

## TECHNICAL SPECIFICATIONS

### PROCUREMENT OF AUDIO VISUAL SYSTEM AND EQUIPMENT FOR THE OFFICIAL USE OF THE PHILIPPINE EMBASSY IN BERLIN

<b>I. BACKGROUND</b>		
The Philippine Embassy in Berlin, herein after the PROCURING ENTITY, intends to procure Audio and Video Equipment for the new Embassy building in Luisenstrasse 16. The Audio and Video requirement shall also include media control system/s and performance directory that will suit the Embassy's needs.		
<b>II. TECHNICAL SPECIFICATIONS AND SCOPE</b>		
NO.	SUPPLIER RESPONSIBILITY	STATEMENT OF COMPLIANCE
SERVICE DESCRIPTION		
1.	The SUPPLIER shall provide the PHILIPPINE EMBASSY IN BERLIN (hereinafter, PROCURING ENTITY) Audio and Video equipment including media control system and performance directory to be deliver and installed at the new Embassy building in Luisenstrasse 16, with the following specifications:	
	Areas covered:	
	1 UG-Basement	
	1.1 Audio	
	1.2 Video	
	1.3 Media control	
	2 Conference Room 1	
	2.1 Audio	
	2.2 Video	
	2.3 Media control	
	3 Conference Room 2	
	3.1 Audio	
	3.2 Video	
	3.3 Media Control	
EQUIPMENT AND SERVICE COMPONENT		
2.	The SUPPLIER shall provide the following to the PROCURING ENTITY:	
	<b>1 UG-Basement</b>	
	1.1 Audio:	
	1.1.1	
	<b>4 pcs. In-ceiling Premium Loudspeakers A</b>	
	PhaseGuide technology – provides unique asymmetrical vertical pattern for room-filling coverage when mounting near wall-ceiling boundary	

	<p>Provides improved room visual appearance – for demanding interior designs by eliminating center-of-ceiling or wall-mounted loudspeakers</p> <p>Nominal 90° horizontal coverage – designed for in-ceiling mounting near room corners</p> <p>High-frequency compression driver – for best-in-class audio quality with superior frequency response and coverage consistency versus typical dome tweeters</p> <p>8-inch woofer – with wall-boundary loading provides extended bass impact</p> <p>2-way passive crossover with 70/100V transformer</p> <p>New auto-hold, spring-loaded mounting arms – for fast, easy installs</p> <p>Magnetically attached grill – for quick access to wiring and tap settings</p> <p>UL1480A listing – for air-handling (plenum) space installation</p> <p><b>Technical Summary</b></p> <table border="0"> <tr> <td>Frequency Response (+/-3 dB)</td> <td>50 Hz - 18 kHz</td> </tr> <tr> <td>Frequency Range (-10 dB)</td> <td>45 Hz - 20 kHz</td> </tr> <tr> <td>Nominal Dispersion</td> <td>75° Vertical 90° Horizontal</td> </tr> <tr> <td>Long-Term Power Handling</td> <td>125 W (500 W peak)</td> </tr> <tr> <td>Sensitivity (SPL / 1 W @ 1 m)</td> <td>96 dB SPL</td> </tr> <tr> <td>Maximum SPL @ 1 m</td> <td>117 dB SPL (123 dB SPL peak)</td> </tr> <tr> <td>Transducers</td> <td>1 x 8-inch woofer 1 x compression driver</td> </tr> <tr> <td>Nominal Impedance</td> <td>8 Ω (transformer bypassed)</td> </tr> </table>	Frequency Response (+/-3 dB)	50 Hz - 18 kHz	Frequency Range (-10 dB)	45 Hz - 20 kHz	Nominal Dispersion	75° Vertical 90° Horizontal	Long-Term Power Handling	125 W (500 W peak)	Sensitivity (SPL / 1 W @ 1 m)	96 dB SPL	Maximum SPL @ 1 m	117 dB SPL (123 dB SPL peak)	Transducers	1 x 8-inch woofer 1 x compression driver	Nominal Impedance	8 Ω (transformer bypassed)	
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	<p>1.1.2</p> <p><b>2 pcs. In-ceiling Premium Loudspeakers B</b></p> <p>PhaseGuide technology – provides unique asymmetrical vertical pattern for room-filling coverage when mounting near wall-ceiling boundary</p> <p>Provides improved room visual appearance – for demanding interior designs by eliminating center-of-ceiling or wall-mounted loudspeakers</p> <p>Nominal 180° horizontal coverage – designed for in-ceiling mounting near room corners</p> <p>High-frequency compression driver – for best-in-class audio quality with superior frequency response and coverage consistency versus typical dome tweeters</p> <p>8-inch woofer – with wall-boundary loading provides extended bass impact</p> <p>2-way passive crossover with 70/100V transformer</p> <p>New auto-hold, spring-loaded mounting arms – for fast, easy installs Magnetically attached grill – for quick access to wiring and tap settings UL1480A listing – for air-handling (plenum) space installation</p> <p>8-inch woofer – with wall-boundary loading provides extended bass impact</p> <p>2-way passive crossover with 70/100V transformer</p> <p>New auto-hold, spring-loaded mounting arms – for fast, easy installs</p> <p>Magnetically attached grill – for quick access to wiring and tap settings</p> <p>UL1480A listing – for air-handling (plenum) space installation</p>																	

	<p><b>Technical Summary</b></p> <p>Frequency Response (+/-3 dB) 50 Hz - 18 kHz  Frequency Range (-10 dB) 45 Hz - 20 kHz  Nominal Dispersion 75° Vertical 180° Horizontal  Long-Term Power Handling 125 W (500 W peak)  Sensitivity (SPL / 1 W @ 1 m) 93 dB SPL  Maximum SPL @ 1 m 114 dB SPL (120 dB SPL peak)  Transducers 1 x 8-inch woofer  1 x compression driver  Nominal Impedance 8 Ω (transformer bypassed)</p>	
	<p>1.1.3</p> <p><b>3 pcs. 4 channel amplifier</b></p> <p>Features</p> <p>Up to 200 watts per channel into 4 and 8 ohms — the outputs of the SPA4-100 model are designed to provide up to 100 watts per channel into Low-Z loads.</p> <p>ENERGY STAR® qualified amplifier - The ENERGY STAR qualified SPA amplifiers employ an efficient class-D design to conserve energy and reduce operational cost.</p> <p>Bridgeable outputs for higher power — Bridgeable outputs for higher power - Bridging the outputs of the SPA4-100 will deliver up to 350 watts into 70V or 100V when bridged.</p> <p>Auto-Ramp provides quiet startup and power-down — The ENERGY STAR auto-ramp circuitry ensures quiet and fast power up from standby and seamless power-down following 25 minutes of inactivity, dramatically reducing power consumption.</p> <p>Rack-mountable 1U, half rack width enclosure — The SPA amplifiers can be mounted in 1 RU, 1/2 rack space, and their clever joining brackets enable easy under-table and wall-mounting</p>	
	<p>1.1.4</p> <p><b>400m Speaker Cable</b></p> <p>Conductor area 2,5 mm<sup>2</sup>  Composition of conductor 50 x 0,25 mm bare copper  Conductor isolation halogen-free, flame-retardant copolymer  Composition of cores 2 cores  Pair screen / screen no screen Overall jacket halogen-free, flame-retardant copolymer  Overall diameter 8,0 ± 0,3 mm  Weight 108 g / m  Working temperatur mobile (-20 °C) - (+70 °C)  fixed (-40 °C) - (+80 °C)  min. Bending radius mobile 10x overall diameter - ~ 83 mm  fixed 5x overall diameter - ~ 41 mm</p> <p>Electrical data</p> <p>Conductor resistance 8 Ω / km  Test voltage 3000V eff.</p>	
	<p>1.1.5</p> <p><b>1 pc. Unified Core</b></p>	

	<p>128x128 networked audio channels (Q-LAN / AES67), reduced to 64x64 when using Video Bridging capability on built-in USB-B port.</p> <p>Up to 24 configurable analog audio I/O</p> <p>8 mic/line level analog audio inputs</p> <p>8 line level analog audio outputs</p> <p>8 Flex Channel mic/line level analog audio inputs or outputs</p> <p>Up to 16 assignable and routeable AEC processor instances</p> <p>Dual Gigabit Ethernet ports with assignable application resources offering any combination of VoIP, Q-LAN Control, Q-LAN audio or network redundancy</p> <p>Up to 16x16 channels of digital audio in and out via software definable USB instances advertised to the host operating system</p> <p>16 General Purpose Inputs (GPI) x 16 General Purpose Outputs (GPO)</p> <p>Internal Universal Power Supply plus 12 Volt DC External Power Supply input for redundancy or non-mains power supply sources</p> <p>Single software platform for system configuration, control and monitoring via Q-SYS Designer software over Ethernet with support for static or Auto/DHCP TCP/IP addressing</p> <p>POTS telephone interface via a standard RJ-11 connector</p> <p>Supports up to 4 VoIP Softphone instances in addition to the onboard POTS telephone interface</p> <p>CE marked, UL listed, and RoHS compliant</p>	
	<p>1.1.6</p> <p><b>1 pc. Amprack 12 RU</b></p>	
	<p>1.1.7</p> <p><b>1 pc. 4.7" In-wall Touch Screen Dialer/Controller</b></p> <p>Features</p> <p>Capacitive LCD touch surface: In-plane switching (IPS) technology</p> <p>High resolution display: 960x540 pixels with 400 Nits (brightness)</p> <p>Power over ethernet: Allows for simplified single cable installation</p> <p>Universal mounting options: Included accessories for mounting to US standard and European wall and junction boxes</p> <p>Versatile: Ability to operate in portrait or landscape orientation</p> <p>Complete design freedom</p>	
	<p>1.1.8</p> <p><b>400m Network Cable Cat6a</b></p>	

	<p>Conductor Area 0,26 mm<sup>2</sup></p> <p>Composition of conductor 1 x 1,32mm bare copper</p> <p>Conductor Resistance 75 Ohm/km</p> <p>Capacity (Cond./Cond.) 45 pF/m</p> <p>Jacket FRNC compound</p> <p>Diameter 7.3 ± 0.2 mm</p> <p>Weight 22 g/m</p>	
	<p>1.1.9</p> <p><b>1 pc. Digital Rack Mixer</b></p> <p>Local Inputs and Outputs 18 total inputs  16 mic/line channel inputs  2 RCA inputs  6 ¼-inch TRS FlexMix outputs  2 XLR (L/R) Main outputs  Stereo headphone output</p> <p>Channels and Buses 16 input channels  1 stereo digital return (SD Card, AVB, or USB)  10 buses:  6 FlexMixes (can be designated as aux, subgroup, or matrix mixes)  2 internal effects sends  Stereo main bus  6 Filter DCAs for easily and flexibly controlling groups of channels</p> <p>Networking Connections 1 Ethernet control network port  Dynamic, Self-assigned, and Manual IP address modes</p> <p>1 Locking XLR Ethernet AVB audio network port</p> <p>Recording Onboard stereo SD recorder  18x18 USB recording interface  32x32 AVB recording interface</p> <p>Signal Processing Intuitive Fat Channel signal processing on every channel with:  A/B settings comparison  Highpass filter and polarity reverse  Gate/expander with sidechain  Compressor with sidechain  4-band parametric EQ on inputs  6-band parametric EQ on outputs  Limiter Delay on every input  Delay on every output  Professionally programmed library of presets</p> <p>Vintage EQ and compressor models available on every input  Passive EQ  Vintage EQ  Tube compressor</p>	

	<p>FET compressor 8 31-band graphic EQs 2 internal effects buses: combination of reverbs and delays with modern and vintage options</p> <p>Built-in real-time analyzer</p> <p>Scenes and Presets Create, save, and edit up to 100 scenes Scene management with: Scene Safe—prevents a scene change from affecting designated “safe” channels</p> <p>Create, save, and edit channel settings and copy/paste between channels</p> <p>Advanced channel preset options can save and recall:</p> <p>Channel type and name</p> <p>Input settings (preamp, +48V phantom power, polarity, pan)</p> <p>Fat Channel A &amp; B settings</p> <p>Bus assignments</p> <p>Aux and effects send levels and pan Select button color</p> <p>8 Quick Scenes</p> <p>8 Mute groups</p> <p>Digital Studio-quality converters with 115 dB dynamic range</p> <p>48 kHz operation with 24-bit resolution (44.1 kHz option coming soon)</p> <p>Actively Integrated Software</p>	
	<p>1.1.10</p> <p><b>1 pc. Wireless Router</b></p> <p>19" wireless router with 1 unit for installation in conventional racks</p> <p>Control of digital mixers of suitable apps that are installed on a tablet or desktop PC</p> <p>Wireless communication in the frequency bands 2,4 and / or 5 GHz</p> <p>Set-up with any browser</p> <p>Specific MAC and IP address on the back page</p> <p>True Diversity operation with up to two antennas per band</p> <p>Easy installation of up to four wireless antennas built- in device</p> <p>Lockable RJ45 connectors from Neutrik and conventional RJ45 sockets for connection to an Ethernet network</p> <p>No interference with 2.4 GHz wireless microphone routes in operation at 5 GHz</p> <p>Internal power supply</p> <p>Simple “plug and play” operation with the PC (Windows XP or later) or Mac ( Mac OS X 10.0)</p>	

	Robust metal housing for installation in rack	
	1.1.11 <b>1 pc. Amprack 4RU</b>	
	1.1.12 <b>1 pc. 4ch-Wireless Receiver</b>  Features  Four receivers in a rugged 1RU metal chassis with internal power supply  Individual gain controls, LED meters, and XLR outputs for each channel  Up to 64 MHz tuning range (region dependent)  Digital predictive switching diversity  High Density mode optimizes ULX-D systems to simultaneously operate significantly more channels in applications up to 30 meters  RF cascade ports allow distribution of RF signal to another unit  Optimized scanning automatically finds, prioritizes, and deploys the cleanest frequencies to transmitters over IR sync  Bodypack frequency diversity ensures uninterrupted audio for mission-critical applications  AES 256-bit encryption-enabled for secure transmission  Audio summing routes two or more audio channels to combinations of receiver outputs. Use each channel's gain adjustment to reach the desired mix.  Dante™ digital networked audio over Ethernet  Ethernet networking for streamlined frequency coordination and deployment across multiple receivers  Interference detection and alerts provided on both the receiver and WWB6  Up to 60 dB independently adjustable gain for each channel  Wireless Workbench® 6 (WWB6) software integration for advanced coordination, monitoring, and control  AMX/Crestron® control  Compatible with the AXT600 Axient® Spectrum Manager  Yamaha® device ID allows simplified channel patching on CL consoles  Intuitive front panel LCD menu and controls with lockout feature  Upgraded LCD with adjustable contrast and brightness  Audio and RF LED meters with peak indicator  Switchable mic/line output level	

	Remote able ½ wave antennas	
	<p>1.1.13</p> <p><b>4 2 pc. Wireless Bodypack Transmitter</b></p> <p>AES 256-bit encryption for applications requiring secure data transmission</p> <p>Proprietary Shure Gain Ranging optimizes the system's dynamic range for any input source, eliminating the need for transmitter gain adjustments</p> <p>Optional lithium-ion rechargeable battery provides over 11 hours of battery life, precision metering in hours and minutes, and zero memory effect</p> <p>External charging contacts for docked charging (with the SBC200 Dual Docking Charger)</p> <p>Backlit LCD with easy to navigate menu and controls</p> <p>Rugged metal construction</p> <p>Detachable ¼ wave antenna</p> <p>Frequency and power lockout</p>	
	<p>1.1.14</p> <p><b>4 2 pc. Dual Ear Headworn Mic</b></p> <p>Lightweight</p> <p>Dual Ear Headworn Vocal Mic for Presentation prepared for use with the Bodypack Transmitter</p>	
	<p>1.1.15</p> <p><b>4 2 pc. Handheld Wireless Microphone Transmitter</b></p> <p>AES 256-bit encryption for applications for which secure transmission is needed</p> <p>Proprietary Gain Ranging optimizes the system's dynamic range for any input source, eliminating the need for transmitter gain adjustments</p> <p>Optional lithium-ion rechargeable battery pack provides over 12 hours of battery life, precision metering in hours and minutes, and zero memory effect</p> <p>External charging contacts for docked charging</p> <p>Transmitter Mute Mode repurposes the On/Off switch into a mute switch, enabling audio muting while preserving RF channel presence</p> <p>Backlit LCD with easy to navigate menu and controls</p> <p>Rugged metal construction</p> <p>Frequency and power lockout</p> <p>Interchangeable KSM8 microphone cartridge</p>	



	<p>1.1.16</p> <p><b>4 pcs. Lithium-ion Rechargeable Battery Pack</b></p> <p>Full Charge: within three hours or 50% charge in one hour</p> <p>Battery Life Accuracy: within <math>\pm 15</math>min</p> <p>Battery Statistics: % Health, % Charge, Number of Cycles, Temperature</p> <p>Lithium-Ion chemistry with zero memory effect</p>	
	<p>1.1.17</p> <p><b>2 pcs. Dual-docking Battery Charger</b></p> <p>Charge up to two batteries, body packs or transmitters</p> <p>Connect up to four units</p> <p>LED icons for battery status</p> <p>Works with compatible hand held and bodypack units</p>	
	<p>1.1.18</p> <p><b>4 2 pc. Microphone Stand</b></p> <p>Boom arm one-piece design</p> <p>Boom arm clamping wing nut</p> <p>Boom arm length 805 mm</p> <p>Height from 900 to 1,600 mm</p> <p>Height adjustment clutch</p> <p>Leg construction socket with foldable legs</p> <p>Material steel</p> <p>Product Category Baseline</p> <p>Rod combination 2-piece folding design</p> <p>Special features zinc die-cast base</p> <p>Threaded connector Type 3/8" black</p> <p>Weight 2.5 kg</p>	
	<p>1.1.19</p> <p><b>1 pc. Network Switch</b></p> <p>qualified by the producer of the core</p>	
	<p>1.1.20</p> <p><b>1 pc. Hardware Package</b></p> <p>all costs for mounting material / consumables such as screws, dowels, etc</p>	
	<p>1.1.21</p> <p><b>14H Programming</b></p> <p>programming the audio-core</p>	

	1.1.22 <b>16H Installation and Commissioning</b>	
	1.2 Video	
	1.2.1 <b>1 pc. Projector</b>  Advanced 4K BlueCore Laser Technology High Brightness of 5000 ANSI Lumens Finely-Craft 4K Optical Lens 360° and Portrait Projection H/V Lens Shift and 1.5 Big Zoom	
	1.2.2 <b>1 pc. Hardware Package</b>  all costs for mounting material / consumables such as screws, dowels, etc.	
	1.2.3 <b>4H Installation and Commissioning</b>	
	1.3 Media Control	
	1.3.1 <b>2 pcs. Digital Media Transmitter</b>  DigitalMedia 8G+® transmitter and multimedia interface  Built-in 2x1 AV switcher with auto-switching and analog audio-breakaway  QuickSwitch HD™ technology achieves fast, reliable switching  Connects to a DM® switcher or receiver over a single CAT type twisted pair cable [1]  Supports cable lengths up to 330 ft (100 m) using DM 8G® cable or CAT5e [1]  HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment  Provides HDMI® and RGB/component video inputs [3]  Also supports DVI and Dual-Mode DisplayPort sources [2]  Handles video resolutions up to Full HD 1080p  Handles computer resolutions up to WUXGA  Handles Dolby Digital®, DTS®, and uncompressed 7.1 linear PCM audio  Includes an unbalanced stereo analog line-level audio input  Allows embedding of stereo 2-channel analog audio signals  Includes a local HDMI output  HDCP compliant  Detects and reports detailed video and audio input information  Performs automatic AV signal format management via EDID	

	<p>Provides a 10/100 Ethernet LAN connection</p> <p>Enables device control via CEC and Ethernet</p> <p>Enables USB HID signal extension for a local computer</p> <p>Compatible with USB over Ethernet Extenders</p> <p>Compatible with Cable Caddies</p> <p>Allows quick, easy setup and diagnostics</p> <p>Low-profile surface-mount design</p>	
	<p>1.3.2</p> <p><b>2 pcs. Digital Media Connection Box Floor Tank</b></p> <p>Compact interface unit for the connection of picture and sound signals in a standardized floor tank. The robust connectors are designed for daily use. Each connection panel has its own connection cable with a length of 75 cm.</p> <p>Technical version:  HDMI or DVI input (Connection plate included)  RGB-HV input  3.5mm jack stereo audio</p> <p>System outputs length: 70 cm cable per connection field</p> <p>Installation: Robust housing for floor tank (GB3) from Ackermann</p> <p>Installation depth 4 cm</p>	
	<p>1.3.3</p> <p><b>Digital Media Presentation System</b></p> <p>Provides a 4K multi-format presentation switcher with fully automatic operation and DigitalMedia™ or HDBaseT® connectivity. Works seamlessly out of the box with up to four Crestron Connect It™ Cable Caddies. Allows simplified configuration using built-in .AV Framework™ technology, or fully-programmable for completely custom applications.</p> <p><b>1 pc 4K DigitalMedia Presentation System</b></p> <p><del>Provides a refined cable management solution for Crestron FlipTops™</del></p> <p><del>Keeps interface cables at the ready</del></p> <p><del>Eliminates hanging cable loops beneath the table</del></p> <p><del>Easy to use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</del></p> <p><del>No levers or buttons to press</del></p> <p><del>Patented mechanism prevents whipping of the cable while retracting</del></p> <p><del>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</del></p>	

	Vertical and horizontal mounting options accommodate most tabletop applications	
1.3.4	<p><b>1 pc. DigitalMedia Receiver</b></p> <p>DigitalMedia 8G+® receiver and display controller</p> <p>Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable</p> <p>HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment</p> <p>Provides one HDMI® or DVI display output</p> <p>Handles video resolutions up to 4K and Ultra HD</p> <p>Handles 3D video and Deep Color</p> <p>Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio</p> <p>HDCP 2.2 compliant</p> <p>Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable</p> <p>Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e</p> <p>Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e</p> <p>Provides a 10/100 Ethernet LAN connection</p> <p>Enables device control via CEC, IR, RS-232, and Ethernet</p> <p>Compatible with Crestron® USB over Ethernet Extenders</p> <p>Allows quick, easy setup and diagnostics</p> <p>Low-profile surface mount design</p> <p>Powered via the DM connection or local power pack (included)</p>	
1.3.5	<p><b>1 pc. POE-Switch</b></p> <p>5-port unmanaged Ethernet switch</p> <p>All ports support 1000Base-T Gigabit Ethernet</p> <p>Provides PoE (802.3af) on 4 ports</p> <p>Auto-negotiating and auto MDI/MDIX</p> <p>Rugged metal enclosure</p> <p>Surface or rack-rail mountable</p>	
1.3.6		

	<p><b>1 pc. 7" Touch Screen</b></p> <p>Ultra clean, modern appearance  Thin profile and small footprint  Affordable and easy to install  7" widescreen active-matrix color display  1024 x 600 WSVGA display resolution  Capacitive touch screen technology  Multi-touch capable  Smart Graphics® performance  Backlit soft-touch capacitive buttons  Any/all button hide feature  Auto-brightness control  Voice recognition capability  H.264 or MJPEG streaming video display  Built-in 5 MP H.264 IP camera  Built-in microphone and speakers  Rava® SIP intercom and phone technology  Native Sonos® app  room scheduling  Built-in PinPoint™ beacon  Customizable audio feedback  Built-in web browsing  On-screen multi-language keyboard  Customizable screensaver  Single-wire Ethernet connectivity  PoE or PoE+ network powered (refer to specifications)  US, UK, or European electrical wall box mounting  Lectern mount over a rectangular cutout  Retrofit and masonry mounting options available  Multi-surface and ADA compliance mounting options available  Tabletop and swivel mount options available  3 RU rack mount option available  Available in smooth black or white finish</p>	
1.3.7	<p><b>1 pc. Pre-Construction Mounting Kit</b>  Pre-construction mounting solution for the Universal Mounting Bracket</p>	
1.3.8	<p><b>1 pc. Universal Mounting Bracket</b></p> <p>Easy in-wall mounting solution for 7" touch screen.</p>	
1.3.9	<p><b>1 pc. Hardware package</b></p> <p>all costs for mounting material / consumables such as screws, dowels, etc.</p>	
1.3.10	<p><b>12H programming</b></p> <p>programming the <del>audio-core-control</del> <b>system</b></p>	
1.3.11	<p><b>8H installation and commissioning</b></p>	
2	<p>Conference Room</p>	

	<p>2.1 Audio</p>	
	<p>2.1.1</p> <p><b>8 pcs. full-range surface-mount loudspeaker 100W</b></p> <p>Extended-range, high-performance loudspeaker with two (2) 2.25" (57 mm) Twiddler® drivers and a single 5.25" (133 mm) woofer in a ported enclosure designed for surface-mounted foreground and background music and paging applications</p> <p>Proprietary Articulated Array® speaker configuration provides 180° H x 75° V coverage out of the box when the loudspeaker is mounted horizontally. Array can be rotated for horizontal or vertical use</p> <p>Simple 1-&gt;2-&gt;3 installation system. Mounting hardware allows for horizontal and vertical orientation with adjustable pitch or yaw</p> <p>Integrated multi-tap transformer with innovative thumb wheel adjustment for easy-to-change tap settings from under front end cap</p> <p>Shared voicing across entire product family enables to be integrated on the same system and maintain consistent tonal quality</p> <p>Supported by a suite of accessories, including wall-mount bracket, ceiling-mount bracket, pole-mount bracket and junction boxes</p>	
	<p>2.1.2</p> <p><b>200m Speaker Cable</b></p> <p>Mechanical data</p> <p>Conductor area 2,5 mm<sup>2</sup>  Composition of conductor 50 x 0,25 mm bare copper  Conductor isolation halogen-free, flame-retardant copolymer  Composition of cores 2 cores  Pair screen / screen no screen  Overall jacket halogen-free, flame-retardant copolymer  Overall diameter 8,0 ± 0,3 mm  Weight 108 g / m  Working temperatur mobile (-20 °C) - (+70 °C)  fixed (-40 °C) - (+80 °C)  min. Bending radius mobile 10x overall diameter = ~ 83 mm  fixed 5x overall diameter = ~ 41 mm</p> <p>Electrical data</p> <p>Conductor resistance 8 Ω / km  Test voltage 3000V eff.</p>	
	<p>2.1.3</p> <p><b>2 pcs. Four Channel Amplifier</b></p> <p>Features</p> <p>Up to 200 watts per channel into 4 and 8 ohms — the outputs of the SPA4-100 model are designed to provide up to 100 watts per channel into Low-Z loads.</p> <p>ENERGY STAR® qualified amplifier - The ENERGY STAR qualified SPA amplifiers employ an efficient class-D design to conserve energy and reduce operational cost.</p> <p>Bridgeable outputs for higher power — Bridgeable outputs for higher power - Bridging the outputs of the SPA4-100 will deliver up to 350 watts into 70V or 100V when bridged.</p>	

	<p>Auto-Ramp provides quiet startup and power-down — The ENERGY STAR auto-ramp circuitry ensures quiet and fast power up from standby and seamless power-down following 25 minutes of inactivity, dramatically reducing power consumption.</p> <p>Rack-mountable 1U, half rack width enclosure — The SPA amplifiers can be mounted in 1 RU, 1/2 rack space, and their clever joining brackets enable easy under-table and wall-mounting</p>	
	<p>2.1.4</p> <p><b>1 pc. Unified Core</b></p> <p>128x128 networked audio channels (Q-LAN / AES67), reduced to 64x64 when using Video Bridging capability on built-in USB-B port.</p> <p>Up to 24 configurable analog audio I/O</p> <p>8 mic/line level analog audio inputs</p> <p>8 line level analog audio outputs</p> <p>8 Flex Channel mic/line level analog audio inputs or outputs</p> <p>Up to 16 assignable and routeable AEC processor instances</p> <p>Dual Gigabit Ethernet ports with assignable application resources offering any combination of VoIP, Q-LAN Control, Q-LAN audio or network redundancy</p> <p>Up to 16x16 channels of digital audio in and out via software definable USB instances advertised to the host operating system</p> <p>16 General Purpose Inputs (GPI) x 16 General Purpose Outputs (GPO)</p> <p>Internal Universal Power Supply plus 12 Volt DC External Power Supply input for redundancy or non-mains power supply sources</p> <p>Single software platform for system configuration, control and monitoring via Q-SYS Designer software over Ethernet with support for static or Auto/DHCP TCP/IP addressing</p> <p>POTS telephone interface via a standard RJ-11 connector</p> <p>Supports up to 4 VoIP Softphone instances in addition to the onboard POTS telephone interface</p> <p>CE marked, UL listed, and RoHS compliant</p>	
	<p>2.1.5</p> <p><b>1 pc. Network Switch</b></p> <p>qualified by the producer of the core</p>	
	<p>2.1.6</p> <p><b>250 m Network Cable Cat6a</b></p> <p>Conductor Area 0,26 mm<sup>2</sup></p> <p>Composition of conductor 1 x 1,32mm bare copper</p> <p>Conductor Resistance 75 Ohm/km</p> <p>Capacity (Cond./Cond.) 45 pF/m</p> <p>Jacket FRNC compound</p>	

	<p>Diameter 7.3 ± 0.2 mm Weight 22 g/m</p>	
	<p>2.1.7</p> <p><b>1 pc. Networked Array Microfone</b></p> <p>Features</p> <p>Audio Capture / DSP Up to eight discrete steerable lobes for precise positioning to participant(s)</p> <p>DSP Utilities: Steerable Coverage™ Technology Automatic Mixing Echo Reduction 4 Band C/S PEQ per channel</p> <p>Software Control Simple, smart browser-based interface including templates and varying polar patterns for all device parameters 10 Presets</p> <p>Connectivity Dante™ Audio Networking, standard PoE (class 0) and Control carried on single Ethernet cable Control strings for third-party preset controllers including Crestron and AMX</p> <p>Hardware / Installation Configurable multi-color LED bar Color options of red, orange, yellow, green, blue, purple, white, pink Brightness controls (default, dim, disabled) External control through browser-based software Device Reboot/Factory Reset Options Two stage hardware reset: 4 second press resets Network Settings, 8 second press resets to factory default restoring all settings including device name and network details Flush mounted into standard ceiling tiles. VESA mount compatible and hanging mounts available through a variety of third-party suppliers. Available in white, black, and aluminum finishes (detachable grille can also be custom painted)</p>	
	<p>2.1.8</p> <p><b>1 pc 4 Channel Access Point Transceiver</b></p> <p>Easy installation: Includes wall / ceiling mounting plate and connects to the system over single Ethernet cable (PoE compatible)</p> <p>Plenum rated: Meets rigorous fire safety test standards for installation above drop ceiling tiles</p> <p>Scalable configurations: Multiple units can be combined support configurations of up to 40 compatible channels (80 in Europe and select countries).</p> <p>Bi-directional wireless: Provides return channel audio to wireless transmitters and enables real-time remote control of all wireless microphone settings</p> <p>Automated frequency coordination: Automatically scans available spectrum, coordinates clean frequency assignments, and moves channels away from unexpected interference</p> <p>Dante digital networked audio: Transports low-latency digital audio received from wireless microphones over Cat5e cable to any other Dante equipped device</p>	



	<p>Encrypted wireless: AES-256-bit encryption for secure transmission</p> <p>Selectable output power: Optimize spectrum usage by selecting the appropriate wireless output power for the desired operating range</p> <p>Diagnostic LEDs: LEDs offer easy visual reference to system activity and indicate power, wireless connection, and network audio status</p>	
	<p>2.1.9</p> <p><b>1 pc. Hybrid Bodypack Transmitter</b></p> <p>Compact, low-profile design: Fits comfortably into a shirt pocket or attached to clothing</p> <p>Integrated omnidirectional mic: Clearly captures full range audio without connecting an external microphone</p> <p>External microphone input: For connecting multiple styles of earworn or lavalier condenser microphones</p> <p>Bi-directional wireless: Enables return channel audio and real-time remote control of all wireless microphone settings</p> <p>Earphone output: Listen to audio from a return channel for translation, cueing, or program material</p> <p>Programmable mute button: Customize local or remote muting behavior per application, with options including push-to-talk, push-to-mute, and external control</p> <p>Standby mode: Enabled remotely during breaks or periods of inactivity to significantly extend battery life when not in use</p> <p>Wide working range: Reliable wireless coverage extends up to 160 feet (50 meters)</p> <p>Out-of-range alert: Emits beeping sound when range is exceeded</p> <p>Wide frequency response: Captures full range audio for clear voice transmission</p> <p>Easy transmitter linking: Assign the microphone to an access point channel by simply docking it into a networked charging station and pressing "Link"</p> <p>Encrypted wireless: AES-256-bit encryption for secure transmission</p> <p>Advanced Li-ion batteries: Smart lithium-ion internal batteries provide up to 9 hours of continuous use, charge fully in 2 hours, and allow remote monitoring over the network of remaining runtime and charge status in hours and minutes</p> <p>USB charging: Connects to any standard USB power source for "always-on" usage. Charge time using SBC USB adapter: &lt;3.5 hours while mic is in use</p>	
	<p>2.1.10</p> <p><b>1 pc. Dual Ear Headworn Mic</b></p> <p>Lightweight</p> <p>Dual Ear Headworn Vocal Mic for Presentation</p> <p>prepared for use with the Bodypack Transmitter</p>	
	<p>2.1.11</p>	

	<p><b>1 pc. Handheld Wireless Microphone Transmitter</b></p> <p>Dual transmit antennas: Maximizes transmission strength depending on hand placement</p> <p>Bi-directional wireless: Enables real-time remote control of all wireless microphone settings</p> <p>Programmable mute button: Allows customization of local or remote muting behavior per application, with options including push-to-talk, push-to-mute, and external control</p> <p>Standby mode: Enabled remotely during breaks or periods of inactivity to significantly extend battery life when not in use</p> <p>Wide working range: Reliable wireless coverage extends up to 160 feet (50 meters)</p> <p>Range warning alert: Emits beeping sound when range limit is exceeded</p> <p>Easy transmitter linking: Assign the microphone to an access point channel by simply docking it into a networked charging station and pressing "Link"</p> <p>Encrypted wireless: AES 256-bit encryption for secure transmission</p> <p>Advanced Li-ion batteries: Smart lithium-ion internal batteries provide up to 9 hours of continuous use, charge fully in 2 hours, and enable remote monitoring over the network of remaining runtime and charge status in hours and minutes</p> <p>USB charging: Connects to any standard USB power source for "always on" usage. Charge time using SBC-USB adapter: &lt;3.5 hours while mic is in use</p> <p>Anti-roll design: Features a flat resting point to prevent the microphone from accidentally rolling off a flat surface</p> <p>Interchangeable SM86 microphone cartridge</p>	
	<p>2.1.12</p> <p><b>1 pc. Networked Charging Station</b></p> <p><del>Charge status indicators: 5 segment LEDs on the unit display charge status individually for every docked microphone transmitter</del></p> <p><del>Remote charge status monitoring: Ethernet connection to the system enables remote monitoring of battery charge status in hours and minutes via Microflex Wireless Control Software or third party control systems</del></p> <p><del>Easy transmitter linking: Assign docked wireless microphones to channels on an access point transceiver by simply pressing "Link"</del></p> <p><del>Rapid charge times: Reaches 50% charge in one hour and fully charges transmitters in two hours</del></p> <p><del>Overcharge protection: Smart recharging circuitry safeguards against battery damage and extends life cycles</del></p>	
	<p>2.1.13</p> <p><b>1 pc. 4.7" In-wall Touch screen dialer/controller</b></p> <p>Features</p> <p>Capacitive LCD touch surface: In-plane switching (IPS) technology</p>	

	<p>High resolution display: 960x540 pixels with 400 Nits (brightness)</p> <p>Power over ethernet: Allows for simplified single cable installation</p> <p>Universal mounting options: Included accessories for mounting to US standard and European wall and junction boxes</p> <p>Versatile: Ability to operate in portrait or landscape orientation</p> <p>Complete design freedom 1 St</p>	
	<p>2.1.14</p> <p><b>1 pc. Hardware package</b> all costs for mounting material / consumables such as screws, dowels, etc.</p>	
	<p>2.1.15</p> <p><b>14h programming</b> programming the audio-core</p>	
	<p>2.1.16</p> <p><b>16H installation and commissioning</b></p>	
	<p>2.2 Video</p>	
	<p>2.2.1</p> <p><b>1 pc. Interactive Flat Panel 86"</b></p> <p>Panel Screen Size 86" Backlight / Lightsource DLED Resolution (Pixels) UHD 3840x 2160 pixels Brightness (Typical) 330 nits Contrast Ratio (Typical) 1,200:1 Viewing Angle (Horizontal/Vertical) 178°/178° Response Time (ms) 8ms Color Gamut (x% NTSC) 72% Panel Bit (8 or 10) 10 bit Light Life (Typical) 30,000 hours Display Orientation Landscape</p> <p>Glass Tempered Glass 4mm, Tempered Glass Anti-Glare (AG) Coating Yes Germ-Resistant Screen Yes</p> <p>Touch Touch Technology IR Touch Numbers of Touch Up to 20 Point Multi-touch Resolution (Points Area Function) 32,767*32,767 Touch Interface x2 (USB type B) OS Supported Windows XP/7/8/10/WinCE/Vista/Linux/Mac/Android/Chrome</p> <p>Audio Internal Speaker 16Wx2 Line Out (Audio Out, 3.5mm) x1 Line In (3.5mm) x1 MIC (3.5mm) N/A</p>	

<p>Coax Output x1</p> <p>AC Power Power (AC) Input x1 Power Switch x1</p> <p>Basic IO VGA Input x1 VGA Output N/A HDMI Input x3 (2.0x1, 1.4x2) HDMI Output x1 Display Port x1 Slot-in-PC x1 OPS Slot N/A</p> <p>Legacy IO Composite Video In x1 USB Player (Photo, Video) x6 (2.0x5, 3.0x1)</p> <p>Control RS232 Input x1 RJ45 Port x1 Firmware Update USB/OTA</p> <p>Power Voltage 100V-240V, 50/60Hz Typical (Watt) 371W</p> <p>Mechanical Weight (Without / With Packing) (kg) 81kg/108kg Dimension (WxHxD) (mm) 1,988x1230x129mm Wall Mounting (VESA) (mm) 4 holes (800x600mm) Screw M8x 25mm Handle x2 Pen Tray x1</p> <p>RF NFC Reader / Writer x1</p> <p>OSD On-Screen Display Languages English/ French/ Spanish/ Portuguese/ Simplified Chinese/ Traditional Chinese/ German/ Dutch/ Polish/ Russian/ Czech/ Danish/ Swedish/ Italian/ Romanian/ Finnish/ Norwegian/ Greek/ Turkish/ Arabic/ Japanese (21 Languages)</p> <p>Package / Accessory Remote Controller x1 HDMI Cable x 1 (1.5m) Power Cord (By Region) x4 (3m) Audio Cable x 1 (5m) VGA Cable x 1 (5m) Quick Start Guide x1 User's Manual Electronic File x1 USB Cable for Touch x 1 (5m) Touch Pen (Stylus) X2 (NFC) Software License Card x1</p> <p>Optional Wall Mount Yes QCast HDMI Streaming Dongle Yes USB Wi-Fi Dongle Yes</p>	
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	<p>Slot-in-PC Yes</p> <p>Trolley Yes</p>	
	<p>2.2.2</p> <p><b>1 pc. desktop visualizer</b></p> <p>Camera</p> <p>1-CMOS</p> <p>2D / 3D imaging 2D</p> <p>Horizontal resolution (lines) 980</p> <p>Frames per second 60</p> <p>Effective megapixels per second 124,4</p> <p>Native pixels of camera sensor 1920x1080</p> <p>vSolution Cynap compatible yes</p> <p>vSolution Connect compatible yes</p> <p>vSolution Control compatible yes</p> <p>vSolution Link compatible yes</p> <p>UVC Driver for Windows, Linux, and OS X (Mac) yes</p> <p>Firmware upgradable yes</p> <p>Easy positioning of objects with Synchronized Lightfield no</p> <p>Easy positioning of objects with Synchronized Lasermarkers no</p> <p>Easy positioning of objects with Center Lasermarker no</p> <p>Built-in LCD preview monitor yes</p> <p>Live to Freeze comparison (on two displays or picture in picture) yes</p> <p>Lens type (wide angle or tele-zoom) wide</p> <p>Optical zoom factor 16x</p> <p>Digital zoom factor 4x</p> <p>High Speed Autofocus + Manual focus yes</p> <p>Brightness control yes</p> <p>Shadow free illumination / Illumination of hollow objects no</p> <p>Camera rotation (audience / speaker) 180/110°</p> <p>User programmable presets 3</p> <p>Special working surface for transparencies Yes</p> <p>Dry-erase working surface optional</p> <p>Computer input / Input switch 2x</p> <p>HDMI</p> <p>Seamless switch with fading effects Yes</p> <p>WolfVision image processing engine YSOP1 Yes</p> <p>Image memory 8GB</p> <p>internal + USB stick</p> <p>Digital image output HDMI</p> <p>Analog image output VGA</p> <p>USB 2.0 Device port Yes</p> <p>USB 2.0 Host port Yes</p> <p>RS232 port via adaptor</p> <p>Ethernet (LAN) port Yes</p> <p>Unicast/Multicast streaming Yes</p> <p>WLAN (Dual band stick included for 2.4GHz and 5GHz) Yes</p> <p>Video recording, including audio Yes</p> <p>Built-in microphone Yes</p> <p>Audio Line in /Line out Yes</p> <p>Remote Control infrared</p> <p>Warranty (in years) 5</p> <p>Made in EU / Austria</p>	
	<p>2.2.3</p> <p><b>1 pc. Hardware package</b></p>	

	all costs for mounting material / consumables such as screws, dowels, etc.	
	2.2.3	
	<b>8H installation and commissioning</b>	
	<b>2.3 Media Control</b>	
	2.3.1	
	<p><b>1 pc. FlipTop Touch Screen</b></p> <p>Flush mount tabletop control and connectivity in one stylish FlipTop™ design</p> <p>Integrated 5" capacitive color touch screen with Smart Graphics™ support [4]</p> <p>High-performance H.264 streaming video over Ethernet</p> <p>Seamless integration with Crestron® DigitalMedia™</p> <p>Five soft-touch capacitive buttons for common functions</p> <p>Hands-free audio conferencing using Rava® SIP Intercom Technology [1]</p> <p>Customizable audio feedback</p> <p>Built-in microphone and speaker</p> <p>Balanced line output for amplification of the speaker signal</p> <p>PoE or PoE+ network powered</p> <p>Configurable connection compartment allows versatile combinations of pullout cables, cable retractors, connector plates, and AC power outlets [2]</p> <p>Tapered cable notch allows lid to be closed with cables plugged in</p> <p>Lacing bar for under table cable management</p> <p>Universal cutout size fits all new and future FlipTops</p> <p>Brushed aluminum finish</p>	
	2.3.2	
	<p><b>1 pc. Cable Retractors VGA &amp; Audio</b></p> <p>Provides a refined cable management solution for Crestron FlipTops™</p> <p>Keeps interface cables at-the-ready</p> <p>Eliminates hanging cable loops beneath the table</p> <p>Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</p> <p>No levers or buttons to press</p> <p>Patented mechanism prevents whipping of the cable while retracting</p> <p>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</p>	

	Vertical and horizontal mounting options accommodate most tabletop applications	
	<p>2.3.3</p> <p><b>1 pc Cable Retractors HDMI</b></p> <p>Provides a refined cable management solution for Crestron FlipTops™</p> <p>Keeps interface cables at-the-ready</p> <p>Eliminates hanging cable loops beneath the table</p> <p>Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</p> <p>No levers or buttons to press</p> <p>Patented mechanism prevents whipping of the cable while retracting</p> <p>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</p> <p>Vertical and horizontal mounting options accommodate most tabletop applications</p>	
	<p>2.3.4</p> <p><b>1 pc. Cable Retractors Cat5e / Lan</b></p> <p>Provides a refined cable management solution for Crestron FlipTops™</p> <p>Keeps interface cables at-the-ready</p> <p>Eliminates hanging cable loops beneath the table</p> <p>Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</p> <p>No levers or buttons to press</p> <p>Patented mechanism prevents whipping of the cable while retracting</p> <p>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</p> <p>Vertical and horizontal mounting options accommodate most tabletop applications</p>	
	<p>2.3.5</p> <p><b>1 pc. Connection panel with 2 Schuko sockets</b></p> <p>Connection panel with 2 Schuko sockets for installation in Fliptop</p> <p>Voltage range 220 - 240 VAC 50/60 Hz.</p> <p>Protection up to 10 A.</p>	
	<p>2.3.6</p> <p><b>1 pc. POE-Switch</b></p> <p>5-port unmanaged Ethernet switch</p> <p>All ports support 1000Base-T Gigabit Ethernet</p> <p>Provides PoE (802.3af) on 4 ports</p> <p>Auto-negotiating and auto MDI/MDIX</p> <p>Rugged metal enclosure</p>	

	Surface or rack-rail mountable	
	<p>2.3.7</p> <p><b>1 pc. DigitalMedia Transmitter</b></p> <p>DigitalMedia 8G+® transmitter and multimedia interface</p> <p>Built-in 2x1 AV switcher with auto-switching and analog audio-breakaway</p> <p>QuickSwitch HD™ technology achieves fast, reliable switching</p> <p>Connects to a DM® switcher or receiver over a single CAT type twisted pair cable [1]</p> <p>Supports cable lengths up to 330 ft (100 m) using DM 8G® cable or CAT5e [1]</p> <p>HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment</p> <p>Provides HDMI® and RGB/component video inputs [3]</p> <p>Also supports DVI and Dual-Mode DisplayPort sources [2]</p> <p>Handles video resolutions up to Full HD 1080p</p> <p>Handles computer resolutions up to WUXGA</p> <p>Handles Dolby Digital®, DTS®, and uncompressed 7.1 linear PCM audio</p> <p>Includes an unbalanced stereo analog line-level audio input</p> <p>Allows embedding of stereo 2-channel analog audio signals</p> <p>Includes a local HDMI output</p> <p>HDCP compliant</p> <p>Detects and reports detailed video and audio input information</p> <p>Performs automatic AV signal format management via EDID</p> <p>Provides a 10/100 Ethernet LAN connection</p> <p>Enables device control via CEC and Ethernet Enables USB HID signal extension for a local computer</p> <p>Compatible with USB over Ethernet Extenders</p> <p>Compatible with Cable Caddies</p> <p>Allows quick, easy setup and diagnostics</p> <p>Low-profile surface-mount design</p> <p>Powered via the DM connection or local power pack (included)</p>	
	<p>2.3.8</p> <p><b>1 pc. DigitalMedia Receiver</b></p> <p>DigitalMedia 8G+® receiver and display controller</p> <p>Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable</p>	



	<p>HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment</p> <p>Provides one HDMI® or DVI display output</p> <p>Handles video resolutions up to 4K and Ultra HD</p> <p>Handles 3D video and Deep Color</p> <p>Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio</p> <p>HDCP 2.2 compliant</p> <p>Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable</p> <p>Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e</p> <p>Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e</p> <p>Provides a 10/100 Ethernet LAN connection</p> <p>Enables device control via CEC, IR, RS-232, and Ethernet</p> <p>Compatible with Crestron® USB over Ethernet Extenders</p> <p>Allows quick, easy setup and diagnostics Low-profile surface mount design</p> <p>Powered via the DM connection or local power pack (included)</p>	
	<p>2.3.9</p> <p><b>1 pc. IR Emitter Probe</b></p>	
	<p>2.3.10</p> <p><b>1 pc. Hardware package</b></p> <p>all costs for mounting material / consumables such as screws, dowels, etc.</p>	
	<p>2.3.11</p> <p><b>8h programming</b></p>	
	<p>2.3.12</p> <p><b>10h installation and commissioning</b></p>	
	<p>3. Conference Room 2</p>	
	<p>3.1 Audio</p>	
	<p>3.1.1</p> <p><b>4 pcs. full-range surface-mount loudspeaker 40W</b></p> <p>Extended-range, high-performance loudspeaker with two (2) 2.25" (57 mm) Twiddler® drivers and a single 5.25" (133 mm) woofer in a ported enclosure designed for surface-mounted foreground and background music and paging applications</p>	

	<p>Proprietary Articulated Array® speaker configuration provides 180° H x 75° V coverage out of the box when the loudspeaker is mounted horizontally. Array can be rotated for horizontal or vertical use</p> <p>Simple 1-&gt;2-&gt;3 installation system. Mounting hardware allows for horizontal and vertical orientation with adjustable pitch or yaw</p> <p>Integrated multi-tap transformer with innovative thumb wheel adjustment for easy-to-change tap settings from under front end cap</p> <p>Shared voicing across entire product family enables to be integrated on the same system and maintain consistent tonal quality</p> <p>Supported by a suite of accessories, including wall-mount bracket, ceiling-mount bracket, pole-mount bracket and junction boxes</p>	
	<p>3.1.2</p> <p><b>200m Speaker Cable</b></p> <p><del>Mechanical data</del></p> <p><del>Conductor area 2,5 mm<sup>2</sup></del></p> <p><del>Composition of conductor 50 x 0,25 mm bare copper</del></p> <p><del>Conductor isolation halogen free, flame retardant copolymer</del></p> <p><del>Composition of cores 2 cores</del></p> <p><del>Pair screen / screen no screen</del></p> <p><del>Overall jacket halogen free, flame retardant copolymer</del></p> <p><del>Overall diameter 8,0 ± 0,3 mm</del></p> <p><del>Weight 108 g / m</del></p> <p><del>Working temperature mobile (-20 °C) - (+70 °C)</del>  <del>fixed (-40 °C) - (+80 °C)</del></p> <p><del>min. Bending radius mobile 10x overall diameter - ~ 83 mm</del>  <del>fixed 5x overall diameter - ~ 41 mm</del></p> <p><del>Electrical data</del></p> <p><del>Conductor resistance 8 Ω / km</del></p> <p><del>Test voltage 3000V eff.</del></p>	
	<p>3.1.3</p> <p><b>1 pc. four channel amplifier</b></p> <p>Features</p> <p>Up to 200 watts per channel into 4 and 8 ohms — the outputs of the SPA4-100 model are designed to provide up to 100 watts per channel into Low-Z loads.</p> <p>ENERGY STAR® qualified amplifier - The ENERGY STAR qualified SPA amplifiers employ an efficient class-D design to conserve energy and reduce operational cost.</p> <p>Bridgeable outputs for higher power — Bridgeable outputs for higher power - Bridging</p>	

	<p>the outputs of the SPA4-100 will deliver up to 350 watts into 70V or 100V when bridged.</p> <p>Auto-Ramp provides quiet startup and power-down — The ENERGY STAR auto-ramp circuitry ensures quiet and fast power up from standby and seamless power-down following 25 minutes of inactivity, dramatically reducing power consumption.</p> <p>Rack-mountable 1U, half rack width enclosure — The SPA amplifiers can be mounted in 1 RU, 1/2 rack space, and their clever joining brackets enable easy under-table and wall-mounting</p>	
	<p>3.1.4</p> <p><b>1 pc. Network Switch</b></p> <p>qualified by the producer of the core</p>	
	<p>3.1.5</p> <p><b>250 m Network Cable Cat6a</b></p> <p>Conductor Area 0,26 mm<sup>2</sup>  Composition of conductor 1 x 1,32mm bare copper  Conductor Resistance 75 Ohm/km  Capacity (Cond./Cond.) 45 pF/m  Jacket FRNC compound  Diameter 7.3 ± 0.2 mm  Weight 22 g/m</p>	
	<p>3.1.6</p> <p><b>1pc 4 Channel - Access Point Transceiver</b></p> <p><del>Easy installation: Includes wall / ceiling mounting plate and connects to the system over single Ethernet cable (PoE compatible)</del></p> <p><del>Plenum rated: Meets rigorous fire safety test standards for installation above drop ceiling tiles</del></p> <p><del>Scalable configurations: Multiple units can be combined support configurations of up to 40 compatible channels (80 in Europe and select countries).</del></p> <p><del>Bi-directional wireless: Provides return channel audio to wireless transmitters and enables real-time remote control of all wireless microphone settings</del></p> <p><del>Automated frequency coordination: Automatically scans available spectrum, coordinates clean frequency assignments, and moves channels away from unexpected interference</del></p> <p><del>Dante digital networked audio: Transports low-latency digital audio received from wireless microphones over Cat5e cable to any other Dante-equipped device</del></p> <p><del>Encrypted wireless: AES-256-bit encryption for secure transmission</del></p> <p><del>Selectable output power: Optimize spectrum usage by selecting the appropriate wireless output power for the desired operating range</del></p> <p><del>Diagnostic LEDs: LEDs offer easy visual reference to system activity and indicate power, wireless connection, and network audio status</del></p>	
	<p>3.1.7</p> <p><b>1pc. Hybrid Bodypack Transmitter</b></p> <p>Compact, low-profile design: Fits comfortably into a shirt pocket or attached to clothing</p>	

	<p><del>Integrated omnidirectional mic: Clearly captures full-range audio without connecting an external microphone</del></p> <p><del>External microphone input: For connecting multiple styles of earworn or lavalier condenser microphones</del></p> <p><del>Bi-directional wireless: Enables return channel audio and real-time remote control of all wireless microphone settings</del></p> <p><del>Earphone output: Listen to audio from a return channel for translation, cueing, or program material</del></p> <p><del>Programmable mute button: Customize local or remote muting behavior per application, with options including push-to-talk, push-to-mute, and external control</del></p> <p><del>Standby mode: Enabled remotely during breaks or periods of inactivity to significantly extend battery life when not in use</del></p> <p><del>Wide working range: Reliable wireless coverage extends up to 160 feet (50 meters)</del></p> <p><del>Out-of-range alert: Emits beeping sound when range is exceeded</del></p> <p><del>Wide frequency response: Captures full-range audio for clear voice transmission</del></p> <p><del>Easy transmitter linking: Assign the microphone to an access point channel by simply docking it into a networked charging station and pressing "Link"</del></p> <p><del>Encrypted wireless: AES-256-bit encryption for secure transmission</del></p> <p><del>Advanced Li-ion batteries: Smart lithium-ion internal batteries provide up to 9 hours of continuous use, charge fully in 2 hours, and allow remote monitoring over the network of remaining runtime and charge status in hours and minutes</del></p> <p><del>USB charging: Connects to any standard USB power source for "always-on" usage. Charge time using SBC-USB adapter: &lt;3.5 hours while mic is in use</del></p>	
	<p>3-1.8</p> <p><b>1 pc. Dual Ear Headworn Mic</b></p> <p>Lightweight</p> <p>Dual Ear Headworn Vocal Mic for Presentation</p> <p>prepared for use with the Bodypack Transmitter</p>	
	<p>3-1.9</p> <p><b>1 pc. Handheld Wireless Microphone Transmitter</b></p> <p><del>Dual transmit antennas: Maximizes transmission strength depending on hand placement</del></p> <p><del>Bi-directional wireless: Enables real-time remote control of all wireless microphone settings</del></p> <p><del>Programmable mute button: Allows customization of local or remote muting behavior per application, with options including push-to-talk, push-to-mute, and external control</del></p> <p><del>Standby mode: Enabled remotely during breaks or periods of inactivity to significantly extend battery life when not in use</del></p> <p><del>Wide working range: Reliable wireless coverage extends up to 160 feet (50 meters)</del></p>	

	<p>Range warning alert: Emits beeping sound when range limit is exceeded</p> <p>Easy transmitter linking: Assign the microphone to an access point channel by simply docking it into a networked charging station and pressing "Link"</p> <p>Encrypted wireless: AES 256-bit encryption for secure transmission</p> <p>Advanced Li-ion batteries: Smart lithium-ion internal batteries provide up to 9 hours of continuous use, charge fully in 2 hours, and enable remote monitoring over the network of remaining runtime and charge status in hours and minutes</p> <p>USB charging: Connects to any standard USB power source for "always on" usage. Charge time using SBC USB adapter: &lt;3.5 hours while mic is in use</p> <p>Anti-roll design: Features a flat resting point to prevent the microphone from accidentally rolling off a flat surface</p> <p>Interchangeable SM86 microphone cartridge</p>	
	<p>3.1.10</p> <p><b>1pc. Networked Charging Station</b></p> <p>Charge status indicators: 5-segment LEDs on the unit display charge status individually for every docked microphone transmitter</p> <p>Remote charge status monitoring: Ethernet connection to the system enables remote monitoring of battery charge status in hours and minutes via Microflex Wireless Control Software or third-party control systems</p> <p>Easy transmitter linking: Assign docked wireless microphones to channels on an access point transceiver by simply pressing "Link"</p> <p>Rapid charge times: Reaches 50% charge in one hour and fully charges transmitters in two hours</p> <p>Overcharge protection: Smart recharging circuitry safeguards against battery damage and extends life cycles</p>	
	<p>3.1.11</p> <p><b>1pc 4.7" In-wall Touch screen dialer/controller</b></p> <p>Features</p> <p>Capacitive LCD touch surface: In-plane switching (IPS) technology</p> <p>High resolution display: 960x540 pixels with 400 Nits (brightness)</p> <p>Power over ethernet: Allows for simplified single cable installation</p> <p>Universal mounting options: Included accessories for mounting to US standard and European wall and junction boxes</p> <p>Versatile: Ability to operate in portrait or landscape orientation</p> <p>Complete design freedom</p>	
	<p>3.1.12</p> <p><b>1pc. Hardware package</b></p>	

	all costs for mounting material / consumables such as screws, dowels, etc.	
	<p>3.1.13</p> <p><b>12H programming</b></p> <p>programming the audio-core</p>	
	<p>3.1.14</p> <p><b>16H installation and commissioning</b></p>	
	3.2 Video	
	<p>3.2.1</p> <p><b>1pc Interactive Flat Panel 65"</b></p> <p>Panel  Screen Size 65"  Backlight / Lightsource DLED  Resolution (Pixels) UHD 3840x 2160 pixels  Brightness (Typical) 350 nits  Contrast Ratio (Typical) 1,200:1  Viewing Angle (Horizontal/Vertical) 178°/178°  Response Time (ms) 8ms  Color Gamut (x% NTSC) 72%  Panel Bit (8 or 10) 10 bit  Light Life (Typical ) 30,000 hours  Display Orientation Landscape</p> <p>Glass  Tempered Glass 4mm, Tempered Glass  Anti-Glare (AG) Coating Yes  Germ-Resistant Screen Yes Touch</p> <p>Touch  Technology IR Touch  Numbers of Touch Up to 20 Point Multi-touch  Resolution (Points Area Function) 32,767*32,767  Touch Interface x2 (USB type B)  OS Supported Windows  XP/7/8/10/WinCE/Vista/Linux/Mac/Android/Chrome</p> <p>Audio  Internal Speaker 16Wx2  Line Out (Audio Out, 3.5mm) x1  Line In (3.5mm) x1  MIC (3.5mm) N/A  Coax Output x1</p> <p>AC Power  Power (AC) Input x1  Power Switch x1</p> <p>Basic IO  VGA Input x1  VGA Output N/A  HDMI Input x3 (2.0x1, 1.4x2)  HDMI Output x1  Display Port x1 (mini)  Slot-in-PC x1</p>	

	<p>OPS Slot N/A</p> <p>Legacy IO Composite Video In x1 USB Player (Photo, Video) x6 (2.0x5, 3.0x1)</p> <p>Control RS232 Input x1 RJ45 Port x1 Firmware Update USB/OTA</p> <p>Power Voltage 100V-240V, 50/60Hz Typical (Watt) 210W</p> <p>Mechanical Weight (Without / With Packing) (kg) 49kg/61kg Dimension (WxHxD) (mm) 1,521x967x128mm Wall Mounting (VESA) (mm) 4 holes (600x400mm) Screw M8x 25mm Handle x2 Pen Tray x1</p> <p>RF NFC Reader / Writer x1</p> <p>OSD On-Screen Display Languages English/ French/ Spanish/ Portuguese/ Simplified Chinese/ Traditional Chinese/ German/ Dutch/ Polish/ Russian/ Czech/ Danish/ Swedish/ Italian/ Romanian/ Finnish/ Norwegian/ Greek/ Turkish/ Arabic/ Japanese (21 Languages)</p> <p>Package / Accessory Remote Controller x1 HDMI Cable x 1 (1.5m) Power Cord (By Region) x4 (3m) Audio Cable x 1 (5m) VGA Cable x 1 (5m) Quick Start Guide x1 User's Manual Electronic File x1 USB Cable for Touch x 1 (5m) Touch Pen (Stylus) X2 (NFC) Software License Card x1</p> <p>Optional Wall Mount Yes QCast HDMI Streaming Dongle Yes USB Wifi dongle Yes Slot-in-PC Yes Trolley Yes</p>	
	<p>3.2.2</p> <p><b>1 pc. Hardware package</b></p> <p>all costs for mounting material / consumables such as screws, dowels, etc.</p>	
	<p>3.2.3</p> <p><b>4H installation and commissioning</b></p>	
	<p>3.3 Media Control</p>	
	<p>3.3.1</p>	

	<p><b>1pc. FlipTop Touch Screen</b></p> <p>Flush mount tabletop control and connectivity in one stylish FlipTop™ design</p> <p>Integrated 5" capacitive color touch screen with Smart Graphics™ support [4]</p> <p>High-performance H.264 streaming video over Ethernet</p> <p>Seamless integration with Crestron® DigitalMedia™</p> <p>Five soft-touch capacitive buttons for common functions</p> <p>Hands-free audio conferencing using Rava® SIP Intercom Technology [1]</p> <p>Customizable audio feedback</p> <p>Built-in microphone and speaker</p> <p>Balanced line output for amplification of the speaker signal</p> <p>PoE or PoE+ network powered</p> <p>Configurable connection compartment allows versatile combinations of pullout cables, cable retractors, connector plates, and AC power outlets [2]</p> <p>Tapered cable notch allows lid to be closed with cables plugged in</p> <p>Lacing bar for under table cable management</p> <p>Universal cutout size fits all new and future FlipTops brushed aluminum finish</p>	
	<p>3.3.2</p> <p><b>1 pc. Cable Retractors VGA &amp; Audio</b></p> <p>Provides a refined cable management solution for Crestron FlipTops™</p> <p>Keeps interface cables at-the-ready</p> <p>Eliminates hanging cable loops beneath the table</p> <p>Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</p> <p>No levers or buttons to press</p> <p>Patented mechanism prevents whipping of the cable while retracting</p> <p>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</p> <p>Vertical and horizontal mounting options accommodate most tabletop applications</p>	
	<p>3.3.3</p> <p><b>1 pc. Cable Retractors HDMI</b></p> <p>Provides a refined cable management solution for Crestron FlipTops™</p> <p>Keeps interface cables at-the-ready</p> <p>Eliminates hanging cable loops beneath the table</p>	



	<p>Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</p> <p>No levers or buttons to press</p> <p>Patented mechanism prevents whipping of the cable while retracting</p> <p>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</p> <p>Vertical and horizontal mounting options accommodate most tabletop applications</p>	
<p>3.3.4</p> <p><b>1 pc. Cable Retractors Cat5e / Lan</b></p>	<p>Provides a refined cable management solution for Crestron FlipTops™</p> <p>Keeps interface cables at-the-ready</p> <p>Eliminates hanging cable loops beneath the table</p> <p>Easy-to-use — pull out the cable to its full length (3 ft / 0.9 m) to latch, pull it again to retract</p> <p>No levers or buttons to press</p> <p>Patented mechanism prevents whipping of the cable while retracting</p> <p>Models available to support HDMI® [3], DisplayPort [2], VGA, stereo audio, USB, Ethernet, HDBaseT®, and DigitalMedia 8G+®</p> <p>Vertical and horizontal mounting options accommodate most tabletop applications</p>	
<p>3.3.5</p> <p><b>1 pc. Connection panel with 2 Schuko sockets</b></p>	<p>Connection panel with 2 Schuko sockets for installation in Fliptop</p> <p>Voltage range 220 - 240 VAC 50/60 Hz.</p> <p>Protection up to 10 A.</p>	
<p>3.3.6</p> <p><b>1 pc. POE-Switch</b></p>	<p>5-port unmanaged Ethernet switch</p> <p>All ports support 1000Base-T Gigabit Ethernet</p> <p>Provides PoE (802.3af) on 4 ports</p> <p>Auto-negotiating and auto MDI/MDIX</p> <p>Rugged metal enclosure</p> <p>Surface or rack-rail mountable</p>	
<p>3.3.7</p> <p><b>1 pc. DigitalMedia Transmitter</b></p>	<p>DigitalMedia 8G+® transmitter and multimedia interface</p> <p>Built-in 2x1 AV switcher with auto-switching and analog audio-breakaway</p>	

	<p>QuickSwitch HD™ technology achieves fast, reliable switching</p> <p>Connects to a DM® switcher or receiver over a single CAT type twisted pair cable [1]</p> <p>Supports cable lengths up to 330 ft (100 m) using DM 8G® cable or CAT5e [1]</p> <p>HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment</p> <p>Provides HDMI® and RGB/component video inputs [3]</p> <p>Also supports DVI and Dual-Mode DisplayPort sources [2]</p> <p>Handles video resolutions up to Full HD 1080p</p> <p>Handles computer resolutions up to WUXGA</p> <p>Handles Dolby Digital®, DTS®, and uncompressed 7.1 linear PCM audio</p> <p>Includes an unbalanced stereo analog line-level audio input</p> <p>Allows embedding of stereo 2-channel analog audio signals</p> <p>Includes a local HDMI output</p> <p>HDCP compliant</p> <p>Detects and reports detailed video and audio input information</p> <p>Performs automatic AV signal format management via EDID</p> <p>Provides a 10/100 Ethernet LAN connection</p> <p>Enables device control via CEC and Ethernet</p> <p>Enables USB HID signal extension for a local computer</p> <p>Compatible with USB over Ethernet Extenders</p> <p>Compatible with Cable Caddies</p> <p>Allows quick, easy setup and diagnostics</p> <p>Low-profile surface-mount design</p> <p>Powered via the DM connection or local power pack (included)</p>	
	<p>3.3.8</p> <p><b>1 pc. DigitalMedia Receiver</b></p> <p>DigitalMedia 8G+® receiver and display controller</p> <p>Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable</p> <p>HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment</p> <p>Provides one HDMI® or DVI display output</p>	

	<p>Handles video resolutions up to 4K and Ultra</p> <p>HD Handles 3D video and Deep Color</p> <p>Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio</p> <p>HDCP 2.2 compliant</p> <p>Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable</p> <p>Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e</p> <p>Provides a 10/100 Ethernet LAN connection</p> <p>Enables device control via CEC, IR, RS-232, and Ethernet</p> <p>Compatible with Crestron® USB over Ethernet Extenders</p> <p>Allows quick, easy setup and diagnostics</p> <p>Low-profile surface mount design Powered via the DM connection or local power pack (included)</p>	
	<p>3.3.9</p> <p><b>1 pc. IR Emitter Probe</b></p>	
	<p>3.3.10</p> <p><b>1 pc. Hardware package</b></p> <p>all costs for mounting material / consumables such as screws, dowels, etc.</p>	
	<p>3.3.11</p> <p><b>8 H programming</b></p> <p>programming the audio-core</p>	
	<p>3.3.12</p> <p><b>10H installation and commissioning</b></p>	
	<p>4. Presentation System</p>	
	<p>4.1</p> <p>Wireless display and presentation system, <del>like the ClickShare CSC 1 system from Barco</del>  <b>Air Media Presentation System</b></p> <p><b>AirMedia® Presentation System with AirMedia 2.0 and HDMI® in and out Standalone device that enables organizations to convert lobbies, lounges, and other open spaces into productive meeting spaces.</b></p>	
	<p>4.2</p> <p>Vsee or <b>ZOOM</b> video conferencing application that will run on Windows, Macs, Iphone, Ipad, and Android devices. It is free to sign-up and allows up to 4 simultaneous video conference calls for the free account.</p>	
	<p>4.2 Voice Communication Requirements</p> <p>Should be Ip-capable Private Branch Exchange (PBX) systems that are S.I.P. (Session Initiation Protocol) compliant</p>	
3.	<p>The SUPPLIER shall be able to provide an after sales support and maintenance of the system.</p>	

SERVICE INTERRUPTIONS		
4.	Upon notification by the PROCURING ENTITY, the SUPPLIER shall use all reasonable measures to immediately remedy the system issues or faults.	
5.	In the event of scheduled maintenance work on the system or any other scheduled maintenance work to be undertaken by the SUPPLIER, which would affect the provisions of the service, the SUPPLIER shall notify the PROCURING ENTITY in writing at least five (5) days prior to the start of the scheduled maintenance works. The time frame and duration of works, nature of the work to be undertaken, and the services to be affected must be included in the notice.	
IMPLEMENTATION		
	The SUPPLIER shall provide all materials and manpower resources necessary to establish the system.	
8.	The SUPPLIER must be able to deliver the system no later than 20 December 2018 at the new Embassy building in Luisenstrasse 16.	
RESTRICTION		
9.	The SUPPLIER should be bound by Confidentiality of this Agreement. Any information received in the course of this agreement shall be treated with confidence even after the termination of this agreement.	

**Note:**

Bidder must state compliance to each of the provisions in the Terms of Reference/Technical Specifications, as well as to the Schedule to Requirements. The **STATEMENT OF COMPLIANCE** must be signed by the authorized representative of the Bidder, with proof of authority to sign and submit the bid for and in behalf of the Bidder concerned. If the Bidder is a joint venture, the representative must have authority to sign for and in behalf of the partners to the joint venture.

Conformé:

[Signature/s]  
 [Name of Bidder's Authorized Representative/s]  
 [Position]  
 [Date]