

## **TERMS OF REFERENCE**

### **SUPPLY, DELIVERY AND INSTALLATION OF VIDEO AND AUDIO EQUIPMENT SYSTEMS FOR THE MARINA CENTRAL OFFICE**

#### **A. Background**

The Maritime Industry Authority (MARINA) is a government agency established pursuant to Presidential Decree No. 474 and attached to the Department of Transportation (DOTr). In compliance with the Republic Act No. 9184 known as the “Government Procurement Reform Act”, the MARINA will be conducting a public bidding for the Supply, Delivery and Installation of Video and Audio Equipment for the MARINA Central Office.

#### **B. Objective**

To procure a complete set of video and audio equipment systems for the board and conference rooms having the specifications stipulated of this TOR

#### **C. Approved Budget for the Contract**

The Approved Budget of the Contract (ABC) is Ten Million Five Hundred Thousand Pesos (Php10,500,000.00), inclusive of VAT and other applicable government taxes to be charged against the 2019 GAA.

#### **D. MARINA Requirements**

In addition to the provisions of RA 9184 and its IRR, the following are the MARINA requirements:

1. The bidders must be continuously operating in the Philippines for the past ten (10) years.
2. The bidders must have no pending case(s) against the government.

#### **E. Deliverables**

##### **a. Boardroom**

##### **1. 1 unit – Smart TV**

Specifications:

Screen Size	:	65” - 85”
Video	:	240Hz
Resolution	:	3,840x2,160
Dolby digital Plus	:	Yes
3D Sound	:	Yes
Woofers	:	Yes
Film Mode	:	Yes
Ethernet	:	Yes
Wireless LAN Built-in	:	Yes
USB	:	3
Audio Out	:	1
HDMI	:	4
Wall Mounting Bracket	:	Yes

2. **17 units – Table Top Monitor**  
11”- 13” Monitor  
with HDMI/VGA input
3. **1 unit – Laptop**  
with Windows OS  
with MS Office  
with anti-virus  
8 GB Memory  
1 TB HDD storage
4. **1 unit – 4K Presentation Matrix Switcher with Scaler**  
Specifications:  
All-in-one 8x2 4K matrix switcher, scaler, audio DSP with AEC, audio power amplifier  
Inputs: Six HDMI, two twisted pair inputs on RJ-45, six stereo balanced/unbalanced audio inputs on captive screw, four mic/line audio inputs on captive screw  
Outputs: Two twisted pair outputs on RJ-45; one S/PDIF digital audio output on coaxial RCA; two variable audio outputs on captive screw; speaker outputs on 5 mm  
Two twisted pair inputs and six HDMI inputs  
Two independently scaled twister pair outputs  
Two twisted pair outputs feature mirrored HDMI connections to support local monitoring
5. **2 units - Two Input Wall Plate for Transmitter for HDMI and VGA with Audio Embedding**  
Specifications:  
Transmits HDMI or analog video, control, and analog audio up to 230 feet (70 meters) over a shielded CATx cable  
One HDMI input and one VGA input  
Auto-switching between inputs  
Supports computer and video resolutions up to 1920x1200, including 1080p/60 and 2K  
Analog stereo audio embedding  
Compatible with CATx shielded twisted pair cable
6. **1 unit - HDMI Receiver**  
Specifications:  
Receives HDMI plus control and analog audio up to 230 feet (70 meters) over a shielded CATx cable  
Input: One twisted pair input on RJ-45  
Outputs: One HDMI, stereo audio on captive screw  
Supports computer and video resolutions up to 4K  
Compatible with CATx shielded twisted pair cable
7. **1 unit - Wireless Collaboration Gateway**  
Specifications:  
Operating systems - Windows® 7/8/10, macOS® (10.7-10.13)  
Video file formats - MP4, MPG, MPEG, AVI, MOV, MKV, WMV  
Audio file formats - MP3, WAV, WMA, AAC  
Image file formats - JPG, BMP, PNG, GIF  
Video codecs - MPEG-2, MPEG-4 (Microsoft® MPEG-4 v1-3 is not supported), Motion JPEG, WMV9 (only WMV3/WVC1 is supported)  
Audio codecs - LPCM, AAC, MP3, WMA  
Image codecs - JPG, BMP, PNG, GIF  
Network connectivity

- Standards - IEEE 802.3 (10BASE-T), IEEE 802.3u (100BASE-TX), IEEE 802.3ab (1000BASE-T)
- Protocol - TCP/IP, SNMP, SNTP/NTP
- IP Configuration - DHCP (default), static IP – configurable
- Management - Web based configuration, SNMP v3

Video output

- Connectors - 1 female HDMI type A
- 1 female 15-pin HD connector

Audio output

- Connectors - (1) embedded on HDMI
- (1) 3.5 mm, stereo mini jack: tip (L), ring (R), sleeve (Gnd)

**8. 1 unit - Document Camera**

Specifications:

Image Sensor - 1/3" CMOS color image sensor

Total Pixels - 5M

Output Resolution - Full HD1080p (1920 x 1080)

TV Lines - 1000 (max.)

Zoom - 240X total zoom (16X optical zoom + 15X digital zoom)

Frame Rate - 30fps (max.)

Focus - Auto / Manual

Shooting Area - Greater than A4 portrait (400 x 300 mm)

Image Rotation - Electronic rotation 0° / 90° / 180° / 270°

Camera Head Rotation - -125° ~ 90° vertical & ±90° horizontal

Recording - Yes (to SDHC card or USB flash drive)

Onboard Annotation - Yes (1024 x 768)

Internal Storage - 240 images (max.)

External Storage - SDHC (32GB max.) / USB flash drive (64GB max.)

Image Effects - Color / B&W / Negative / Mirror / Freeze

Image Adjustments (White balance / Exposure) - Auto / Manual

Presentation Tools - Yes (Spotlight & Visor functions)

Split Screen - Yes (vertical & horizontal)

Picture-in-Picture – Yes

Display Mode - Sharp / Graphics / Motion / Microscope / Macro / Infinite

Capture Mode - Single / Continuous

User Profiles - Up to 3

Timer – Yes

Flicker Filter Control - Yes (50/60Hz)

Light Source - 2 LED arm lamps

Light Box - Embedded (329 x 265 mm)

HDMI Output – Yes

RGB I/O - 2 in; 2 out (15-pins D-sub, pass through)

Composite Video Output - Yes (NTSC or PAL)

RS-232 Port – Yes

Mini USB 2.0 Port - Yes (PC camera / built-in image download)

USB 2.0 port - Yes (USB flash drive or mouse connection)

Audio Input - Built-in MIC; MIC in (3.5 mm jack, pink)

Audio Output - Audio Out (3.5 mm jack, green)

**9. 1 unit – Wireless Router**

Specifications:

Network Standards - IEEE 802.11a ; IEEE 802.11b ; IEEE 802.11g ; IEEE 802.11n ;  
IEEE 802.11ac  
Radio Frequency Bands - 2.4 & 5GHz  
Ports - Power, USB(1), Ethernet(1-4)  
LEDs - Power, Internet, Ethernet(1-4)  
Buttons - Reset, Power  
Operating Temperature - 32 to 104 F (0 to 40 C)  
Max. Link Rate - 867 Mbps

**10. 8 units – Ceiling Speaker**

Specifications:

Frequency Response (+/-3 dB) - 80 Hz - 17 kHz  
Frequency Range (-10 dB) - 70 Hz - 19 kHz  
Nominal Dispersion - 125° conical  
Long-Term Power Handling - 40 W (160 W peak)  
Sensitivity (SPL / 1 W @ 1 m) - 87 dB SPL  
Maximum SPL @ 1 m - 103 dB SPL (109 dB SPL peak)  
Nominal Impedance - 8  $\Omega$  (transformer bypassed)

**11. 1 unit – Power Amplifier**

Specifications:

100 watts rms output power per channel at 8 ohms, 4 ohms,  
or 70/100V  
Four channels in a 1U, half rack width enclosure - single and dual rack mount hardware  
included  
New Defeatable auto-standby with fast inaudible wake up  
Professional grade signal-to-noise and THD+N performance  
Ultra low inrush current at power up - no need for power sequencing  
High pass filter for high impedance model  
Automatic clip limiter  
Multiple protection circuits

**12. 1 unit – Digital Signal Processors**

Specifications:

Inputs: 12 balanced or unbalanced mic/line level on 3.5 mm, 3-pole and 6-pole captive  
screw connectors  
Outputs: Eight balanced or unbalanced line level on 3.5 mm, 6-pole captive screw  
connectors  
Automixer with eight groups  
32/64-bit floating point signal processing  
Studio grade 24-bit/48 kHz analog-to-digital and digital-to-analog converters  
32 DSP Configurator presets

**13. 1 unit – Wireless Control Unit**

Specifications:

Ensure high immunity from interference in the frequency range of 2.4 / 5.2 and 5.8 GHz  
High Definition audio mode provides an audio bandwidth of 24 KHz and a sampling rate  
of 48 KHz  
High Quality of service mode for a user-optimised transmitting and receiving  
performance in difficult environments in terms of radio transmission  
Audio Video Bridging input and output for digital signal transmission in building  
networks - compliant to the IEEE 801.1 standards

True diversity antenna technology ensures highest transmission and reception reliability  
 Digital 128-bit encryption and additional 24-bit PIN code protection  
 Automatic recognition of interferences in all frequency ranges  
 Silent change to an interference-free frequency range - automatic or manual according to the EN 300328 ETSI  
 The control unit can manage up to 150 microphone units  
 4 audio up-streams for up to 4 microphone signals  
 2 audio down-streams for loudspeaker transmission and headphone output  
 Number of open Microphones function allows the allocation of up to 4 microphone units simultaneously  
 Processor-controlled and automatic audio channel allocation of the microphone units  
 Different operating modes:

- Manual – each participant can turn the microphone on and off;
- Voice Activation – the microphone is turned on when someone speaks into it;
- Override – when a microphone unit is activated, the one that was activated before will be turned off;
- Push-To-Talk – as long as the participant speaks into the microphone, he/she must press the microphone button.

Zoning – the output channel allocation of individual mic units can be divided into 4 different audio zones analogue or digital via AVB  
 With the Mix-Minus function the system can be integrated into tele- and video conferences  
 NOM attenuation for the master output and individual audio zone outputs  
 Analogue audio input for external signals or digital via AVB  
 System control and configuration via RS 232, USB or Ethernet; connection to a media control system is possible  
 Integrated web server for platform independent system configuration via Smartphone, tablet PC or laptop/PC  
 Individual audio channels can be monitored via adjustable headphone connections with a jog/shuttle button on the front  
 OLED display for indication of the system state and operation of all parameters  
 Frequency range

- 2400 – 2483.5 MHz
- 5150 – 5250 MHz
- 5725 – 5875 MHz

Modulation - DSSS (Direct Sequence Spread Spectrum) and QPSK/BPSK (Quadrature/Binary Phase Shift Keying) digital signal processing acc. to own standard  
 Max. number of audio streams - 4 useable channels per system  
 Signal-to-noise ratio - 80 dB typ., (unweighted signal-to-noise ratio)  
 Range between microphone units and control unit - > 100 m [109.36 yds]  
 Transmission and reception of audio data - acc. to IEC 61883-6  
 Format of the audio data - AM824  
 Stream ID

- Bit 63 – 16 / MAC address
- Bit 15 – 0 / X

Frequency response - 70 Hz – 22 kHz (-3 dB)  
 Operation mode - Diversity (receiver), separate for each channel  
 Antenna connection - 2 N-connectors (female)  
 Transmitting power - max. 20 dBm per channel and region (average, duty cycle  $\leq$  30%)  
 Serial control port - RS 232, USB

Ethernet port - LAN, TCP/IP standard  
Master output balanced - 1 x XLR, 1 x 3-pin Phoenix terminal strip, max. +6 dBu, level adjustable via software (range  $\pm 15$  dB)  
Master output unbalanced - RCA, max. +2.2 dBu, level adjustable via software (range  $\pm 15$  dB)  
Audio outputs, single channels. - 4 x 3-pin Phoenix terminal strip, max. +6 dBu, level adjustable via software (range 0 ... -50 dB)  
Input balanced - 1 x 3-pin Phoenix terminal strip, max. +6 dBu, input adjustable via software (range 0 ... -50 dB)

#### **14. 1 unit – Wireless Chairman Microphone Unit**

Specifications:

Transmitter power - max. 20 dBm per channel and region (average, duty cycle  $\leq 30\%$ )\*

Battery voltage - 8 NiMH cells, 2080 mAh

External DC operation - 15 V DC ( $\pm 0.5$  V), residual hum  $< 20$  mV, 950 mA

Charging time - max. 20 dBm per channel and region (average, duty cycle  $\leq 30\%$ )\*

- with charger - max. 2.5 hours when the battery is completely empty

- with mains charger adapter - max. 2.5 hours when the battery is completely empty

Loudspeaker - Wide-band, integrated loudspeaker

Volume decrease when Mic On (“Ducking”) - 15 dB fixed setting

Headphone output - Jack socket (3.5 mm, stereo)

Min. impedance - 16  $\Omega$

Power supply - 9.6 V with integrated NiMH battery (8 cells)

Microphone - Microphone Array

Transducer type - Electret condenser

Operating principle - Pressure gradient

Polar pattern – Corridor

- Horizontal – Cardioid

- Vertical – Lobar

Optimal distance to the speaker - 40 - 80 cm [15.75" - 31.5"]

Frequency response - 110 - 20,000 Hz

Sensitivity - 28.5 mV/Pa = -30.9dBV  $\pm 2$ dB

Nominal impedance -  $< 200 \Omega$

Load impedance -  $\geq 1 \text{ k}\Omega$

Signal-to-noise ratio / noise voltage - 67.2 dB [A] / 12.5  $\mu$ V [A]

Max. SPL - 107 dB [SPL @ 1% THD]

Equivalent SPL - 26.8 dB [A]

Connector - bal. with 5-pin male XLR Connector

Length (mm) [inch] - 300 [11.81"]

Capsule $\varnothing$  (mm) [inch] - 25 [0.98"]

Weight (g) [pounds] - 186 [0.41 lbs]

#### **15. 16 units – Wireless Delegate Microphone Unit**

Specifications:

Transmitter power - max. 20 dBm per channel and region (average, duty cycle  $\leq 30\%$ )\*

Battery voltage - 8 NiMH cells, 2080 mAh

External DC operation - 15 V DC ( $\pm 0.5$  V), residual hum  $< 20$  mV, 950 mA

Charging time - max. 20 dBm per channel and region (average, duty cycle  $\leq 30\%$ )\*

- with charger - max. 2.5 hours when the battery is completely empty

- with mains charger adapter - max. 2.5 hours when the battery is completely empty

Loudspeaker - Wide-band, integrated loudspeaker

Volume decrease when Mic On (“Ducking”) - 15 dB fixed setting  
 Headphone output - Jack socket (3.5 mm, stereo)  
 Min. impedance - 16  $\Omega$   
 Power supply - 9.6 V with integrated NiMH battery (8 cells)  
 Microphone - Microphone Array  
 Transducer type - Electret condenser  
 Operating principle - Pressure gradient  
 Polar pattern – Corridor  
 - Horizontal – Cardioid  
 - Vertical – Lobar  
 Optimal distance to the speaker - 40 - 80 cm [15.75" - 31.5"]  
 Frequency response - 110 - 20.000 Hz  
 Sensitivity - 28.5 mV/Pa = -30.9dBV  $\pm$ 2dB  
 Nominal impedance - < 200  $\Omega$   
 Load impedance -  $\geq$  1 k $\Omega$   
 Signal-to-noise ratio / noise voltage - 67.2 dB [A] / 12.5  $\mu$ V [A]  
 Max. SPL - 107 dB [SPL @ 1% THD]  
 Equivalent SPL - 26.8 dB [A]  
 Connector - bal. with 5-pin male XLR Connector  
 Length (mm) [inch] - 300 [11.81"]  
 Capsule $\varnothing$  (mm) [inch] - 25 [0.98"]  
 Weight (g) [pounds] - 186 [0.41 lbs]

**16. 2 units – Charging & Transport case (10 microphone units / case)**

Specifications:

Power supply - 100 - 240 V AC  $\sim$ , 50 / 60 Hz  
 Fuse at the mains socket - 2 x 6.3 A (slow blow)  
 Power consumption - max. 180 W  
 Storage temperature - -20° - +55 °C  
 Charging unit - 10 microphone units parallel  
 Charging time - max. 3.5 hours when the battery is completely empty

**17. 2 units - Planar antenna**

Specifications:

Frequency (MHz)  
 - Band 1: 2400 – 2500  
 - Band 2: 5150 – 5875  
 VSWR – 2  
 Gain (dBi) – 9  
 3 dB beamwidth (h) (°)  
 - Band 1: 75  
 - Band 2: 55  
 3 dB beamwidth (v) (°) – 55  
 Front to back ratio (dB) – 15  
 Vertical electrical tilt (°) – 0  
 Isolation between ports (dB) – 25

**18. 2 units - Antenna stand mounting kit 3/8"**

**19. 2 units - Antenna cable**

Cable with very low attenuation, N(HF) plugs, length 20m (66 ft.)

**20. 1 unit - Control System Processor**

Specifications:

Supports secure industry standard communications protocols

Six bidirectional RS-232 serial ports with software handshaking  
Two bidirectional RS-232/RS-422/RS-485 serial ports with hardware and software handshaking  
Eight IR/Serial ports for one-way control of external devices  
Four Flex I/O ports  
Eight relays for controlling room functions  
½ Rack size

**21. 1 unit - 10" Tabletop Touchpanel**

Specifications:

10" capacitive touchscreen with 1280x800 resolution and 24-bit color depth  
Gorilla Glass® screen is tough, scratch, and smudge-resistant  
Faster, quad-core processing and eight times more memory  
Built-in speaker  
Light sensor adjusts screen brightness as the ambient room lighting changes  
System connection status indicator provides visual feedback if the touchpanel is not communicating with a control processor

**22. 1 unit - Power and Device Control Processor**

Specifications:

One male AC input and one female AC output - both using IEC connections  
One bidirectional RS-232 serial port with software handshaking  
One IR/Serial port for one-way control of external devices  
One IR/Serial port for one-way control of external devices

**23. 2 units – IR Probe**

**24. 1 unit - Network Switch - 8ports (4ports with PoE)**

**25. 2 units - Screen and Lift Controller**

**26. 1 unit - Equipment Rack - 5ft with casters, door, lock and power strip**

**27. 1 lot - Supply of labor and materials of 4kg. X 9mm thk.x 4' x 8' Polyester Fiber sound Proofing Panel**

Specifications:

All Four Side Wall Area: 80 sqm.  
4kg. X 9mm thk. X 4' x 8' Polyester Fiber Panel (Color must be base on approve sample)  
Olfa Blade (1 Box = 50 pcs.)  
V-Cut Katam (45 degree)  
Super U-Tac Adhesive cement contact  
Paint Roller  
Paint Tray

**28. 1 lot - Supply of labor and materials of 15mm thk.x 128mm x 2400mm Slotted Wooden Groove Panel.**

Specifications:

2 Side Wall Area: 42 sqm  
15mm thk. X 128mm x 2400mm Slotted Wooden Groove Panels (Fire Retardant)  
50kg. x 2' x 4' Rockwool Board  
Concrete Nail  
2" x 2" x 8' Kindry Wood

**29. 1 lot - General Services**

HDMI Patch Cables  
VGA Patch Cables & Connectors  
CAT6 UTP Cables & Connectors  
Speaker Wires  
EMT Conduits



Installation & Termination  
One Time System Programming / Configuration  
Testing & Commissioning  
Training & Handover

**b. 5 Conference Rooms**

**1. 5 units – 65” Interactive Flat Panel**

Specifications:

65” interactive flat panel display

Up to 20 single-point users or 10 dual-touch and gestures users with Touch 360° interactivity, driving collaborative learning to a new level (\* Multi-touch available on Windows systems. Mac and Linux are single touch.)

Built-in Android OS for touch control plus Whiteboard app.

4K video resolution (3,840 x 2,160)

LED backlighting for energy efficiency

Effective Screen Size - 1,428 mm x 803 mm

Active Screen Size (Diagonal) - 65 in.

Display Format Native Resolution - 3,840 x 2,160

Aspect Ratio - 16:9

Picture Response Time (Gray to Gray) - 8 ms

Refresh Frequency - 60 Hz

Pixel Pitch - 0.496 mm x 0.372 mm

Pixel Density - 68.3 DPI (dots per inch)

Panel Resolution - 3,840 x 2,160

Display Colors - 1.07 B (10-bit)

Brightness (typical) - 350 nits

Contrast Ratio - 1,200:1

Viewing Angle - Hor. 178°, Ver. 178°

Backlight Life (estimated) - 50,000 hours

Tracking Technology - Touch 360° Infrared

Touch Points Operating Systems

- 20-touch: Windows 7+

- Single touch: Mac OS 10.8+, Linux, Chrome

Touch Tool - Stylus, finger (even if gloved), or solid object

Tracking Accuracy - +/-2mm (0 in.)

Tracking Read Speed - >125 frames/s

Tracking Response Time - 12 ms (typical)

Tracking Points - 32,767 x 32,767

Anti-Glare Glass – Yes

Protective Glass - 4 mm tempered glass Level 7 Mohs

Input/Output

- Input: - VGA x1, - HDMI-4K V1.4 x 2, - HDMI-4K V2.0 x 1, - PC audio x 1, - DisplayPort x 1

- Output: - HDMI x 1, - Earphone out x 1, - Digital audio output coax x 1

- USB: - USB 2.0 x 4 (2 in front, 1 on side, 1 on the bottom), - USB 3.0 x 2 (1 in front, 1 on side) / - USB 2.0 Type-B for touch control (on side), - RS-232 x 1, - LAN RJ-45 x 1

## Audio

- Output: 12 W x 2
- Sound: System Stereo
- Equalizer: Yes
- Sound Status Memory: Yes
- Balance: Yes

Storage Temperature - -20° to 60° C (-4° to 122° F)

Storage Humidity - 10% to 90%

Operating Temperature - 0° to 40° C (32° to 104° F)

Operating Humidity - 10% to 90%

Power Requirement - 100–240 VAC 60/50 Hz

Power Consumption (Operating) - 265 W

Power Consumption (Sleep Mode) - <0.5 W

Internal Windows 10 PC - Core i7 with 8GB DDR3, 128GB SSD, Supports 4K / 2K at 30 Hz, Windows 10 preinstalled

## Software

Teaching software Supports Windows and Mac operating systems at least Can check the software version update via the software system And have the least qualifications as follows

- Presentation of lessons in slide and animation format• Design and create instructional media Lesson content and quizzes
- There are tools and functions used in interactive systems such as pens or brushes, highlight pens, pen color selection from color combinations and color suction, use of eraser, picture insertion, zoom-in, floor change after Creating geometry shapes using Screen Capture / Clipping Entering various file formats, etc.
- can open .doc, .docx, .ppt, .pptx, .pdf, .iwb, flipchart, .notebook files at least
- Can record video (Screen Recorder), teaching and learning with sound on the screen. And can also record video images on general windows by saving the file as avi.
- can convert handwritten letters To be a Text Recognition
- Functions to create interactive teaching media activities in an interactive format
  - There are topics of basic knowledge about mathematics, science, geography, music or art. To choose at least
  - can choose according to the grade level and the activity pattern, such as grouping at least
  - matching groups) can choose to change the answer options
  - can choose to answer the results of the answer Can be automated
- can download additional teaching materials That is designed to be enabled with the software, especially on the website from the user group By choosing to use And adjust to be used in teaching and learning within the classroom
- can open multiple files or lessons at the same time Separate independent operation window like Power Point program for the purpose of use.
- There is software to connect with other wireless devices such as iPad, Tablet, Smart phone, Notebook via Mobile App and Web browser for at least 3 devices on the same Wi-Fi network. For Mobile App can be downloaded directly. And at no cost via the App Store and Play Store at least
- Instructors can control, operate and use the software in basic commands on

wireless devices via Mobile App or Web Browser on the same Wi-Fi network

**2. 5 units – Wall Mounting Bracket**

**3. 5 units – Ultra HD 4K Camera Soundbar**

Specifications:

Camera:

- Sensor - 1/2.5" 4K CMOS sensor
- Frame rate - 4K 30fps; 1080p, 720p, 960x540, 848x480, 640x480, 640x360, 424x240, 320x240, 320x180 at 60, 30, 15 fps
- Lens iris, focus, zoom – Fixed
- AE, white balance - auto, manual override
- Lens focal length - 3.37 mm +/- 5%
- Lens F# - 2.8
- Field of view - diagonal 94°, horizontal 85°, vertical 55°
- S/N ratio - > 50dB
- Minimal illumination - 1.4 lx (50 IRE, F2.8, shutter 1/30)
- 2D noise reduction
- Back light compensation
- Minimum working distance - 80cm
- Motor pan and tilt, total horizontal viewing area 165°; vertical viewing area 85°
- Digital zoom rate - up to 4X leveraging 4K sensor

Audio:

- 2 uni-direction microphones w/ 4 m recommended (6 m max) pickup range
- 5W stereo full range speakers with professional bass port tuned for communication
- Volume up to 96dB SPL at 1/2 meter
- Echo cancellation
- Noise suppression
- 3.5mm Line-in (aux) cable connects to BYOD smartphones or PC as speakerphone

HDMI:

- DisplayLink USB 3.0 to HDMI adapter built-in
- 1080p HDMI output to TV\*\* (\*\* Some limitation applied by Mac OSX and Windows inbox driver) (\*\* DisplayLink doesn't support Chromebox)

Remote Control:

- 10 Camera presets (3 presets via remote control)

Hardware Requirements:

- 2.4GHz Intel Core 2 Duo processor
- 2GB RAM or more

Power Supply:

- AC 100V ~ 240V
- Consumption: DC12V/5A

Free Applications for Meeting Collaboration (Free Apps support on Windows and Mac Computers)

PTZ App:

- Compatible with Skype™ Plugin for answering and hanging up via remote control
- Upgrade firmware automatically or manually
- Control Camera

- Set parameters and adjust camera image
- Diagnose operating status
- View live video

Live:

- Real-time streaming / annotating / snapshots / video recording

Environmental Data:

- Physical characteristics: 0~40°C
- Operation humidity: 20%~80%
- Storage temperature: -20~60°C
- Storage humidity: 20%~80%

Video Format:

- YUV and MJPEG

Compatible Applications:

- Adobe Connect, Blue Jeans, CyberLink U Meeting®, Cisco WebEx®, fuze, Google Hangout, GoToMeeting™, Intel® Unite™, LiveOn, Microsoft® Lync™, Skype™, Skype for Business, TrueConf, V-Cube, Vidyo, vMix, WebRTC, Wirecast, XSplit, ZOOM

**4. 5 units – 1m HDMI Patch Cable**

**5. 10 units - 5m HDMI Cable**

**6. 5 sets - Twisted Pair Extender for USB Peripherals (Transmitter & Receiver)**

Specifications:

Extends USB peripherals up to 1,980 feet (600 meters) through a Gigabit Ethernet network

Extends USB peripherals up to 330 feet (100 meters) point-to-point over one CATx cable

Supports USB 2.0 through 1.0 devices with data rates of up to 480 Mbps. Compatible with USB 3.0 devices that can operate at USB 2.0 data rates

Peripheral emulation

**7. 1 lot - General Services**

CAT5 UTP Cable and Connectors

USB Patch Cables

Customized Patch Plate

EMT Conduits

Installation & Termination

Configuration

Testing & Commissioning

Training & Handover

**F. Delivery Schedule**

1. The video and audio equipment systems must be delivered and installation within forty-five (45) days upon receipt of the Notice to Proceed (NTP);
2. Deliveries should be made within office hours and on regular working days on or before the stipulated date in the contract unless otherwise specified for valid reason why the same cannot be complied with;
3. MARINA shall impose penalty of 1/10 of 1% if the total value of the undelivered order for each day of delay as liquidated damages after the specified allowable number of days to deliver the units

#### **G. Other Requirements**

1. The winning bidder warrants that it shall strictly conform to all the Terms and Conditions of this Terms of Reference.
2. One (1) year warranty on all components.
3. During the warranty period, the winning bidder shall provide technical personnel free of charge to service the system and all its components/peripherals whenever hardware and/or related problem should occur. Should there be a need to pull-out a unit for repair: a replacement unit with at least the same specifications must be provided by the supplier before actual pull-out of the malfunctioned unit
4. The bidder should submit certificate of distributorship of the proposed equipment

#### **H. Inspection and Acceptance**

1. After Sales Service and Support during the warranty period, all reported defects shall be completely / satisfactorily repaired / replaced by the winning bidder/supplier.
2. The MARINA shall have the right to reject and return the unit(s) and cancel the corresponding Contract if units delivered are defective, incomplete or noncompliant to the specifications herein specified.

#### **I. Terms of Payment**

The payment shall be done within thirty (30) working days upon submission of complete documents including, delivery, testing and upon issuance of Inspection and Acceptance Report by the authorized/designated representatives of MARINA.