

USFK PMO CONFERENCE ROOM AV/VTC SYSTEM UPGRADE - SUPPLY

PURCHASE DESCRIPTION (PD)

United States Forces Korea (USFK)

Requirement	PMO Conference Room AV/VTC System Upgrade
Location	USFK Headquarters, Camp Humphreys, Republic of Korea
Acquisition Type	Supply - complete integrated AV/VTC end item with incidental installation, configuration, functional verification, and turnover
Equipment Basis	Government-defined PMO Conference Room equipment baseline
Reference Characteristics	Applicable technical requirements incorporated into this PD

1.0 INTRODUCTION

The purpose of this Purchase Description (PD) is to acquire a complete Audio-Visual (AV) and Video Teleconference (VTC) system upgrade as an end item of supply for the United States Forces Korea (USFK) PMO Conference Room. The furnished system shall support mission-critical collaboration, staff coordination, operational updates, command-directed engagements, and reliable multi-source presentation and conferencing operations.

The Contractor shall furnish and deliver all equipment, materials, accessories, licenses, mounting hardware, interconnects, and other components identified in this PD as one complete and operational AV/VTC system. Incidental mounting, installation, configuration, programming, functional verification, product familiarization, documentation, and delivery coordination are required only to place the furnished supply in its intended operational condition and are subordinate to the principal purpose of acquiring the end item of supply. No separate level-of-effort service is being acquired under this PD.

1.1 Acquisition and Technical Baseline

The equipment type, reference model, configuration, quantity, and technical requirements stated in this PD constitute the controlling acquisition baseline for PMO Conference Room AV/VTC system upgrade.

Where a reference brand or model is identified with "or equal," an offered equal item shall meet or exceed every applicable salient characteristic and shall preserve full functional interoperability with the complete PMO system. The Contractor shall identify all deviations in writing before award or, if permitted by the Contracting Officer, before substitution.

1.2 Scope Boundaries

- No new building electrical distribution, branch-circuit construction, structural alteration, or facility network infrastructure construction is included unless specifically added by written contract modification.
- Low-voltage AV cabling, terminations, equipment interconnects, rack wiring, mounting hardware, and installation consumables required for the delivered system are included.
- All work shall be coordinated to minimize disruption to PMO mission operations.
- Contractor-owned computing devices shall not be connected to Government networks unless expressly authorized by the Government.

- Government-furnished equipment identified in the Statement of Work is excluded from the Contractor-furnished equipment quantities of this PD but shall be integrated into the complete delivered system as required by the SOW.

2.0 REQUIRED EQUIPMENT AND QUANTITIES

The Contractor shall provide the following material quantities. The quantities stated in this PD shall not be reduced without written Government authorization.

Item	Manufacturer	Model / Reference	Description	Qty	U/I	PD Section
1	Crestron	TSW-1080-GV-B	10.1-inch wall-mounted room control touch panel, Government Version	1	unit	3.2.1
2	Crestron	DM-NVX-E20	4K60 AV-over-IP encoder for network distribution	18	unit	3.2.2
3	Crestron	DM-NVX-D200	4K60 AV-over-IP decoder with integrated output scaling	8	unit	3.2.3
4	Crestron	CP4N	4-Series room automation and AV control processor	1	unit	3.2.4
5	Crestron	IV-CAM-P20-GV-B	20x optical zoom PTZ conferencing camera, Government Version	3	unit	3.2.5
6	Crestron	SAROS DM-NAX-IC4A-W	active PoE+ in-ceiling network-audio loudspeaker, white	1	unit	3.2.6
7	Crestron	SAROS IC4P-W	passive full-range in-ceiling companion loudspeaker, white	3	unit	3.2.7
8	Biamp	TesiraFORTE X 1600 or sEqual	conferencing DSP with 16-channel-or-greater AEC and two-chain processing capability	1	unit	3.3.1
9	Audio-Technica	ATND971A	network boundary microphone for conference-table speech capture	10	unit	3.4.1
10	NETGEAR	GSM4243PX	M4230-series managed PoE+ AV network switch	1	unit	3.5.1
11	NETGEAR	GSM4248PX	M4250-series managed PoE+ AV network switch	1	unit	3.5.2
12	AverMedia	BLU113G2	USB HDMI capture interface	1	unit	3.5.3
13	Custom	AV equipment rack	project-specific rack fabrication and equipment mounting provisions	1	unit	3.6.1
14	Various	Installation consumables	conduit, AV cabling, connectors, terminations, and miscellaneous hardware	1	lot	3.6.2
15	LG	LUQC048	COB LED classification banner display assembly	2	unit	3.7.1
16	LG	LUQC048	COB LED multi-time-zone information display assembly	1	unit	3.7.2

2.1 Incidental Installation and Integration Requirements

The Contractor shall provide all incidental effort necessary to deliver, mount, connect, configure, integrate, verify, and turn over the furnished system. These activities are incidental to the supply requirement and shall not be construed as Government-directed labor-hour or level-of-effort requirements. The Contractor is responsible for determining the labor mix and hours necessary to furnish the complete operational end item within the firm-fixed-price supply requirement.

- Delivery coordination and implementation planning necessary to furnish the system.
- Removal of Government-designated existing AV equipment only as necessary to install the replacement supply.
- Classification Banner and World Clock mounting, equipment placement, and physical integration.
- Rack assembly, field cabling, terminations, labeling, and endpoint connection.
- Crestron control, touch-panel, and NVX configuration required for operation of the furnished system.
- Q-SYS DSP/AEC configuration, audio tuning, and microphone optimization required for accepted system performance.
- Authorized interface integration with the identified Government-furnished/OFE PCs, Cisco Navigator, and Cisco codecs without unauthorized modification of Government equipment.
- Functional verification, Government acceptance demonstration, and technical-data turnover.
- Freight, local delivery coordination, and field logistics necessary to deliver the supply to the Government.

3.0 SALIENT CHARACTERISTICS AND TECHNICAL REQUIREMENTS

3.1 General Requirements

- All equipment shall be new, current-production, and suitable for commercial/professional mission use where such operation is required by the intended application.
- All items requiring Trade Agreements Act (TAA) compliance under this PD shall be supported by documentation issued by the manufacturer or an authorized source demonstrating compliance. Contractor-generated or self-certified TAA letters, declarations, memoranda, or other independently prepared compliance statements shall not be accepted as evidence of TAA compliance.
- Equipment shall be supplied with all standard accessories, power supplies, mounting hardware, licenses, cables, adapters, and interconnects required for the accepted configuration.
- Proposed equal items shall be submitted with a line-by-line compliance matrix against the applicable salient characteristics before acceptance as an equal product.
- All system components shall interoperate as an integrated AV/VTC end item and shall support the configuration, functional verification, acceptance, turnover, and sustainment requirements of this PD and the SOW.

3.2 CRESTRON EQUIPMENT

3.2.1 10.1 in. Wall Mount Touch Screen, Government Version (TSW-1080-GV-B or Equal)

Quantity: 1

Make/Model Reference: Crestron TSW-1080-GV-B

Required Salient Characteristics:

- 10.1 in. widescreen active-matrix color display with 1920 × 1200 WUXGA resolution.
- Projected capacitive touch screen with 5-point multitouch capability.
- Supports custom-programmable virtual control buttons.
- Supports standards-based HTML5 custom user interface projects.
- Built-in speakers.
- Supports H.265, H.264, and MJPEG streaming video.
- Supports streaming input resolutions up to 3840 × 2160 at 30 fps, with bitrate up to 25 Mbps.
- Provides Gigabit Ethernet connectivity with PoE/PoE+ power support.
- Provides a USB-C port for supported room scheduling and conferencing accessories.

- Provides enterprise-grade security and authentication.
- Government Version shall eliminate microphone, Bluetooth communications beacon, Wi-Fi network connectivity, and proximity sensor.
- Supports Microsoft Device Ecosystem Platform (MDEP) operating environment.
- Provides die-cast housing construction suitable for long-term commercial and government installations.
- Supports interoperability with supported hallway-sign and room-availability accessories.

3.2.2 4K60 AV-over-IP Encoder (DM-NVX-E20 or Equal)

Quantity: 18

Make/Model Reference: Crestron DM-NVX-E20

Required Salient Characteristics:

- Supports video resolutions up to 4K60 4:2:0 and 4K30 4:4:4 over standard Gigabit Ethernet.
- Provides real-time AV-over-IP video transport.
- Provides one HDMI input for source connection.
- Supports HDCP 2.3.
- Supports fixed or adaptive video bitrate sufficient for 4K60 transport.
- Supports lossless transport of 7.1 surround audio, including uncompressed LPCM and applicable high-resolution audio formats.
- Supports AES67, including transmission and reception of 2-channel AES67 audio streams.
- Provides analog audio de-embedding.
- Provides Gigabit Ethernet connectivity with PoE power support.
- Supports automatic point-to-point interoperability with compatible AV-over-IP decoders.
- Supports device control through RS-232, IR, and CEC.
- Shall interoperate with the furnished room-control and AV-over-IP distribution architecture.
- Provides enterprise security including 802.1X, Active Directory credential management, AES-128 encryption, PKI authentication, TLS, SSH, and HTTPS.
- Provides a programmable/control API sufficient for integrated room-system control.
- Supports native interoperability with the furnished AV-over-IP, audio-over-IP, and room-control architecture without requiring protocol-translation hardware.
- Supports deployment within a unified AV, audio, USB, and control-over-IP platform architecture.

3.2.3 4K60 AV-over-IP Decoder with Scaler (DM-NVX-D200 or Equal)

Quantity: 8

Make/Model Reference: Crestron DM-NVX-D200

Required Salient Characteristics:

- Supports video resolutions up to 4K60 4:2:0 and 4K30 4:4:4 over standard Gigabit Ethernet.
- Provides real-time AV-over-IP decoding.
- Provides one HDMI output with integrated 4K60 scaler.
- Supports HDCP 2.3.
- Supports video-wall processing for configurations up to 8 × 8 / 64 displays.
- Supports lossless 7.1 surround audio transport.
- Supports AES67, including transmission and reception of 2-channel AES67 audio streams.
- Provides analog audio de-embedding.
- Provides Gigabit Ethernet connectivity with PoE+ support.
- Supports automatic point-to-point interoperability with compatible AV-over-IP encoders.
- Supports device control through RS-232, IR, and CEC, including display-control capability.

- Shall interoperate with the furnished room-control and AV-over-IP architecture.
- Supports an embedded configurable room-control framework capable of direct display and AV-system control without requiring separate middleware.
- Provides enterprise security including 802.1X, Active Directory credential management, AES-128 encryption, PKI authentication, TLS, SSH, and HTTPS.
- Provides a programmable/control API sufficient for integrated room-system control.
- Provides independent display scaling to support source and display devices operating at different native resolutions.
- Provides native interoperability with AV-over-IP, audio-over-IP, USB-over-IP, and room-control systems.
- Supports deployment as part of a distributed AV-over-IP architecture utilizing unified management and monitoring tools.

3.2.4 4-Series Control System with Dedicated Control Subnet (CP4N or Equal)

Quantity: 1

Make/Model Reference: Crestron CP4N

Required Salient Characteristics:

- Provides a 4-Series multicore control-system architecture or equivalent enterprise room-control processing capability.
- Supports a modular programming architecture capable of running multiple simultaneous control programs, including up to 10 programs.
- Provides onboard IR/serial, COM, digital/analog I/O, relay, Cresnet or equivalent wired device-control interfaces, and Gigabit Ethernet control connectivity.
- Provides a dedicated Gigabit Ethernet control subnet for managed AV-device connectivity separate from the primary LAN.
- Supports automatic discovery and IP-address assignment for compatible devices connected to the dedicated control subnet.
- Supports isolation of the dedicated control subnet from the primary local network for sensitive applications requiring heightened separation.
- Supports integrated control of the furnished displays, AV routing, audio system, cameras, video-wall processing, and associated room devices.
- Supports computer/web-based control interfaces.
- Provides enterprise-class network security and authentication.
- Supports secure enterprise network communications including SSL/TLS, SSH/SFTP, IEEE 802.1X, IPv4/IPv6, directory-service authentication, and HTTPS or equivalent secure protocols.
- Supports SNMP or equivalent network-management integration.
- Supports BACnet/IP or equivalent building-management integration capability where required.
- Supports enterprise room-monitoring and management capability allowing future centralized monitoring, scheduling, status reporting, and system-management integration.
- Provides USB connectivity for system configuration, storage, and maintenance.
- Supports native integration with the furnished AV-over-IP, network-audio, and enterprise-management architecture without requiring additional protocol-conversion hardware for normal room operation.
- Supports execution of multiple independent control programs without interruption to active services.
- Shall support complete integration with the furnished room-control architecture and shall be rack-mountable.

3.2.5 Professional PTZ Conferencing Camera, Government Version (IV-CAM-P20-GV-B or Equal)

Quantity: 3

Make/Model Reference: Crestron IV-CAM-P20-GV-B

Required Salient Characteristics:

- Government-version PTZ conferencing camera suitable for Government deployment.
- Supports video resolutions up to 1080p60.
- Provides 20× optical zoom.
- Compatible with the furnished automated multi-camera speaker-tracking system.
- Single Ethernet connection provides power, viewing, setup, and control.
- Provides video outputs including 3G-SDI, HDMI, USB, NDI|HX2, ONVIF, RTSP, and UVC.
- Supports up to 256 configurable camera presets.
- Uses a professional-grade CMOS image sensor suitable for conferencing applications.
- Supports direct connection to conferencing codecs and recording/streaming devices.
- Supports native interoperability with the furnished automated camera-tracking architecture without additional protocol-conversion hardware.
- Supports centralized enterprise management and monitoring over standard IP networks.

3.2.6 Active PoE+ In-Ceiling Network-Audio Loudspeaker (SAROS DM-NAX-IC4A-W or Equal)

Quantity: 1

Make/Model Reference: Crestron SAROS DM-NAX-IC4A-W

Required Salient Characteristics:

- Audio-over-IP in-ceiling loudspeaker that connects directly to a managed Ethernet network.
- Supports routing with compatible audio-over-IP, AV-over-IP, and AES67-compatible devices.
- Provides interoperability with Dante environments through AES67 compatibility.
- Shall power and distribute audio to at least three compatible passive companion speakers.
- Uses a full-range Balanced Mode Radiator or equivalent wide-dispersion transducer technology.
- Frequency response shall cover approximately 80 Hz–24 kHz or wider.
- Provides a built-in PoE+ amplifier sufficient to drive the active speaker and three passive companion speakers.
- Receives at least four channels of network audio through a supported audio-over-IP protocol or AES67.
- Provides onboard DSP including equalization, speaker protection/limiting, output delay, and individual output-channel processing.
- Provides wide dispersion suitable for conference-room speech and program audio.
- Integral back-can assembly shall be plenum rated to UL 2043 or equivalent.
- Supports direct network attachment without requiring a separate DSP-amplifier endpoint.

3.2.7 Passive Full-Range In-Ceiling Speaker (SAROS IC4P-W or Equal)

Quantity: 3

Make/Model Reference: Crestron SAROS IC4P-W

Required Salient Characteristics:

- Passive in-ceiling full-range loudspeaker compatible with the furnished active network speaker.
- Uses a Balanced Mode Radiator or equivalent wide-dispersion transducer technology.
- Frequency response shall cover approximately 90 Hz–30 kHz or wider.
- Provides approximately 170-degree conical coverage for speech and 140-degree coverage for program/music content, or equivalent performance.
- Supports direct connection to the furnished active loudspeaker through the manufacturer-compatible speaker connection.
- Also supports connection to an external amplifier where required by the accepted design.

- Plenum-rated integral metal back can shall meet UL 2043 or equivalent.
- Shall support installation in standard suspended or finished ceiling construction.
- Shall include required ceiling mounting hardware/tile bridge.
- Power handling shall be compatible with the furnished active speaker and intended room-audio design.

3.3 AUDIO DSP EQUIPMENT

3.3.1 Conferencing DSP (TesiraFORTE X 1600 or Equal)

Quantity: 1

Make/Model Reference: TesiraFORTE X 1600

Required Salient Characteristics:

- Meeting-room DSP with full AVB and Dante compatibility.
- Contains 4 integrated PoE+ ports.
- Supports 2 x 2 analog I/O, stereo USB, and 16 channels of AEC (Acoustic Echo Cancellation).
- Includes Biamp Launch automatic discovery and tuning capability.
- Designed for conference-room audio optimization, multi-source audio routing, and advanced processing.
- Must support integration with the AV-over-IP system and enterprise AV networking environment.
- Must allow configurable DSP chains including EQ, delay, routing, dynamics, and AEC processing.
- Must be TAA compliant for installation in a U.S. Government facility.
- Shall include manufacturer documentation and configuration support.

3.4 MICROPHONE EQUIPMENT

3.4.1 Network Boundary Microphone (ATND971A or Equal)

Quantity: 10

Make/Model Reference: ATND971A

Required Salient Characteristics:

- Dante-enabled boundary condenser microphone with Ethernet network output.
- Powered by PoE (IEEE 802.3af).
- Half-cardioid pickup pattern; frequency response 30 Hz-20 kHz.
- Integrated capacitive touch switch with red/green LED status indicator.
- Supports gain, low-cut filter, and LED control.
- UniGuard RFI-shielding and UniSteep low-cut filtering.
- Compatible with AES67/Dante network audio operation.

3.5 NETWORKING AND CAPTURE EQUIPMENT

3.5.1 Managed PoE+ AV Network Switch, 26G/4XF Class (GSM4230PX or Equal)

Quantity: 1

Make/Model Reference: NETGEAR GSM4230PX

Required Salient Characteristics:

- Purpose-built or suitable for professional AV-over-IP environments and stable operation of the furnished networked AV endpoints.
- Supports managed multicast traffic including IGMP snooping and querier functionality and QoS prioritization appropriate for real-time AV traffic.
- Provides at least 24 Gigabit PoE+ access ports and at least four 1/10 Gigabit SFP+ uplink ports, or equivalent connectivity sufficient for the furnished endpoint assignment.

- Provides PoE/PoE+ capability with sufficient aggregate power budget for the network-powered AV endpoints assigned to the switch.
- Supports VLAN configuration and enterprise network authentication/security features including IEEE 802.1X where implemented by the Government.
- Shall be rack-mountable, current-production equipment suitable for professional AV deployment.

3.5.2 Managed PoE+ AV Network Switch, 40G/8XF Class (GSM4248PX or Equal)

Quantity: 1

Make/Model Reference: NETGEAR GSM4248PX

Required Salient Characteristics:

- Purpose-built or suitable for professional AV-over-IP environments and stable operation of the furnished networked AV and network-audio endpoints.
- Supports managed multicast traffic including IGMP snooping and querier functionality and QoS prioritization appropriate for real-time AV traffic.
- Provides at least 40 Gigabit PoE+ access ports and at least eight 1/10 Gigabit SFP+ uplink ports, or equivalent connectivity sufficient for the furnished endpoint assignment.
- Provides PoE/PoE+ capability with sufficient aggregate power budget for the network-powered AV endpoints assigned to the switch.
- Supports VLAN configuration, enterprise network management, and IEEE 802.1X network authentication where implemented by the Government.
- Shall be rack-mountable, current-production equipment suitable for professional AV deployment.

3.5.3 HDMI-to-USB 4K Capture Interface (BU113G2 or Equal)

Quantity: 1

Make/Model Reference: AVerMedia BU113G2

Required Salient Characteristics:

- Professional external capture interface suitable for integrating an HDMI video source with a Government-furnished compute or conferencing endpoint over USB.
- Provides HDMI 2.0 video input and USB 3.2 Gen 1 Type-C or equivalent 5 Gbps host interface.
- Accepts input resolutions up to at least 3,840 x 2,160 at 60 Hz.
- Supports capture up to 3,840 x 2,160 at 60 fps using a supported compressed capture format, and at least 1,920 x 1,080 at 60 fps using common USB video formats.
- Provides plug-and-play USB video capture compatibility with standard conferencing/streaming applications supported by the Government endpoint.
- Shall include required USB cable, firmware, and standard accessories necessary for the accepted PMO Conference Room integration.
- Wireless connectivity shall not be required for operation.

3.6 RACK AND INSTALLATION MATERIALS

3.6.1 Custom AV Equipment Rack

Quantity: 1

Make/Model Reference: Custom

Required Salient Characteristics:

- Professional AV equipment rack sized for the furnished control, AV-over-IP, DSP, network, capture, and related electronics.

- Includes required rack hardware, ventilation provisions, horizontal/vertical cable management, labeling, secure equipment mounting, and service access.
- Provides sufficient reserved space and power/cable management for normal system maintenance and accepted equipment configuration.

3.6.2 Installation Consumables

Quantity: 1

Required Salient Characteristics:

- Category 6 or higher balanced twisted-pair cabling shall be used for furnished AV network links and terminated using matching-category components.
- Plenum-rated cable shall be used where installed in air-handling spaces.
- Local HDMI runs shall use Premium-certified copper or active optical cabling appropriate to required distance and resolution.
- Analog audio runs shall use balanced shielded audio cable.
- LED wall signal and power cabling shall comply with the furnished display manufacturer requirements.
- Provide galvanized conduit, cable tray, grommets, penetrations, and other containment required within the authorized low-voltage scope.
- Provide listed fire-stopping at rated penetrations where disturbed by the Contractor.
- Provide all labels, ties, supports, connectors, terminations, adapters, fasteners, patch cables, and miscellaneous materials necessary for a complete installation.
- All field cables and terminations shall be durably labeled at both ends using a consistent identification scheme reflected in the final cable schedule.
- All permanent balanced twisted-pair AV network links shall be certified to the applicable cable category and final certification records shall be included in turnover documentation.

3.7 STATUS DISPLAY AND WORLD CLOCK EQUIPMENT

3.7.1 Classification Banner Display Assembly

Quantity: 2

Make/Model Reference: LG / LUQC048

PMO Classification Banner Requirement:

- The Classification Banners are LED-based products made of COB (Chip on Board), and the pixel pitch should be around 1.25mm. The screen size should be approximately 1,200mm wide and 225mm high. Inside the conference room, one World Clock and one Classification Banner are installed, and outside the door, one Classification Banner is installed.
- The two Classification Banners correspond to one Classification Banner inside the conference room and one Classification Banner outside the door. Classification Banner requirements shall comply with the LED Requirements and LED Salient Characteristics incorporated into this PD, including the stated PSU redundancy exception.
- Each Classification Banner shall be controllable through both a manufacturer-supplied handheld remote control and the furnished room-control touch-panel interface.
- The touch-panel interface shall provide control of normal user-adjustable Classification Banner functions, including power, brightness, and available display/content or preset selection functions supported by the furnished banner system.
- Touch-panel control of the Classification Banner shall use a wired control path or other Government-approved non-wireless interface. Normal operation shall not require Wi-Fi, Bluetooth, cellular, or other active RF connectivity.

- Handheld-remote and touch-panel control capability shall remain available after a normal power cycle without requiring Contractor reprogramming.

3.7.2 World Clock Display Assembly

Quantity: 1

Make/Model Reference: LG / LUQC048

PMO World Clock Requirement:

- The World Clock are LED-based products made of COB (Chip on Board), and the pixel pitch should be around 1.25mm. The screen size should be approximately 1,200mm wide and 225mm high. Inside the conference room, one World Clock and one Classification Banner are installed, and outside the door, one Classification Banner is installed.
- World Clock requirements shall comply with the LED Requirements and LED Salient Characteristics incorporated into this PD, including the stated PSU redundancy exception.
- The World Clock shall be controllable through both a manufacturer-supplied handheld remote control and the furnished room-control touch-panel interface.
- The World Clock shall include not fewer than thirty (30) preconfigured selectable world time-zone presets. The touch-panel interface shall allow a user to select a preset by an intuitive location, city, region, or time-zone label without requiring Contractor programming changes.
- The World Clock shall automatically apply and remove Daylight Saving Time (DST) for configured locations that observe DST based on the applicable configured regional/time-zone rule and effective date. Routine seasonal DST changes shall not require manual time adjustment by the user or Contractor intervention.
- Locations that do not observe DST shall remain on the configured standard time without seasonal offset changes.
- World Clock configuration, including the minimum thirty (30) preset time zones, custom user-defined entries, displayed location labels, and applicable DST/time-zone rules, shall be retained through a normal power cycle or restored automatically from the accepted system configuration.
- Touch-panel control of the World Clock shall use a wired control path or other Government-approved non-wireless interface. Normal operation shall not require Wi-Fi, Bluetooth, cellular, or other active RF connectivity.

3.7.3 LED Requirements - Incorporated into this PD

- 1) This product has to be in the market and capable of 24/7, 365 days operation without interruption. Prototype / under-development / Discontinued (End-of-Life) products cannot be used without prior written approval.
- 2) The display must be suitable for the client's defined mission environment (command and control room, control room, conference room, auditorium, etc.) and meet the LED salient characteristics stated in this PD.
- 3) The display viewing angle must be at least 160 degrees horizontally / 160 degrees vertically, or an equivalent viewing angle.
- 4) The display must be able to smoothly play content at a high refresh rate of over 7,680 Hz for a wider spectrum and vibrant video playback.
- 5) The LED screen must ensure stability against electromagnetic waves.
- 6) LED cabinets must be manufactured with minimal use of harmful substances and chemicals, and must be products certified with relevant RoHS certification.
- 7) The LED controller must provide at least 4K resolution and be equipped with software developed directly by the manufacturer to provide a user-friendly environment.
- 8) LED cabinets should be designed with PSU redundancy structures for power redundancy to ensure product stability. (However, World Clock and Classification Banner do not support redundancy)
- 9) LED cabinets should be designed so that step adjustment is possible both at the front and rear.

3.7.4 LED Salient Characteristics

- 1) To comply with the procurement policy of the U.S. government, both the LED display (screen section) and the controller must comply with the TAA (Trade Agreements Act) regulations, and manufacturers must submit a TAA compliance letter.
- 2) To ensure optimal compatibility between systems and guarantee unified technical support and rapid identification of responsibility in case of failure, the LED display (screen section) and controller must be manufactured by same manufacturer.
- 3) Content in the control room/meeting room must be displayed with uniform colors and without distortion, not only when viewed from the front but also from the left and right sides. Color shift must be minimal within a 60-degree from each side (total 120-degree) from the front of the screen, and a certificate from an official certification body must be submitted.
- 4) Since the control room mainly handles dark content such as nighttime surveillance footage and satellite images, accurate colors and brightness must be displayed to provide a seamless and natural screen. A certificate from an official certification body proving low-scale (Gray Scale) performance must be submitted.
- 5) Due to the nature of products installed indoors, reliability and safety must be ensured even in the event of a fire. Must have flame-retardant performance that suppresses flame spread through the product surface (equivalent to Class 1 or higher in BS476 Part 7 standard test). A test report or certificate from an accredited certification body that can provide proof of this must be submitted.
- 6) Even in extreme environments (temperature changes, strong vibration, humidity, etc.), physical properties must be maintained to prevent display issues in the LED display section. To achieve this, the core driver IC of the LED screen must comply with the MIL-STD-883 standard specified by the U.S. Department of Defense (US DoD), and supporting documentation must be submitted.
- 7) The front screen must be protected from dust to extend the product's lifespan and minimize defects. It must meet the dustproof rating of IP50 and submit relevant test reports.
- 8) Prevent product damage from collisions that may occur in everyday usage environments. It must meet the impact resistance rating IK07 and submit the relevant test report.

4.0 INCIDENTAL INSTALLATION, INTEGRATION, AND CONFIGURATION

4.1 Delivery and Installation Coordination

- Coordinate site access, delivery, incidental installation sequencing, functional verification, product familiarization, and Government inspection/witness activities necessary for turnover of the furnished system.
- Maintain a delivery and installation completion schedule and identify technical dependencies or Government-furnished prerequisites early enough to avoid delivery impact.

4.2 Existing Equipment Removal Incidental to Installation

- Remove only equipment identified by the Government for replacement.
- Recover reusable cabling where directed and protect Government property from damage.
- Stage removed Government property at the location directed by the Government; disposal is not authorized unless expressly directed.

4.3 Incidental Installation and Physical Integration

- Install the furnished Classification Banners and World Clock using secure professional mounting methods.
- Install Crestron control, NVX, cameras, and loudspeakers in the Government-approved locations.
- Install the Q-SYS processor and Audio-Technica network microphones and integrate the audio signal path.
- Install the complete digital infrared interpretation subsystem, including interpreter positions, transmitter, radiators, receiver charging system, cabling, connectors, and accessories.
- Assemble and dress the AV equipment rack with professional cable management and permanent labeling.

- Provide and terminate all low-voltage signal, control, network-AV, audio, and interpretation-system cabling required for system operation.
- No electrical branch-circuit construction or unauthorized Government-network infrastructure modification is permitted.

4.4 Room-Control, Camera, Status Display, and World Clock Configuration

- Program the furnished control processor and touch-panel interface for normal source routing, destination selection, conferencing workflow support, camera control, audio control, Status Display control, World Clock control, and system startup/shutdown.
- Configure the three PTZ cameras with Government-approved presets covering seated participants, presenter/briefing positions, and other required PMO views.
- Provide manual camera selection and preset recall through the touch-panel interface.
- Integrate both Status Display displays and the World Clock with the furnished room-control touch-panel interface while preserving manufacturer handheld remote-control operation.
- Configure the World Clock touch-panel workflow with not fewer than thirty (30) preconfigured selectable time-zone presets.
- Configure automatic DST handling for applicable preset and custom locations according to the accepted time-zone rule.
- Status Display and World Clock touch-panel control shall use a wired or other Government-approved non-wireless control path.
- Configure not fewer than four named presets per furnished PTZ camera in coordination with the Government; presets shall be recallable by a single touch-panel action and reach accepted framing within two seconds.
- Coordinate camera-to-codec and camera-to-soft-codec assignments so each conferencing chain receives only the Government-approved camera path(s).

4.5 Audio, DSP, and Conferencing Configuration

- Configure DSP routing, AEC, gain structure, EQ, delay, dynamics, microphone processing, and output levels.
- Tune the active/passive ceiling speaker system for intelligible speech and balanced room coverage.
- Configure the sound-masking system for the Government-approved coverage zone without interfering with VTC intelligibility.
- Integrate the sound-masking controller with the furnished room-control touch panel using a wired, Government-approved control method so that authorized users can enable/disable the masking system and adjust its operating level from the touch panel.
- USFK PMO already has a sound-masking system installed in their conference room. The contractor must integrate the new system with the existing sound-masking system and the control touch panel.
- Preserve direct local control at the furnished sound-masking control module/controller independent of the touch-panel interface.
- Configure touch-panel sound-masking level control so that user adjustments remain within the Government-approved commissioned operating range and do not modify protected tuning, calibration, or maximum-output parameters.

4.6 Programming, Configuration, and Government Sustainment Files

The Contractor shall provide all programming and configuration necessary for complete operation of the furnished system. At turnover, the Contractor shall provide all uncompiled/source programming files, compiled files, touch-panel project files, AV-over-IP configuration backups, DSP configuration, camera preset/configuration files, network-switch configuration backups, Status Display and World Clock configuration records, device configuration files, credentials established specifically for the system, and final backups required to operate, troubleshoot, restore, maintain, or modify the accepted system.

Files shall be provided in the native editable format used to create the accepted configuration, together with applicable software and version identification. Programming and configuration files shall be delivered without

contractor-controlled passwords, proprietary locks, or other restrictions that prevent the Government or its authorized support personnel from accessing, backing up, restoring, maintaining, or modifying the accepted system. Any manufacturer-controlled license inherently required for operation shall be identified and transferred or documented as applicable at turnover.

4.7 Classification Banner and World Clock Application

- For optimal stability of the developed application, the classification banner and world clock apps must be fully compatible and operate flawlessly within the manufacturer-designated signage OS environment.
- Installing and connecting a standalone computer or using external storage devices such as USB drives is strictly prohibited.
- All controls must be fully operable through the control touch panel and the remote control provided by the manufacturer.
- Additionally, at the time of submitting the bid proposal, the vendor must provide documentation that clearly proves the feasibility of implementing these requirements.

5.0 FUNCTIONAL VERIFICATION AND ACCEPTANCE

Prior to Government acceptance, the Contractor shall perform the functional checks and integrated system verification necessary to demonstrate that the furnished end item conforms to this PD. Government acceptance shall be based on verification of the delivered equipment, required quantities, salient characteristics, integrated functionality, and required technical data.

5.1 Minimum Functional Verification

- Verify all Contractor-furnished equipment and quantities against Section 2.0.
- Verify all eighteen AV-over-IP encoders and eight AV-over-IP decoders, including intended endpoint connectivity, routing, source selection, destination presentation, scaling where applicable, and stable operation.
- Verify both Government-furnished conferencing chains independently, including PC/codec integration, audio send/receive, video source/destination interfaces, and absence of unintended cross-chain signal paths.
- Verify all three PTZ cameras, Government-approved presets, manual camera selection, touch-panel control, and assigned conferencing output.
- Verify all ten microphone positions, DSP routing, AEC, loudspeaker output, audio intelligibility, and absence of unacceptable echo, feedback, hum, or noise attributable to the furnished system.
- Verify both managed AV network switches, assigned endpoint connectivity, multicast/QoS behavior, VLAN configuration where applicable, and PoE delivery to assigned endpoints.
- Verify the HDMI-to-USB capture interface with the assigned Government-furnished endpoint.
- Verify both Status Displays provide the accepted Government-approved wired room-control functions and Government-administrator content/layout capability after turnover.
- Verify the World Clock from the manufacturer handheld remote and room-control touch panel; verify at least thirty preset time zones, automatic DST logic by manufacturer-supported test or controlled simulation, and persistence/recovery after a normal restart.
- Verify room-control/touch-panel functions, startup/shutdown, and predictable restart/recovery behavior.
- Verify cabling, terminations, labeling, rack build, and installation workmanship.
- Verify all eighteen encoders and eight decoders are assigned to the approved named source/destination schedule and that the same plain-language names appear in the room-control interface and final records.
- Verify representative and Government-selected source-to-destination routes demonstrate non-blocking PMO AV-over-IP operation, 4K transport modes required by the PD, HDCP 2.3, multicast behavior, and end-to-end video latency not exceeding one frame.
- Verify each Government-furnished or existing display destination accepts the delivered decoder signal format and available control method; document any Government-approved exception.

- Verify all three PTZ cameras, including 20x optical zoom, manual control, not fewer than four named presets per camera, single-action touch-panel recall, and preset framing recall within two seconds.
- Verify both conferencing chains operate independently with their assigned GFE PCs/codecs and that no unintended audio, video, USB, capture, or control path exists between the chains.
- Verify all ten boundary microphones, DSP/AEC, USB/codec audio, loudspeaker output, automatic mixing, and intelligible full-duplex conferencing performance for both accepted chains.
- Verify both managed AV switches provide the accepted VLAN/multicast/QoS/timing/PoE functions and stable operation with the full connected PMO endpoint load.
- Verify both Status Displays support 4K presentation, continuous-operation mode, wired control, and Government-administered content/layout modification after turnover.
- Verify the World Clock presents at least six simultaneous labeled time zones, maintains the required synchronized accuracy, provides at least thirty selectable presets, supports custom location entry, automatic DST behavior, handheld-remote and touch-panel control, and configuration persistence.
- Verify the HDMI-to-USB capture interface operates as a standard UVC/UAC source on the assigned GFE PC without proprietary driver dependency and does not provide an unintended cross-chain path.

5.2 Acceptance Deficiencies

Any failed or noncompliant item shall be corrected, reconfigured, repaired, or replaced at no additional cost to the Government and retested. Final acceptance shall occur only after all critical deficiencies are closed and all required turnover documentation is delivered.

6.0 SUPPLY SUBMITTALS AND TECHNICAL DATA

- Equipment/compliance submittal identifying manufacturer, model, quantity, applicable TAA status/evidence, required manufacturer certifications, and compliance matrix for any proposed or-equal item.
- Pre-installation system design package, including final proposed rack elevation, equipment layout, signal-flow diagram, AV/network logical diagram, cable schedule, endpoint/source-destination allocation, device addressing/configuration plan, camera locations/presets, and GFE integration points.
- Functional verification plan covering AV-over-IP routing, both conferencing chains, cameras, audio, Status Display, World Clock, network switching, capture interface, cabling/labels, restart/recovery, and turnover.
- As-built drawings showing final equipment locations and cable routing.
- Final equipment inventory including manufacturer, model, serial number, and installed location.
- All native editable source programming/configuration files, compiled files, backups, credentials established for the system, software/version identification, and accepted configuration records.
- Final World Clock configuration record identifying the thirty or more preset time zones, displayed labels, custom-location entry method, configured time-zone/UTC-offset parameters, DST rule configuration, and touch-panel administration method.
- Test/commissioning results, deficiency/retest record, warranty documentation, quick-reference guide, and product familiarization materials.
- Government-approved PMO source/destination schedule identifying all eighteen encoder source assignments and all eight decoder destination assignments, including destination ownership/type/location and plain-language control labels.
- Final managed-switch port/VLAN/multicast/QoS/timing/PoE assignment record for both furnished AV network switches.
- Final conferencing-chain interface diagram identifying GFE PC/codec assignments, camera/audio/capture paths, control paths, and the separation boundary between the two chains.
- World Clock configuration record identifying the minimum thirty preset time zones, at least six simultaneous displayed-zone configuration, location labels, custom-entry method, applicable UTC-offset/time-zone settings, and DST-rule configuration.

7.0 PRODUCT FAMILIARIZATION AND TURNOVER

- As an incidental part of system turnover, provide one on-site end-user product familiarization session covering normal source/destination selection, conferencing workflow, camera preset/control, audio controls, Status Display operation, World Clock remote/touch-panel operation, time-zone preset selection, custom World Clock location creation/modification, system startup/shutdown, and basic troubleshooting.
- As an incidental part of system turnover, provide one on-site administrator familiarization session covering configuration backups, restore procedures, AV-over-IP endpoint awareness, switch/DSP/control configuration awareness, World Clock preset/DST administration, Government-accessible credentials, and warranty/service procedures.
- Provide electronic quick-reference and product familiarization materials in PDF format.
- Demonstrate Government access to all delivered source/configuration/backup files and identify the software versions used to create them.

8.0 DELIVERY, INCIDENTAL INSTALLATION, AND ACCESS

Delivery and incidental installation shall be coordinated with the Government POC. The Contractor shall provide at least five business days advance notice for major deliveries unless otherwise approved.

- Delivery location: USFK Headquarters, Camp Humphreys, Republic of Korea; exact PMO Conference Room access/staging information will be provided by the Government POC.
- Normal delivery and incidental installation windows shall be coordinated to avoid disruption to PMO Conference Room mission operations and may be adjusted by the Government.
- All personnel and vehicles shall comply with installation access, security screening, escort, and safety requirements.
- The Contractor shall remove packaging, debris, and installation waste and leave affected areas clean and serviceable.

9.0 WARRANTY

The Contractor shall provide a two-year warranty, at no additional cost to the Government, covering defects in contractor-provided supplies, workmanship associated with incidental installation, programming, and configuration. Manufacturer warranties shall remain in effect according to their separate terms and shall not reduce the Contractor warranty obligation. The Contractor warranty shall not reduce or replace any longer manufacturer warranty. Where an applicable manufacturer warranty exceeds two years, the Government shall retain the full benefit of that manufacturer warranty.

- Contractor response to Government warranty notification: within 1 business day.
- Critical deficiencies affecting PMO Conference Room operation shall be corrected within 5 business days or according to an alternate schedule approved by the Government.
- Warranty corrective action shall include troubleshooting of integrated system interactions when required to restore the furnished system to the accepted operating condition.
- All corrected programming/configuration changes shall be reflected in updated Government turnover files.

10.0 SECURITY, NETWORK, AND CONFIGURATION CONTROL

- Contractor personnel shall comply with USFK installation security and access requirements.
- No wireless functionality shall be enabled where prohibited by Government configuration. Government-version furnished devices shall retain the security-related feature limitations specified in the applicable salient characteristics.
- Contractor-owned laptops, test devices, removable media, or cloud services shall not be connected to or used with Government networks/systems unless specifically authorized.
- Network configuration changes affecting Government-managed infrastructure shall be performed only by authorized Government network personnel or under explicit Government direction.

- Default credentials shall be changed where applicable; final Government-owned credentials/configuration records shall be turned over securely to the designated Government representative.
- Remote manufacturer or Contractor support associated with furnished equipment shall use only a Government-approved connection method, during a pre-coordinated session, and while attended by Government personnel. Persistent, unattended, or vendor-initiated remote access is prohibited.

11.0 DELIVERY AND COMPLETION SCHEDULE

The Contractor shall complete all equipment procurement and delivery no later than 120 days after contract award. The Contractor shall complete installation, configuration, integration, functional verification, product familiarization, technical-data turnover, and all actions required for Government acceptance no later than 150 days after contract award. All work shall be performed in accordance with the delivery and completion requirements established by the Contracting Officer.

12.0 ORDER OF PRECEDENCE FOR TECHNICAL INTERPRETATION

For technical administration of this requirement, the following order shall apply unless the Contracting Officer directs otherwise in writing: (1) awarded contract terms and conditions; (2) this Purchase Description and incorporated changes; (3) the Statement of Work for execution-scope requirements; (4) approved Government drawings/submittals; (5) approved Contractor submittals; and (6) manufacturer installation/configuration instructions. In the event of a conflict involving equipment quantity, salient characteristics, minimum technical performance, product compliance documentation, or the required supply configuration, this Purchase Description shall govern. The Statement of Work shall govern the Contractor execution scope necessary to deliver the supplied end item in its accepted operational condition, except where inconsistent with this Purchase Description or the awarded contract. The equipment and quantities identified in Section 2.0 constitute the required quantity and configuration baseline for this acquisition.