per processor.
3. Clock Speed: Minimum 2.6 GHz.

Memory

1. Total Memory: Minimum 64 GB ECC DDR4 RAM, expandable up to 256 GB.
2. Type: ECC (Error-Correcting Code) for data integrity.

Networking

Network Interface Cards (NICs):

1. Primary: Dual 10 Gigabit Ethernet ports.
2. Secondary: Additional dual 1 Gigabit Ethernet ports for management and redundancy.

Connectivity

1. USB Ports: Minimum 4 USB 3.0 ports.
2. External Connectivity: Support for external storage and backup via USB 3.0 and eSATA ports.
3. Operating System
4. OS Support: Compatible with Windows Server, Linux, or a specialized NAS operating system like FreeNAS or Unraid.
5. License: Appropriate licenses for operating system and any backup software.

Backup and Recovery

1. Backup Software: Pre-installed with enterprise-grade backup software supporting incremental, differential, and full backups.
2. Cloud Integration: Support for cloud backup integration (AWS, Azure, Google Cloud).
3. Security
4. Encryption: Support for AES-256 encryption for data at rest.
5. Access Control: Role-based access control (RBAC) and integration with Active Directory (AD).

6. Antivirus: Built-in or compatible with leading antivirus solutions.

Power Supply

1. Redundant Power Supplies: Dual hot-swappable power supplies, 750W each.
2. Power Consumption: Energy-efficient with power management features.

Cooling

1. Cooling System: Redundant cooling fans with dynamic fan speed control.
2. Temperature Monitoring: Sensors for monitoring and alerting on temperature thresholds.

Form Factor

1. Rack-Mountable: 2U or 4U rack-mountable chassis.
2. Rails: Included with adjustable mounting rails for standard 19-inch server racks.

Expansion

1. Drive Bays: Minimum 12 hot-swappable 3.5" drive bays.
2. PCIe Slots: Minimum 2 free PCIe 3.0 slots for future expansion.

Management

1. Remote Management: Integrated IPMI 2.0 or equivalent for remote management and monitoring.
2. Console: Dedicated console port for direct management.
3. Warranty: Minimum 3-year comprehensive warranty with 24/7 support.

Additional Features

1. Snapshot Support: Ability to take and manage storage snapshots.
2. Deduplication and Compression: Support for data deduplication and compression to optimize storage usage.

	<p>3. Alerts and Monitoring: Built-in monitoring and alerting system for hardware and software issues.</p>
<p>Display Monitors (with stand)</p>	<ol style="list-style-type: none"> 1. Resolution: 1920 x 1080 pixel's resolution or higher 2. Aspect Ratio: 16:9 widescreen format. 3. Screen Size: 23 Inch or higher. 4. Brightness and Contrast: Brightness: Typically ranges from 250 to 350 cd/m² for indoor use. 5. Contrast Ratio: Standard contrast ratios of 1000:1 or higher for vivid image quality. 6. Response Time: Typical Response Time: 8ms or lower 7. Viewing Angles: Horizontal/Vertical Viewing Angles: Wide viewing angles (typically 178 degree's horizontal and vertical) for clear visibility from different positions. 8. Colour Depth: Colour Support: 16.7 million colours (8-bit) for accurate colour representation. 9. Refresh Rate: Standard Refresh Rate: 60Hz, suitable for most general-purpose applications. 10. Connectivity: HDMI, USB, Ethernet LAN (RJ-45), Audio Out Stereo Mini Jack, Wi-Fi, Bluetooth. 11. Panel Type: Technology: LED-backlit LCD panel for energy efficiency and vibrant colours. 12. IPS (In-Plane Switching) or TN (Twisted Nematic): Depending on the model, IPS for better colour accuracy and wider viewing angles, or TN for faster response times. <p>Power Specifications:</p> <ol style="list-style-type: none"> 1. Power Consumption: Energy-efficient with power management features. 2. Power Supply: Supports standard AC mains power (110V/220V/ or above, 50/60Hz). 3. Connectivity Options: 4. Video Inputs: HDMI, DisplayPort for versatile connectivity to various devices. 5. Audio: Built-in speakers or audio-out ports for connecting external speakers or headphones. 6. Full motion Mount: Wall /Ceiling Mount

	<ol style="list-style-type: none">7. Pan: 180/360 degrees8. Tilt: -15 to +15 degrees9. Weight capacity: As per the display screen size.10. Warranty Period: As per the default warranty of the component or minimum 1 year.
VC Solution License (Perpetual)	<ul style="list-style-type: none">▪ For each courtroom (12)