

# REPUBLIC OF KENYA



## PARLIAMENT OF KENYA

### THE SENATE

#### TENDER NOTICE - ADDENDUM 1

TENDER NO. : SEN-OT-064R-2024-2025

**TENDER DESCRIPTION: PROPOSED SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION, COMMISSIONING AND MAINTENANCE OF AN INTEGRATED MULTI-MEDIA DIGITAL CONGRESS SYSTEM FOR THE SENATE OF KENYA.**

The attention of interested and eligible tenderes is drawn to the tender document shared on our website [www.parliament.go.ke](http://www.parliament.go.ke) and PPIP [www.tenders.go.ke](http://www.tenders.go.ke) on 13<sup>th</sup> May 2025 on the following amendments :-

S.No.	Name of document within the tender document	Page Nos(Index Ref).	Amendments	Remarks
1.	Mandatory Technical Specifications Compliance(MTSC)	Pages 57 through page 74 of the uploaded tender document.	18 page revised mandatory technical specifications compliance	Amended MTSC is attached
2.	Revised Bill of Materials (BoM)	Pages 131 through page 136 of the uploaded tender document.	6 page revised Bill of materials.	Revised BoM is attached.

Bidders are advised to disregard the mandatory Technical Specifications Compliance and Bill of materials in the uploaded tender document and instead use the attached revised versions.

The deadline for the submission of bids remains unchanged on 20<sup>th</sup> May 2025. All other terms and conditions of the tender remain unchanged.

Clerk of the Senate/Secretary, Parliamentary Service Commission.  
15<sup>th</sup> May, 2025.

A. REVISED MANDATORY TECHNICAL SPECIFICATIONS COMPLIANCE

**PROPOSED SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION, COMMISSIONING  
AND MAINTENANCE OF AN INTERGRATED MULTI-MEDIA DIGITAL CONGRESS SYSTEM  
FOR THE SENATE OF KENYA**

	<b><u>BILLS OF QUANTITIES</u></b>	Unit of measure	Qty	<b>Bidders Response Yes /No</b>	<b>Remarks</b>
A	Carefully uninstall and remove the existing integrated multi-media digital congress system (Delegate units, Ipads, Cabling and other accessories) and cart away from site as directed including making good disturbed surfaces.	Item	1		
B	Allow a provisional sum for associated builder's works and any other unforeseen works.	Item	1		
	<b>GRAND TOTAL</b>				

**1. CONFERENCING /DISCUSSION CAPABILITY**

**a) Main Unit (Qty 2)**

<b>No.</b>	<b>SPECIFICATIONS</b>	<b>Bidders Response Yes /No</b>	<b>Remarks</b>
1	Control for at most 4096 Contribution units, with duplication and backup connection		
2	Compliant to ISO 22259		
3	Based on ingenious CongressMatrix™ technology, integrated (n+8)×26 audio matrix processor or its equivalent		
4	Integrated 8 channels group output function, easy to combine/split conference rooms		
5	Supports Dante, an uncompressed, multi-channel digital media networking technology, with near-zero latency and synchronization		
6	Excellent immunity to RF interferences from mobile phones and comparable devices		

7	USB interface (Type-C) support digital audio transmission, mainstream conference software is adaptive		
8	In the event of PC failure, this Digital Conference System Main Unit shall revert to its stand-alone operation mode, enabling the conference to proceed		
9	Speak mode should at least support: OPEN/OVERRIDE/VOICE/APPLY/PTT. “OPEN” mode, microphone On/Off button with request- to-speak registration (AUTO). “OVERRIDE” mode, microphone On/Off button control with override of the active microphones (FIFO). “VOICE” mode, acoustic active sensitivity and automatic switch-off time adjustable continuously, built-in “flash-on” technology, immediate microphone activation on speaking. “APPLY” mode, delegate applies to speak by pressing microphone On/Off button, delegate only speaks when operator or chairman approved his application. “PTT” mode, press microphone On/Off button to talk.		
10	Number of open microphones between 1 and 8, include VIP and chairman up to 8		
11	Delegates can register ‘Present’, ‘Yes’, ‘No’ and ‘Abstain’. The total results can be displayed on hall displays and on the LCD screens of the units		
12	With web page control function, main unit’s parameters can be set through web browser		
13	Duplex SC single-mode optical fiber interface		
14	Automatic recovery facility, supporting “PnP” (plug and play)		
15	Hot spare dual server structure		
16	Multichannel audio outputs		

17	Frequency response : 20 Hz to 20 kHz		
18	SNR≥100 dBA		
19	Dynamic range≥94 dB		
20	Isolation≥90 dB		
21	THD≤0.05%		
22	Power supply : 100 V - 240 V AC, 50/60 Hz		
23	Power consumption : 20W		

**b) Extension Main Unit (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Extension unit has two EXTENSION IN interfaces used to connect main unit or a preceding Congress Extension Main Unit, and an EXTENSION OUT interface for the next Congress Extension Main Unit		
2	Cooperates with Congress Main Unit for system capacity extension		
3	In cooperation with the Congress Main Unit and a central control system, central control of the whole system power can be realized		
4	5 × (8P-DIN) trunk-line cable outlet for direct extension and connection of more conference unit or interpretation unit etc.		
5	Compliant to ISO 22259		
6	Power supply 100 V - 240 V AC, 50/60 Hz		
7	Power consumption 500 W		

**c) Chairperson's Unit (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	The conference Chairperson unit shall include a <b>microphone priority button</b> . When pressed, the priority button shall cause all currently active delegate microphones to be switched off or mute, allowing the chairman to take control of the meeting		
2	Equipped with a14"LCD touch panel (1920×1080), 16:9 display ratio for better document reading experience		
3	8 mega pixel camera with flashlight		

4	Should realize versatile functions, e.g. conference control & management (speech, vote, simultaneous interpretation), sign-in, Conference documents management, speech text guidance, conference documents reader and editor, desktop sharing, delegate information and conference agenda display, take photo, delegate photo for attendance check and record facility on important conferences, video conversation, video display, multiple channel VOD (up to 10 channels with 1920×1080 resolution) and broadcasting, short message, call service, etc.		
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5	Supports up to 64 (1+63) CHs simultaneous interpretation		
6	Supporting “PnP” (plug and play)		
7	Excellent immunity to RF interferences from mobile phones		
8	Gain and EQ (5 band) of each microphone adjustable separately		
9	Loudspeaker with superior acoustics with minimal feedback for enhanced intelligibility		
10	Electronic document distribution for paperless meetings		
11	Internet access		
12	Bi-color LED indicator on the rear plate to display request to speak or speaking status		
13	Built-in contactless IC-Card slot		
14	Built-in fingerprint identification module		
15	DC or PoE power supply		
16	Braille indicators for visually impaired		
17	All audio and video signals are transmitted via a Cat.5e/Cat.6 network cable, paperless multimedia functions and basic capabilities of discussion and voting are parallel operations, fully guarantees the real-time performance and stability of the important data stream of the meeting		
18	Video source selection		
19	Interactive conference control and management function		

**d) Delegate Unit (Qty 99)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Stylish and ergonomically designed Paperless Multimedia Congress Terminals		
2	Should realize versatile functions, e.g. conference control & management (speech, vote, simultaneous interpretation), sign-in, conference documents management, speech text guidance, conference documents reader and editor, desktop sharing, delegate information and conference agenda display, take photo, delegate photo for attendance check and record facility on important conferences, video conversation, video display, multiple channel VOD (up to 10 channels with 1920×1080 resolution) and broadcasting, short message, call service, etc.		

3	Equipped with a 14" high-resolution (1920×1080) LCD touch panel and an integrated 8 mega pixel camera		
4	Supports up to 64 (1+63) CHs simultaneous interpretation		
5	Loudspeaker with superior acoustics with minimal feedback for enhanced intelligibility		
6	Electronic document distribution for paperless meetings		
7	All audio and video signals are transmitted via a Cat.5e/Cat.6 network cable, paperless multimedia functions and basic capabilities of discussion and voting are parallel operations, fully guarantees the real-time performance and stability of the important data stream of		

	the meeting		
8	Bi-color LED indicator on the rear plate to display request to speak or speaking status		
9	Excellent immunity to RF interferences from mobile phones		
10	Built-in contactless IC-Card slot		
11	Built-in fingerprint identification module		
12	Braille indicators for visually impaired		
13	DC or PoE power supply		
14	Internet access		
15	Video source selection		
16	Supporting "PnP" (plug and play)		
17	Gain and EQ (5 band) of each microphone adjustable separately		
18	Interactive conference control and management function.		

**e) Loop Switcher (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	2 RJ45 Sockets		
2	Connects the primary main unit and secondary main unit		
3	Two (2pcs) 1m 8-pin to RJ45 converter cable (with 8-pin male plug and a RJ45 plug, cat.5 Extension Cable with drain wire)		

**f) Stem Microphone (Qty 100)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Broadcast quality microphone		
2	33cm or longer		
3	Semi-rigid gooseneck arm, 5pin plug		
4	Bi-color illuminated ring (green/red)		
5	Built-in windshield		

**g) Headphone (Qty 100)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Headphones for paperless conference units		
2	Should be 3.5mm stereo plug (TRS)		
3	The Frequency response should be 20 Hz to 20 kHz		
4	Sensitivity should be more than 108 dBA/1 mW		
5	180° plug		
6	Sponge Ear Pads (100 pairs)		

**h) Service Request Control Unit (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Stylish and ergonomic design with an ultra-thin 6.5 mm screen		
2	Equipped with a 14" LCD touch panel (1920×1080)		
3	Receives and displays seat information, requested service, etc. of the conventioners, followed by a response		
4	Capacitive touch panel supporting multi-touch, improves operation experience		
5	Cooperates with the “call service” function of paperless multimedia congress terminals		
6	DC or PoE power supply		

**i) Electronic Nameplate (Qty 100)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Elegant and ergonomic tabletop design with an ultra-thin 8 mm double screen		
2	Bi-color LED indicator on the top to display request to speak or speaking status		
3	1904 x 464 pixels display		
4	USB Type-C Connector to multimedia congress terminal		
5	Network port (RJ45), support PoE		
6	Button on the base for making a request to speak or for another user-defined functionality		
7	Extension port can connect to an external request-to-speak button, IC card reader or fingerprint identification module.		
8	Cooperates with Nameplate management software		
9	Contents may be permanently displayed after power down		

**2 SOFTWARE LICENSING**

**a) Related Software Modules (Qty 1 each)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Perpetual/ one off license for all software modules		
2	System Setup Management Software		



3	Professional Venue Design Software		
4	Microphone Management Software		
5	Document Management Software		
6	Voting Management Software		
7	Video Control Software		
8	Simultaneous Interpretation Software		
9	Synchronous Audio Recording Management Software		
10	Touched/Contactless IC-Card Sign-in Management Software		
11	Fingerprint Identification Management Software		
12	Congress Matrix Software		
13	Congress Service Management Software		
14	Electronic Nameplate Management Software		
15	Video Service Software		
16	Dual PC Server Hot Spare Software		
17	Dual System Main Unit Hot Spare Software		

### 3 IDENTIFICATION AND REGISTRATION

#### a) Fingerprint Scanner (Qty 1)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Fingerprint Scanner is required to work with PC to take the delegate's fingerprint to realize biometric authentication with high reliability		
2	Cooperates with Fingerprint Identification Management Software		

#### b) Contactless IC Card Encoder (Qty 1)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Encoding unit to produce the contactless IC-Cards		
2	Operating frequency: 13.56 MHz		
3	Compliance standard: ISO 15693		

#### c) Contactless IC Card (Qty 100pcs)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	IC-Card shall be used to grant access to a sign-in system		
2	Dimension: 86x54mm		

### 4 INTERPRETATION

#### a) Interpreter Unit (Qty 10)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Compliant to ISO 20109 and ISO 4043		

2	Audio quality: supporting 48 kHz audio sampling rate, 20 Hz to 20 kHz frequency response on all 64 channels		
3	Built-in 64 CHs channel selector and loudspeaker, pluggable stem microphone and headphone/microphone jacks.		
4	6.8" TFT LCD for high quality display		
5	LCD can display channel number, language name, input language, quality indication and short message		
6	Gain and low cut of the activated microphone can be adjustable by the main unit or the application software		
7	Integrated high-pass filter (low-cut switch) to cut low frequency elements from the audio when needed		
8	"Closed Loop - Daisy Chain" connection topology		
9	Excellent immunity to RF interference from mobile phones		
10	7 pre-select buttons (1/2/3/4/5/6/7) for relay languages with activation indication on the LCD		
11	Supports 3.5 mm stereo headset with CTIA standard		
12	Braille is present for all physical buttons		
13	Mobile messaging integration: lead interpreter can send text messages from a mobile phone to all Interpreter Units via Bluetooth		
12	Three necessary modes between interpreter booths: Interlock, Override and BC-Override		

**b) Interpreter Headset (Qty 10)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Incorporated with interpreter unit for monitoring and speaking		
2	Greater headband adjustability, suitable for all the users		
3	Hi-Fi sound quality		
4	Interpreters can wear the headset according to their habits		
5	TRRS plug, stereo, with detachable Earshells		
6	Sponge Ear Pads (10 pairs)		

**c) Stem Microphone (Qty 10)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	33cm or longer		
2	Bi-color(green/red) illuminated ring and lockable windshield		
3	Broadcast standard microphone		
4	Semi-rigid gooseneck arm		
5	5pin plug		

## 5. AUTO-TRACKING CAMERAS AND BROADCAST

### a) Video Tracking Camera (Qty 6)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	4K Ultra HD Output: Using a new generation of SONY 1/1.8-inch high-quality CMOS, it can achieve maximum 4K60 ultra-high-definition resolution broadcast and image output, and record larger scenes.		
2	25X Optical Zoom Lens: Equipped with a 25x ultra-high-		
	definition optical lens and supporting the mainstream horizontal viewing angle of 59.2°, it can meet the needs of more scenes such as video conferencing in large auditoriums and blackboard writing in lecture theaters to restore true details.		
3	Infrared Remote Control Signal Transparent Transmission Function: In addition to receiving its own infrared remote control signals, it can also receive signals from user's infrared remote control and send them to the video conferencing terminal through the VISCA port.		
	The new ultra-high signal-to-noise ratio CMOS image sensor can effectively reduce image noise under low-light conditions. At the same time, 2D & 3D digital noise reduction is applied to significantly reduce image noise. Even under ultra-low light conditions, the image can still be kept clean and clear, and the image signal-to-noise ratio is higher than 50dB.		
	In addition to receiving its own infrared remote control signals, it can also receive signals from user's infrared remote control and send them to the video conferencing terminal through the VISCA port.		
4	Multiple Network Protocols Supports ONVIF, SRT, RTSP, RTMP, NDI® HX and other network protocols.		
5	USB3.0+HDMI+IP+SDI Full interfaces, Rich Application Scenarios: Compatible with all current mainstream video output interfaces, HDMI+USB3.0+IP can output 4K60 resolution at the same time.		
6	Pixels 8.50 Megapixels, 8.29 Effective Megapixels		
7	Resolution: HDMI:4K60/59.94/50/30/29.97/25, 1080p60/59.94/50/30/29.97/25,720p60/503G-SDI: 1080p60/59.94/50/30/29.97/25,1080i60/59.94/50, 720p60/50		
8	Lens:25X Optical Zoom, f=7.1(W)~171.95mm(T)		
9	Horizontal View Angle:59.2°(W)~2.5°(T)		
10	Vertical View Angle:34.6(W)~1.4(T)		

### b) Video Tracking Matrix (Qty 1)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	1pcs Video Tracking Matrix these switchers can communicate with the conference system and realize video tracking function		
2	High performance video signal matrix, support seamless switching, after change source, new video comes out in a few milliseconds, high-fidelity output		
3	Widely used in the place of radio & television engineering, multimedia conference hall, large screen display engineering, TV teaching and leadership office		
4	Gen-lock based Video Wall: based on Gen-Lock technology, the video delay between any output channels is less than 0.1		
	ms, the video will not be distorted. Available in up to 16 ×16 output channels. It's especially matched with LCD/LED Video Wall		
5	Supports manifold signal input/output cards, such as 4KHDMI, etc.		
6	Compatible with manifold signal formats of input/output signal cards for cross switching		
7	Support various format of signals input, and the output resolution is default as 1080P60, can be setup by Matrix Control Tool		
8	With 1 RJ45 interface, supports TCP / IP, can communicate with the conference system, can realize video tracking function.		
9	With 1 RS232 interface, for connecting to PC, central control system or Camera Control Keypad.		
10	Two RS422 interfaces with built-in professional camera control protocols, a variety of professional cameras like, HUAWEI, SONY, PELCO, Panasonic and other professional cameras can be controlled		
11	With Matrix Control Tool, can realize remote control, including Matrix Switch, Signal Setting, etc.		

**c) 4K HDMI Input Card (Qty 4)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	4K Seamless HDMI Input Module		
2	Dual Ø 3.5mm earphone jack for analog audio input		
3	Dual HDMI Type A 19P Female input ports, supports HDMI2.0/DVI1.0		
4	Automatic recognition of input resolution, supporting up to 3840×2160 444 @60Hz, with backward compatibility for lower resolutions		

**d) 4K HDMI Output Card (Qty 4)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	4K Seamless HDMI Output Module		
2	Dual Ø 3.5mm earphone jack for analog audio output		
3	Dual HDMI Type A 19P Female output ports, supports HDMI2.0/DVI1.0		
4	Supports output resolution up to 3840×2160 444 @60Hz, with backward compatibility for lower resolutions		

e) **Video Encoder (Qty 2)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	HDMI encoder for encoding and network transmitting HDMI signal		
2	SDI/HDMI signal acquisition and encoding capability support 1920×1200@60 and backward compatibility, with frame rate of 1 to 30 adjustable		
3	Adopting DSP processing chip and embedded operating system, reliable due to immunity to network virus attacks		
4	Supports stereo audio input, using the industry's most advanced audio algorithms and audio sampling frequency of 48 kHz, the audio input sensitivity is adjustable, with better sound quality		
5	Power supply AC 100 V - 240 V, 50 Hz / 60 Hz		
6	Max. consumption 10 W		

f) **Video Decoder (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	High-definition digital AV decoder		
2	With high-performance DSP chip and dedicated hardware platform, supports 1 channel HDMI video and 1 channel VGA signal synchronization decoding and display, and immune to network virus attack		
3	Used for multi-channel digital media signal decoding and output		
4	Power supply AC 100 V - 240 V, 50 Hz / 60 Hz		
5	Resolutions:1280×720p@50/60 Hz;1920×1080i@50/60 Hz;1920×080p@25/30/50/60 Hz; 1024×76@60 Hz; 1280×1024@60 Hz; 1366×768@60 Hz; AUTO		
6	1pc 12V Adapter (12 V DC, 2.5A)		

g) **Camera Control Keypad (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Camera parameters control such as camera white balance, exposure, focus and zoom		
2	Support real-time PVW of current camera viewing through up streaming (RTSP only).		
3	7 camera shortcuts can be set quickly according to requirements, up to 1000 camera information can be saved		
4	Display main parameters of camera directly, personalize stylish interface casually.		
5	Open camera's menu quickly and combine PVW screen or image screen to control.		
6	Support VISCA, VISCA Over IP, VISCA TCP, PELCO P/D and Onvif control protocols, support automatic protocol recognition.		
7	External RS-232, RS422/485 serial port and RJ45 network interface, the network interface supports POE function, thereby reducing wiring trouble.		
8	Support up to 8 tally channels.		
9	Access Web backstage through PC internet to set up main functions.		

## 6. MICROPHONE CONTROL

### a) Audio Input and Output Device (Qty 1)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	16 channels digital & analog audio inputs & outputs		
2	Supports Dante, an uncompressed, multi-channel digital media networking technology, with near-zero latency and synchronization		
3	Converts the digital audio signals of the Congress System to multi-channel digital /analog audio signals, for further processing in infrared simultaneous interpretation systems or recording devices		
4	With web page control function for parameters to be set through web browser		
5	All inputs can be mixed with arbitrary ratio, and outputted to any channel		
6	Transmits multi digital/analog audio channels to the interpretation channels of the Congress System, for example for remote interpretation purposes or for transmission to floor channel		
7	It can be used for network audio transmission, connecting to ASR System		

## 7. NETWORK CONNECTIVITY

### a) PoE Distributor (Qty 20)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	PoE distributor for power supply		
2	For tabletop multimedia congress terminal		
3	Power Supply: DC48V, 2A		
4	Compliant to PoE power supply standard IEEE 802.3at		
5	Power consumption: 90W		
6	Power adapter: 48 V DC, 1.875A (20pcs)		

### b) Congress PoE Network Switcher (Qty 4)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Built-in PoE switch to choose way of power supply		
2	Based on originated GMC-STREAM Gigabit Multimedia Congress Stream technology		
3	Sync power on/off with the Congress Main Unit		
4	Supports PoE for series multimedia congress terminal and normal mode electronic nameplate		
5	Power Supply: AC100V-240V, 50Hz/60Hz		
6	Power consumption: 400W		

## 8. DISPLAY SCREENS

### a) Television (Qty 6)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	75 inches screen size		
2	3840x2160 resolution		
3	Digital Broadcasting: DVB-TS2(T2 Ready)		
4	Ethernet Port		
5	Wireless LAN Built-In		
6	4 HDMI Ports		
7	Wi-Fi Direct		
8	200Hz Motion Rate		

## 9. SOUND ENFORCEMENT

### a) Audio Amplifier (Qty 1)

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Digital power amplifier + switching mode power supply, high efficiency, small size, light weight		
2	Uses energy-efficient Class D technology and switching mode power supply technology		
3	Adapts to all power network worldwide, plug and play		

4	The power amplifier can obtain energy from the grid smoothly and evenly, whereby minimizing the interference to the grid and improving the efficiency of grid power utilization		
5	The equipment generates less heat with low operating temperature of components, long service life and high reliability		
6	Multiple working modes: stereo, mono, bridge mode		
7	Switching working mode via back panel switch		
8	Amplifier gain selectable		
9	Equipped with XLR audio input interface and Speakon audio output interface		
10	Input signal can be looped out to the next amplifier through XLRM		
11	Optimal protection function: short circuit, DC, over-heating, overload protection, power control, etc.		
12	Input sensitivity (Rated power, 1 kHz) : 0.775 Vrms, 32 dB		
13	THD+N (10% Rated power, Typical value) : 0.05%		
14	IMD-SMPTE (10% Rated power, Typical value) : 0.05%		
15	DIM30 (10% Rated power, Typical value) : 0.05%		
16	Crosstalk suppression (Below rated power, 20 Hz - 1 kHz) : $\geq 75$ dB		
17	Frequency response (10% Rated output power, 8 $\Omega$ , 20 Hz - 20 kHz) : $\pm 0.2$ dB		
18	SNR (A weighted, 20 Hz - 20 kHz) : $\geq 105$ dB		

**b) Public Address Mixer (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	16 Channel Mixer		
2	Powered Mixer		
3	Compatible with 4 Ohm and 8 Ohm speakers		
4	Independent monitor output		
5	Feedback Suppressor, which automatically cuts and prevents undesirable feedback noise		
6	Master EQ with setting for speech and music playback		
7	Independent three-band equalizer on each channel for tonal adjustment and sound control		

**c) Vertical Column Speakers (Qty 6)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	4 Units Two-way Column Loudspeaker		
2	15° or 40° fixed vertical coverage and accurate pointing, sound reflection, speech articulation is optimized.		
3	Complex carbon fiber units		
4	Supports working in conjunction with multiple speakers		



5	Base on the mortise-tenon joint design, it can be quick disassembly. composite wood with three characteristics, which can adjust the cabinet resonant frequency to the outside of the column's operating frequency range.		
6	4 x 4" midwoofers and 12 x 0.75" tweeters.		
7	The coaxial transducers with 3 tweeters in an "array within an array" design, allowing smoother off-axis response and wider high frequency directivity.		
8	Power : 200 W (AES), 400 W (PGM), 800 W (PEAK)		
9	Max SPL : 123dB SPL, 129dB SPL peak		
10	Midwoofer Unit : 4 x 4" complex carbon fiber diaphragm midwoofers		
11	Tweeter: 12 x 0.75" nano carbon fiber diaphragm tweeters		
12	Coverage Pattern - Nominal Coverage: 100°(H)* 15°(V) or 40°(V)		
13	Sensitivity : 100dB		
14	Frequency Range : 80 Hz-20 kHz (±3 dB)/ 60 Hz-25 kHz (-10 dB)		

## 10. ACCESSORIES

### a) General

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	1m 8-pin to RJ45 converter cable (with 8-pin male plug and a RJ45 plug, cat.5 Extension Cable with drain wire)		
2	10m 8-pin to RJ45 converter cable (with a male and a female plug)		
3	1m 8-pin to RJ45 converter cable (with 8-pin male plug and a RJ45 socket, cat.5 Extension Cable with drain wire)		
4	1m 8-pin to RJ45 converter cable (with 8-pin female plug and a RJ45 socket, cat.5 Extension Cable with drain wire)		
5	50m Ethernet extension Cable (with drain wire and shielded RJ45 plugs)		
6	Speaker cable (for Column Loudspeaker, 305 m per roll, white)		
7	Swivel (pan)/Tilt Wall Bracket (for Column Loudspeaker)		
8	42U cabinet: Universal 19" design to support all Rackmount active and passive products		

**b) Desktop PC (Qty 2)**

<b>No.</b>	<b>SPECIFICATIONS</b>	<b>Bidders Response Yes /No</b>	<b>Remarks</b>
1	Fully Licensed Microsoft Windows 11 Professional 64-bit and Microsoft Office 2021		
2	Processor: 13th Generation Intel Core i7-with Turbo Boost Technology, 12 MB L3 cache, 4 cores, 8 threads)		
3	Wireless connectivity: Realtek RTL8822CE 802.11a/b/g/n/ac (2x2) Wi-Fi and Bluetooth 5 combo (MU-MIMO supported; Modern Standby (Connected))		
4	Memory: 16 GB DDR4-3200 MHz RAM (1 x 16 GB) 16 GB DDR4-3200 MHz RAM (2 x 8 GB) (Transfer rates up to 3200 MT/s.)		
5	Storage: 512 GB, SSD		
6	Form factor: All-in-one		
7	Display: Touchscreen, 60.5 cm (23.8") diagonal, FHD (1920 x 1080), touch, IPS, micro-edge, anti-glare, 250 nits, 45% NTSC		
8	Keyboard: Full-size, backlit, natural silver keyboard		
9	Camera: HP Wide Vision 720p HD camera with integrated dual array digital microphones		
10	Audio: Audio by B&O; Dual speakers; HP Audio Boost		
11	Pointing device: HP Imagepad with multi-touch gesture support; Precision Touchpad Support		
12	Ports: 1 USB Type-C 10Gbps signaling rate (USB Power Delivery, DisplayPort 1.4, HP Sleep and Charge); 2 USB Type-A 5Gbps signaling rate; 1 AC smart pin; 1 HDMI 2.0; 1 headphone/microphone combo		
13	Power supply: 65 W Smart AC power adapter		
14	One (1) Year, Proof warranty must		

**c) Laptop Computer (Qty 3)**

<b>No.</b>	<b>SPECIFICATIONS</b>	<b>Bidders Response Yes /No</b>	<b>Remarks</b>
1	Fully licensed Microsoft Windows 11 Professional 64 bit and Office 2021		
2	Processor: Intel® Core™ i7-11XXX (up to 4.0 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 4 cores, 8 threads)		
3	Storage: 512 GB PCIe® NVMe™ M.2 SSD		
4	Memory: 16 GB DDR4-3200 MHz RAM (2 x 8 GB) Transfer rates up to 3200 MT/s.		
5	Graphics (integrated) Intel® Iris® X <sup>e</sup> Graphics		
6	Wireless Keyboard and Mouse Combo		
7	Display: 35.6 cm (14") diagonal, FHD (1920 x 1080), IPS, three-sided micro-edge, anti-glare, 250 nits, 72% NTSC		
8	Connectivity: Integrated 10/100/1000 GbE LAN		

9	Wireless connectivity: Realtek RTL8852BE Wi-Fi 6 (2x2) and Bluetooth® 5.3 wireless card (supporting gigabit data rate)		
10	Ports: Rear: 1 USB Type-C® 5Gbps signaling rate; 1 USB Type-A 5Gbps signaling rate; 2 USB 2.0		
11	Webcam: 5MP IR privacy camera with temporal noise reduction integrated dual array digital microphones, 1.4um camera sensor		
12	Warranty: 1 - year hardware warranty, technical support & service for software and initial setup		

**d) Colour Printer (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Colour LaserJet Printer		
2	Functions: Print, scan, copy		
3	Memory: standard 256 MB DDR, 256 MB Flash		
4	Display: 2.7" color graphic screen		
5	Number of print cartridges: 4 (1 each black, cyan, magenta, yellow)		
6	Duplex Printing: Automatic (standard)		
7	Connectivity: 1 Gigabit Ethernet 10/100/1000 Base-T network 1 Hi-Speed USB 2.0 (host) 1 Wi-Fi 802.3az 802.11b/g/n (2.4 GHz) Wi-Fi radio		
8	Paper trays: Min - standard 2		
9	1 year warranty includes parts, service and labour		

**e) Uninterrupted Power Supply (Qty 1)**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Rack mountable - 2U		
2	Output Power Capacity - 1.5kVA		
3	Interface Port(s) - Serial, Smart-Slot, USB		
4	Control panel - Multifunction LCD status and control console		
5	Power Cord		

**11. INSTALLATION, INTEGRATION AND INTEROPERABILITY**

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	System Installation, Integration, Configuration and Testing		
2	The systems should be able to speak the same language and therefore SHOULD not require a third-party connector or software to join the components together		

3	SHOULD create systems in which information and data exchanges that do not require translation or any middleware or can be widely shared, regardless of the technologies involved in sending, receiving, and distributing that information		
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## 12 KNOWLEDGE TRANSFER AND DOCUMENTATION

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	Conduct Technical Training and provide technical manuals		
2	Conduct Operational Training and provide operation manuals		
3	Conduct End User Training and provide end user manuals		
4	Provide As Built System Block Line Drawings (Both Soft - Flash Disk and Hard Copy - A3 Paper)		

## 13 WARRANTY AND TECHNICAL SUPPORT

No.	SPECIFICATIONS	Bidders Response Yes /No	Remarks
1	36 months for parts, support and maintenance		
2	Access to software updates, technical support, and maintenance		

Note:

- i) A bidder has to meet the above specifications or provide superior compatible specifications.
- ii) The specifications shall also be evaluated against the product brochures provided by Tenderers.
- iii) Any bid that does not meet the above technical requirements or equivalent shall automatically be disqualified.

## REVISED BILL OF MATERIALS

## 1. DECOMMISSIONING OF CURRENT DIGITAL CONGRESS MULTI-MEDIA SYSTEM

	<b><u>BILLS OF QUANTITIES</u></b>	Unit of measure	Qty	Unit Cost	Total
A	Carefully uninstall and remove the existing integrated multi-media digital congress system (Delegate units, iPads, Cabling and other accessories) and cart away from site as directed including making good disturbed surfaces.	Item	1		
B	Allow a provisional sum for associated builder's works and any other unforeseen works.	Item	1		
	<b>TOTAL</b>				

## 2. CONFERENCING /DISCUSSION CAPABILITY

Description		Quantity	Unit Cost	Total Cost
1	Main Unit	2		
2.	Extension Main Unit	1		
3.	Chairperson's Unit	1		
4.	Delegate Unit	99		
5.	Loop Switcher	1		
6.	<i>Stem Microphone</i>	<i>100</i>		
7.	Headphone	100		
8.	Sponge Ear Pads	200		
9.	Service Request Control Unit	1		
10.	Electronic Nameplate	100		
11.	<b>TOTAL</b>			

## 3. SOFTWARE LICENSING

Description	Quantity	Unit Cost	Total Cost
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12.	System Setup Management Software	1		
13.	Professional Venue Design Software	1		
14.	Microphone Management Software	1		
15.	Document Management Software	1		
16.	Voting Management Software	1		
17.	Video Control Software	1		
18.	Simultaneous Interpretation Software	1		
19.	Synchronous Audio Recording Management Software	1		
20.	Touched/Contactless IC-Card Sign-in Management Software	1		
21.	Fingerprint Identification Management Software	1		
22.	Congress Matrix Software	1		
23.	Congress Service Management Software	1		
24.	Electronic Nameplate Management Software	1		
25.	Video Service Software	1		
26.	Dual PC Server Hot Spare Software	1		
27.	Dual System Main Unit Hot Spare Software	1		
28.	<b>TOTAL</b>			

#### 4. IDENTIFICATION & REGISTRATION

Description		Quantity	Unit Cost	Total Cost
29.	Fingerprint Scanner	1		
30.	Contactless IC Card Encoder	1		
31.	Contactless IC Card	100		
32.	<b>TOTAL</b>			

#### 5. INTERPRETATION

Description	Quantity	Unit Cost	Total Cost
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33.	Interpreter Unit	10		
34.	Interpreter Headset	10		
35.	Stem Microphone	10		
36.	Sponge Ear Pads	20		
37.	<b>TOTAL</b>			

#### 6. AUTO-TRACKING CAMERAS & BROADCAST

Description		Quantity	Unit Cost	Total Cost
38.	Video Tracking Camera	6		
39.	Video Tracking Matrix	1		
40.	4K HDMI Input Card	4		
41.	4K HDMI Output Card	4		
42.	Video Encoder	2		
43.	Video Decoder	1		
44.	Adapter	1		
45.	Camera Control Keypad	1		
46.	<b>TOTAL</b>			

#### 7. MICROPHONE CONTROL

Description		Quantity	Unit Cost	Total Cost
47.	Audio Input and Output Device	1		
48.	<b>TOTAL</b>			

#### 8. NETWORK CONNECTIVITY

Description		Quantity	Unit Cost	Total Cost
49.	PoE Distributor	20		
50.	Power Adapter	20		
51.	Congress PoE Network Switcher	4		
52.	<b>TOTAL</b>			

#### 9. DISPLAY SCREENS

Description		Quantity	Unit Cost	Total Cost
53.	Television Screens	6		
54.	<b>TOTAL</b>			

**10. SOUND ENFORCEMENT**

Description		Quantity	Unit Cost	Total Cost
55.	Audio Amplifier	1		
56.	Public Address Mixer	1		
57.	Vertical Column Speakers	6		
58.	<b>TOTAL</b>			

**11. ACCESSORIES**

Description		Quantity	Unit Cost	Total Cost
59.	1m 8-pin to RJ45 converter cable (with 8-pin male plug and a RJ45 plug, cat.5 Extension Cable with drain wire)	2		
60.	10m 8-pin to RJ45 converter cable (with a male and a female plug)	1		
61.	1m 8-pin to RJ45 converter cable (with 8-pin male plug and a RJ45 socket, cat.5 Extension Cable with drain wire)	1		
62.	1m 8-pin to RJ45 converter cable (with 8-pin female plug and a RJ45 socket, cat.5 Extension Cable with drain wire)	1		
63.	50m Ethernet extension Cable (with drain wire and shielded RJ45 plugs)	1		
64.	Speaker cable (for Column Loudspeaker, 305 m per roll, white)	2		
65.	Swivel (pan)/Tilt Wall Bracket (for Column Loudspeaker)	6		
66.	Desktop PC	2		
67.	Laptop Computer	3		
68.	Colour Printer	1		
69.	Uninterrupted Power Supply	1		
70.	42U cabinet: Universal 19" design to support all Rackmount active and passive products	1		
71.	<b>TOTAL</b>			



**12. INSTALLATION, INTEGRATION AND INTEROPERABILITY**

Description		Quantity	Unit Cost	Total Cost
72.	System installation and configuration	1		
73.	TOTAL			

**13. KNOWLEDGE TRANSFER AND DOCUMENTATION**

Description		Quantity	Unit Cost	Total Cost
74.	Knowledge transfer and documentation	1		
75.	TOTAL			

**14. WARRANTY AND TECHNICAL SUPPORT**

Description		Quantity	Unit Cost	Total Cost
76.	Warranty and technical support	1		
77.	TOTAL			

**SUMMARY BILL OF QUANTITIES**

ITEM	DESCRIPTION	SUB-TOTAL
1	DECOMMISSIONING CURRENT DIGITAL CONGRESS MULTI-MEDIA SYSTEM	
2	CONFERENCING /DISCUSSION CAPABILITY	
3	SOFTWARE LICENSING	
4	IDENTIFICATION & REGISTRATION	
5	INTERPRETATION	
6	AUTO-TRACKING CAMERAS & BROADCAST	
7	MICROPHONE CONTROL	
8	NETWORK CONNECTIVITY	
9	DISPLAY SCREENS	
10	SOUND ENFORCEMENT	
11	ACCESSORIES	
12	INSTALLATION, INTEGRATION & INTEROPERABILITY	
13	KNOWLEDGE TRANSFER & DOCUMENTATION	

14	<b>WARRANTY AND TECHNICAL SUPPORT</b>	
15	<b>ADDITIONAL REQUIREMENTS</b>	
16	<b>SUB - TOTAL</b>	
17	<b>VALUE ADDED TAX</b>	
18	<b>PPRA CAPACITY BUILDING LEVY - 0.0 3%</b>	
19	<b>GRAND TOTAL (TO FORM OF TENDER)</b>	