Section VII. Technical Specifications

Notes for Preparing the Technical Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying their Bids. In the context of Competitive Bidding, the specifications (*e.g.* production/delivery schedule, manpower requirements, and after-sales service/parts, descriptions of the lots or items) must be prepared to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of transparency, equity, efficiency, fairness, and economy in procurement be realized, responsiveness of bids be ensured, and the subsequent task of bid evaluation and post-qualification facilitated. The specifications should require that all items, materials and accessories to be included or incorporated in the goods be new, unused, and of the most recent or current models, and that they include or incorporate all recent improvements in design and materials unless otherwise provided in the Contract.

Samples of specifications from previous similar procurements are useful in this respect. The use of metric units is encouraged. Depending on the complexity of the goods and the repetitiveness of the type of procurement, it may be advantageous to standardize the General Technical Specifications and incorporate them in a separate subsection. The General Technical Specifications should cover all classes of workmanship, materials, and equipment commonly involved in manufacturing similar goods. Deletions or addenda should then adapt the General Technical Specifications to the particular procurement.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for equipment, materials, and workmanship, recognized Philippine and international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that equipment, materials, and workmanship that meet other authoritative standards, and which ensure at least a substantially equal quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the Special Conditions of Contract or the Technical Specifications.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest edition or revision of the relevant standards and codes shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Reference to brand name and catalogue number should be avoided as far as possible; where unavoidable they should always be followed by the words "*or at least equivalent.*" References to brand names cannot be used when the funding source is the GOP.

Where appropriate, drawings, including site plans as required, may be furnished by the Procuring Entity with the Bidding Documents. Similarly, the Supplier may be requested to provide drawings or samples either with its Bid or for prior review by the Procuring Entity during contract execution.

Bidders are also required, as part of the technical specifications, to complete their statement of compliance demonstrating how the items comply with the specification.

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Technical Specifications

Item No.	Specification	Statement of Compliance
		[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]
1	**INTERACTIVE AUDIO VISUAL AND CONFERENCE SYSTEM** A. Branded Interactive Flat Panel with Mobile Stand — Brightness: 400cd/m2 Contrast Ratio 5000:1 — Panel: Type TFT — Backlight: Direct LED (DLED) — Resolution: 4K UHD (3840*2160) — Aspect: Ratio 16:9 — Response Rate: 6m/s — Refreshing Frequency: 60Hz — Viewing Angle: 178°(H), 178°(V) — Backlight Life Time:50,000 hrs — Display Colors: 10bit(1.07B) — Glass: 4mm Anti-Glare Tempered Glass with Zero Bonding (MOHS 7) — Touch Technology: Infrared — Touch Point: 20-point touch/writing	

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– Touch Resolution: 32768 x 32768 – Response Rate: <4ms(single touch <6ms(max touch inputs) – Touch Accuracy: ≤1mm – Recognition: Finger or passive stylus – Writing Height: 2mm – Minimum Touch Object: 2mm – Supported O.S.: HID Support & Win10/Win8/Win7/Mac OS/Android/Chrome OS/Linux – CPU Framework : Quad-core A55 – CPU Processor Speed : 2.0GHz – GPU: Mali G52MP2 – RAM: 4GB DDR4 – ROM : 32GB EMMC – OS Version: Android 11.0 – Portd: 3 x USB3.0 (Android&PC) , HDMI IN 2.0 x 1, Touch-USB x 1, Type C (USB2.0, Audio&Video, Touch, 5W Power) x 1 – Input: RJ45 (10/100MB) x 1,HDMI 2.0 (4K@60fps) x 2,VGA x 1,Audio x 1,USB 2.0 (Android) x 1,USB 3.0 (Android) x 1,AV x 1,RS232 x 1,YPBPR x 1,Touch-USB x 1 – Output: HDMI 2.0 (4K@60fps) x1, COAX SPDIFx 1,AVx 1, Earphones x 1 – Speakers: 15W*2 – Light Sensor – Temperature Monitor – WiFi & Hotspot: 802.11 a/b/g/n/ac embedded (2.4G/5G Dual Module) – Bluetooth: 5.0 B. Branded 180 Degrees Panoramic 4K Plug and Play Video Solution Camera with Bracket – Number of cameras: 3 – Type of camera: Panoramic multi-camera array – Camera resolution: 13 megapixels – Video Conferencing Room: Up to 6x lossless digital zoom – Field of view Horizontal: 180°, Vertical: 54° – Resolution: Panoramic-4K: 3840 x 1080 @ 30fps – Intelligent Video Conferencing Room – Intelligent Meeting Space – Dynamic Composition: Single-stream Dynamic Composition (BYOD + MTR + ZR), Multi-stream Dynamic Composition – Virtual Director, Vivid HDR – Speakers: 2 x 2" (50mm) woofers, 2 x 3/4" (20mm) tweeters	

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– Speaker frequency range: 80Hz - 20000Hz
– Number of speakers: 4
– Automatic Speaker Detection
– Audio codecs supported: SBC
– Microphone type: 8 microphone beamforming array - certified for rooms up to 4.5m x 6m
– Number of microphones: 8
– Microphone sensitivity: -37dBFS
– Microphone frequency range: 100Hz - 8000H
– Connectivity: USB-A, USB-C, Ethernet (RJ45) for connection to supported management systems, Wi-Fi Supported USB versions USB 2.0, USB 3.0 Bluetooth Low Energy (LE audio)

C. Branded 12 Channel Analog Mixer
– Computer Connectivity: USB (2 x 2)
– Faders: 9 x 60mm Throw
– Inputs-Mic Preamps:4 x XLR
– Phantom Power: 4
– Inputs-Line: 8 x TRS, 2 x RCA
– Outputs - Main: 2 x XLR, 2 x TRS
– Outputs-Other: 2 x RCA
– Aux Sends: 1 x Pre, 1 x Post
– Send/Return I/O:2 x 1/4" (Send), 4 x 1/4" (Return)
– Busses/Groups: 2 x Bus
– Headphones: 1 x 1/4"
– USB: 1 x Type B
– EQ Bands: 3-band
– Rackmountable: Yes (Includes Rack Ears)

D. Branded 2 Channel Power Amplifier with 6 X 5 1/4" Surface Speakers
– Power Amplifier Features: 2-channel PA power amplifier. 100 V or 70 V output for PA installations. Highly efficient and reliable class D amplifier thanks to low maintenance protection circuits.
– Safe and easily connectable euroblock connectors
– Excellent sound quality and little noise.
– Power: 2 x 540 W Peak (2 channels), 1 x 600 W Peak (1 channel) | 2 x 135 W RMS (2 channels), 1 x 150 W RMS (1 channel)
– Response: 20-20.000 Hz
– Gain: 40 dB
– Distorsion: THD+N: <0.04% (1 kHz)
– S/N Ratio: >95 dB
– Crosstalk: >85 dB
– Dynamic Range: >105 dBA
– Damping Factor: >200 (1 kHz, 8 Ω)

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- Inputs: 2 balanced/unbalanced aux lines, euroblock, 20,000 Ω/10,000 Ω, 0.9-1.1 V RMS 1 emergency/test, euroblock, 1 V RMS (0 dBV)
- Outputs: 1 GPIO fault indicator output, 5 V DC, euroblock
- Functions: Forced ventilation with variable speed according to the temperature LED power, protection, priority and peak signal indicators Emergency input priority/contact closure test, euroblock Disabling/mute via contact closure, euroblock
- Protection: Overload, short circuit, open circuit, temperature, ultrasound and radio frequency
- Controls: Volume for each channel 100/70 V switch on rear panel
- Impedance: 100 and 70 V lines, euroblock

E. Speaker
- Features: Low impedance loudspeaker with 100 V line transformer. Prepared for outdoor use, waterproof and rustproof materials.
- Power: 80 W max., 40 W RMS
- Speakers: 1 x 5 ¼" polypropylene woofer 1 x 1" tweeter
- Response: 80-20,000 Hz
- Impedance: 40 W RMS@100 V (250 Ω) 20 W RMS@100 V (500 Ω) 10 W RMS@100 V (1,000 Ω) 5 W RMS@100 V (2,000 Ω)
- Low Z: 8 Ω
- Sensitivity: 88.3 dB @ 1 W/1 m
- Maximum Sound Pressure: 102.2 dB @ máx. W/1 m
- Coverage Angle: H/V: 200°/200°@500Hz, 135°/135°@1kHz, 100°/120°@2kHz, 60°/80°@4kHz (-6 dB)
- Protections: IP-66 in compliance with EN 60529 IEC 60068-2-11 Enviromental Test (Salt Mist)
- Material: ABS (UV resistance) Aluminum mesh grille, with powder-coated finish Weather-resistant mount Stainless steel screws
- Switch: W selector in high Z and low Z
- Connectors: Euroblock in and out for cable 0.25-2.5 mm² cross section
- Temperature Range: -10ºC ~ 60ºC
- Colour: Black (RAL 9005)
- Dimensions: Loudspeaker: 162 x 263 x 147 mm depth
- Accessories: Adjustable mounting bracket ± 60° in all directions. Steel safety cable

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F. 1 x 2 Port HDMI + USB 3.0 Female Wall Face Plate Panel Outlet Socket Extender, White G. Video Conferencing Room License, 1-Year H. Branded 22-Channel Digital Mixing Console — Mixing Capacity Input Channels Mix Buses Matrices Stereo Buses FX Buses Cue Buses General specifications I/O Connectors Analog Input Analog Output Dante Network USB TO HOST USB TO DEVICE Phones DC User Interface Recording & Playback PC/ Mac USB storage device Sampling frequency rate Signal delay Frequency response Total harmonic distortion Hum & noise level Equivalent input noise Residual output noise Dynamic range Crosstalk Power requirements Power consumption Dimensions WHD Net weight Included Accessories Operating temperature Storage temperature DM3-D DM3 Standard Outline Mixing Capacity Input Channels: 16 mono + 1 stereo + 2 FX return — Mix Buses: 6 — Matrices: 2 (Supports Input to Matrix) — Stereo Buses: 1 — FX Buses: 2 — Cue Buses: 1 — Analog Input: 16 Mic/Line (12 XLR + 4 XLR/TRS Phones Combo) — Analog Output: 8 (XLR) — Dante: 2 (etherCON: Primary/Secondary) — Network: 1 (RJ-45) — USB TO HOST: 1 (USB Type-B, USB2.0) — USB TO DEVICE: 1 (USB Type-A) — Phones: 1 (TRS Phones) — DC: 1 (XLR 4pin, DC power IN) — User Interface: 1 x 9-inch multi-touch screen, 9 x faders (8 channels + 1 main), 1 x "Touch and Turn" rotary encoder — Recording and Playback: Recording 18 track, Playback 18 track — USB storage device: Recording 2 track (USB hard disk / SSD / flash memory), Playback 2 track (USB hard disk / SSD / flash memory) — Sampling frequency rate:96 kHz / 48 kHz 96 kHz / 48 kHz — Signal delay: Less than 1.3 ms, (CH INPUT to OMNI OUT, Fs=96 kHz) — Frequency response: +0.5, -1.0 dB 20 Hz-20 kHz, reference to the nominal output level@1 kHz, INPUT to OMNI OUT	

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− Total harmonic distortion: Less than 0.01 % 20 Hz - 20 kHz@+4 dBu into 10 kΩ, INPUT to OMNI OUT, Input Gain = Min*1 − Hum and Noise: -126 dBu typ., Input Gain= Max. − Residual output noise: -84 dBu, ST main off*2 − Dynamic range: 110 dB typ., DA Converter, 106 dB typ., INPUT to OMNI OUT, Input Gain=Min. − Crosstalk: -100 dB, adjacent INPUT/OMNI OUT channels, Input Gain= Min. @1 kHz*3 − Power requirements: DC24 V/2.5 A, PA-L500 (100 V-240 V, 50 Hz/60 Hz) − Accessories: Owner's Manual, Power Adapter, Download Information I. Branded Bluetooth Party, Portable Speaker 800w with Branded 2 Pair UHF Wireless Microphone (Compatible with Bluetooth Speaker) with Rechargeable Battery and Charger with 2 Sets of Spare Rechargeable Battery J. Branded WiFi Receiver − Ethernet: 100/1000 Mbps, auto-switching, autonegotiating, autodiscovery, full/half duplex, TCP/IP, UDP/IP, DHCP, SSL, TLS2, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1x, Active Directory authentication, HTTPS web browser setup and XiO Cloud service, 802.3af compliant − AirMedia : Via Ethernet: IPv4, mDNS, TLS, AES1; Via wireless access point: IEEE 802.11/b/g/n/ac/ax, 2.4 GHz or 5 GHz Bluetooth Communications: Bluetooth version 5.0 − USB Device: USB 3.0 for computer console (installer setup and firmware update) − HDMI Output: HDCP 2.2, EDID, CEC; Supports management of HDCP and EDID − Video: Input Signal Types: AirMedia; Simultaneous display of up to four sources with AirMedia Canvas − Maximum Input Resolutions: AirMedia presentation: 1920x1080@30Hz (1080p30); AirMedia Connect Adapter: 3840x2160@30Hz (4K30) − HDMI Output Signal Types HDMI (DVI compatible3) − HDMI Output Resolutions: 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz,4 1366x768@60Hz,4 1440x900@60Hz,4 1600x900@60Hz,4		

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1600x1200@60Hz, 1680x1050@60Hz,4 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 3840x2160@30Hz (2160p30), 3840x2160@50Hz (2160p50), 3840x2160@60Hz (2160p60) − Audio: Input Signal Types: AirMedia − Output Signal Type : HDMI − Input/Output Format: 2 channel LPCM − Video Frame Rate: Up to 30 fps, audio supported − Output Resolutions: 640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz, 1366x768@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60) − Bitrate Peak 0.25 to 8.5 Mbps, variable depending on content complexity − Bitrate Average 1.4 Mbps typical K. Branded Controller Laptop − 15.6in IPS FHD 144Hz, CORE i5-12500H | 512GB SSD | 16GB DDR4 | GeForce RTX 3050 | Win11 Other Inclusion: − complete cables, wires, power outlets and other necessary accessories. Include professional services for design, drawings, cables, installation and commissioning, project management, and 1-day training. − VAT Inclusive.	
***** **Nothing Follows** *****	

Additional Requirements:

The technical specification that shall be submitted by the Bidder shall include, among others:

 a) *offered product specifications as supported by brochures or catalogues;*
 b) *certification from the manufacturer as authorized distributor/reseller;*
 c) *certification of one (1) year warranty for the product offered;*
 d) *bidder's certification that it has after-sales support; and*
 e) *bidder's certification of certified technician for the product offered.*

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