



SUPPLEMENTAL/BID BULLETIN NO. 2

Procurement of CCTV System for the Department of Tourism (DOT-BAC IB NO. 2020-012)

This Supplemental/Bid Bulletin No. 2 is issued to clarify, modify and/or amend items in the Bidding Documents as discussed and agreed during the Virtual Pre-Bid Conference held on 04 December 2020 for the aforementioned project. This shall form part of the Bidding Documents.

I. The following portions of the Bidding Documents are hereby amended as follows:

A. Section VII. Technical Specifications

Section VII. Technical Specifications	
FROM (Old Provision)	TO (New Provision)
<p>Scope of Work</p> <p>1. Supply, delivery, installation and deployment of a new CCTV system consisting of:</p> <p>55 pcs. CCTV camera,</p> <p>1 pc. Central Video Management Server,</p> <p>1 pc. CCTV Storage,</p> <p>1 pc. workstation,</p> <p>1 pc. uninterrupted power supply,</p> <p>6 pcs. POE network switch and</p> <p>3 pcs. monitor at the New DOT Bldg. in Makati City.</p> <ul style="list-style-type: none"> • Shall also integrate the existing CCTV camera to the new CCTV system • Must be able to store or record video for at least 30 days. <p>1. Delivery service shall be free of charge; Delivery at DOT main office, 351 Sen Gil Puyat Ave Makati City.</p> <p>2. The Contractor shall perform the installation, testing and commissioning of all equipment. All necessary tests, services and inspections to assure the system functions and shall be checked and approved before the acceptance test. Consideration shall be given to the fact that installation or tests of other systems within the same building may be carried out during the same period.</p> <ul style="list-style-type: none"> • The work includes the furnishings of materials, cables, consumable materials, facilities, civil works, labor, tools, equipment, test instruments, apparatus, specialties and other services necessary to complete the installation and commissioning of the CCTV System at the New DOT Bldg. • The project must be completed within thirty (30) calendar days including delivery of equipment upon receipt of notice to proceed. • The contractor shall have access to the site seven (7) days a week from 8pm to 5am starting on the date of receipt of the Notice to Proceed. All works should be coordinated with DOT on a weekly basis and can be revoked or suspended. 	<p>Scope of Work</p> <p>1. Supply, delivery, installation and deployment of a new CCTV system consisting of:</p> <p>55 pcs. CCTV camera,</p> <p>1 pc. Central Video Management Server,</p> <p>1 pc. CCTV Storage,</p> <p>1 pc. workstation,</p> <p>1 pc. uninterrupted power supply,</p> <p>6 pcs. POE network switch and</p> <p>3 pcs. monitor at the New DOT Bldg. in Makati City.</p> <ul style="list-style-type: none"> • Shall integrate maximum of 50 units of the existing CCTV camera to the new CCTV system • Must be able to store or record video for at least 30 days. <p>3. Delivery service shall be free of charge; Delivery at DOT main office, 351 Sen Gil Puyat Ave Makati City.</p> <p>4. The Contractor shall perform the installation, testing and commissioning of all equipment. All necessary tests, services and inspections to assure the system functions and shall be checked and approved before the acceptance test. Consideration shall be given to the fact that installation or tests of other systems within the same building may be carried out during the same period.</p> <ul style="list-style-type: none"> • The work includes the furnishings of materials, cables, consumable materials, facilities, civil works, labor, tools, equipment, test instruments, apparatus, specialties and other services necessary to complete the installation and commissioning of the CCTV System at the New DOT Bldg. • The project must be completed within sixty-five (65) calendar days including the civil works, delivery and installation of equipment upon receipt of notice to proceed. • The contractor shall have access to the site seven (7) days a week from 8pm to 5am or 7pm to 4am or 6pm to 3am or the time agreed by both parties starting on the date of receipt of the

<ul style="list-style-type: none"> • The contractor shall submit a weekly progress report. • The contractor shall submit the following documentation to DOT upon completion of the project. <ul style="list-style-type: none"> o As-built diagram o System brochures/ documentation for systems operational & Maintenance/User Manuals-one [1] original and three [3] copies. o Detailed equipment list stating the location, make model, serial numbers, firm ware among others. o Result of system test as per manufacturer standards o System and Workmanship Warranty/Guarantee o Certification of Parts availability and support for One [1] year o Training Certification of attendees for Operations and Maintenance of the system. 4. The installation must include wireless connectivity for the cameras to be installed inside the elevators. 5. The Contractor shall submit a detailed work plan to be presented during the project kick-off. 6. The Contractor shall prepare and furnish fully dimensioned scaled drawings of builder’s work arising from the installation of the equipment and system as well as for the equipment layout plans at various locations. 7. The work drawings shall show: <ul style="list-style-type: none"> o The general arrangement of cabinets and other facilities in the equipment areas as well as the operational area o The general arrangement of cabling within the system. 8. As soon as the commissioning of the equipment and system have been completed, the Contractor shall amend or correct all his Approved Drawings, if so required, furnish three (3) sets of prints of all “As-built” drawings showing the works as finally installed and commissioned. These drawings shall be furnished in hard bound covers 9. One (1) set of “As-built” drawings will be submitted in digital format in a USB drive 10. The “As-built” drawings shall show the general arrangement of all equipment’s and auxiliaries, positions of all electrical outlets, fittings, switches, switch-boards and control panels, cables, pipes, ducts runs, markers and underground ducts, interwiriness, schedules, plant manufacturers name plates, models and type numbers and other information necessary to facilitate routine inspection and maintenance of installation. 11. Roughing-ins including supports, boxes, fittings, cover plates, mounting brackets should be provided by the contractor. 	<p>Notice to Proceed. All works should be coordinated with DOT on a weekly basis and can be revoked or suspended.</p> <ul style="list-style-type: none"> • The contractor shall submit a weekly progress report. • The contractor shall submit the following documentation to DOT upon completion of the project. <ul style="list-style-type: none"> o As-built diagram o System brochures/ documentation for systems operational & Maintenance/User Manuals-one [1] original and three [3] copies. o Detailed equipment list stating the location, make model, serial numbers, firm ware among others. o Result of system test as per manufacturer standards o System and Workmanship Warranty/Guarantee o Certification of Parts availability and support for One [1] year o Training Certification of attendees for Operations and Maintenance of the system. 4. The installation must include wireless connectivity for the cameras to be installed inside the elevators. 5. The Contractor shall submit a detailed work plan to be presented during the project kick-off. 6. The Contractor shall prepare and furnish fully dimensioned scaled drawings of builder’s work arising from the installation of the equipment and system as well as for the equipment layout plans at various locations. 7. The work drawings shall show: <ul style="list-style-type: none"> o The general arrangement of cabinets and other facilities in the equipment areas as well as the operational area o The general arrangement of cabling within the system. 8. As soon as the commissioning of the equipment and system have been completed, the Contractor shall amend or correct all his Approved Drawings, if so required, furnish three (3) sets of prints of all “As-built” drawings showing the works as finally installed and commissioned. These drawings shall be furnished in hard bound covers 9. One (1) set of “As-built” drawings will be submitted in digital format in a USB drive 10. The “As-built” drawings shall show the general arrangement of all equipment’s and auxiliaries, positions of all electrical outlets, fittings, switches, switch-boards and control panels, cables, pipes, ducts runs, markers and underground ducts, interwiriness, schedules, plant manufacturers name plates, models and type numbers and other information necessary to facilitate routine inspection and maintenance of installation. 11. Roughing-ins including supports, boxes, fittings, cover plates, mounting brackets should be provided by the contractor.
<p>Eligibility Requirements</p> <ul style="list-style-type: none"> A. Must have at least five (5) years of existence. B. Must have completed a similar project. C. Must offer CCTV brand or manufacturer that is not barred or banned by any country due to cyber security issues. D. Must offer CCTV brand or manufacturer that is ONVIF compliant E. Must offer a CCTV provider that produces own hardware and develops its own software applications. F. Must have at least two (2) certified technicians. Copies of their CV and certification to be provided. G. Claiming, providing and submitting false information during procurement process shall be immediately disqualify from the bidding. This is for the Department and committee protection from dishonest supplier purposely providing ICT equipment that are but not limited to overpricing, non-compliance ICT equipment, toy like ICT equipment, etc. H. Must present notarized certificates- one original each and two certified true copies, from the Original Equipment Manufacturer (OEM) stating the following: 	<p>Eligibility Requirements</p> <ul style="list-style-type: none"> A. Must have at least five (5) years of existence. B. Must have completed a similar project. C. Must offer CCTV brand or manufacturer that is not barred or banned by any country due to cyber security issues. <u>The principal manufacturer or Original Equipment Manufacturer (OEM) provider must provide a notarized statement that they are not banned in any country due to cyber security.</u> D. Must offer CCTV brand or manufacturer that is ONVIF compliant E. Must offer a CCTV provider that produces own hardware and develops its own software applications. F. Must have at least two (2) certified technicians. Copies of their CV and certification to be provided. G. Claiming, providing and submitting false information during procurement process shall be immediately disqualify from the bidding. This is for the Department and committee protection from dishonest supplier purposely providing ICT equipment that are but not limited to overpricing, non-compliance ICT equipment, toy like ICT equipment, etc.

<p>i. The Bidder is a duly recognized and authorized country reseller by the Original Equipment Manufacturer.</p> <p>ii. The Bidder is recognized and authorized to support the DOT project by the OEM.</p> <p>iii. The Bidder is authorized by the OEM systems manufacturer to extend the manufacturer's warranty support for the project.</p> <p>iv. That the OEM systems manufacturer will guarantee the availability of spare parts for the system for not less than three (3) years from the date of commissioning of the system by the Department of Tourism.</p>	<p>H. Must present notarized certificates- one original each and two certified true copies, from the Original Equipment Manufacturer (OEM) stating the following:</p> <p>i. The Bidder is a duly recognized and authorized country reseller by the Original Equipment Manufacturer.</p> <p>ii. The Bidder is recognized and authorized to support the DOT project by the OEM.</p> <p>iii. The Bidder is authorized by the OEM systems manufacturer to extend the manufacturer's warranty support for the project.</p> <p>iv. That the OEM systems manufacturer will guarantee the availability of spare parts for the system for not less than three (3) years from the date of commissioning of the system by the Department of Tourism.</p>		
<p>Documentation Requirements</p> <p>A. Three (3) sets of As-built drawings in hard bound covers</p> <p>B. One (1) set of As-built drawings in digital format in a USB drive</p> <p>C. Network diagram and System Architecture</p> <p>D. System brochures /documentation for systems operational & Maintenance/ User Manuals-one [1] original and three [3] copies.</p> <p>E. Detailed equipment list stating the location, make model, serial numbers, firm ware among others.</p> <p>F. Result of system test as per manufacturer standards</p> <p>G. System and Workmanship Warranty/Guarantee</p> <p>H. Certification of Parts availability and support for One [1] year</p> <p>I. Training material</p> <p>J. Training Certification of attendees for Operations and Maintenance of the system.</p>	<p>Documentation Requirements</p> <p>A. Three (3) sets of As-built drawings in hard bound covers</p> <p>B. One (1) set of As-built drawings in digital format in a USB drive</p> <p>C. Network diagram and System Architecture</p> <p>D. System brochures /documentation for systems operational & Maintenance/ User Manuals-one [1] original and three [3] copies.</p> <p>E. Detailed equipment list stating the location, make model, serial numbers, firm ware among others.</p> <p>F. Result of system test as per manufacturer standards</p> <p>G. System and Workmanship Warranty/Guarantee</p> <p>H. Certification of Parts availability and support for One [1] year</p> <p>I. Training material</p> <p>J. Training Certification of attendees for Operations and Maintenance of the system.</p>		
<p>Training Requirements</p> <p>A. Training for at least 10 participants (GSD, Security, ITD)</p> <ol style="list-style-type: none"> 1. End user product and configuration training 2. Troubleshooting and Maintenance <p>B. Training will be conducted on-site. Based on the availability of the DOT trainees.</p> <p>C. Training material to be provided by the Contractor</p>	<p>Training Requirements</p> <p>A. Training for at least 10 participants (GSD, Security, ITD)</p> <ol style="list-style-type: none"> 1. End user product and configuration training 2. Troubleshooting and Maintenance <p>B. Training will be conducted on-site. Based on the availability of the DOT trainees.</p> <p>C. Training material to be provided by the Contractor</p>		
<p>Maintenance Requirements</p> <p>DOT needs a comprehensive maintenance service to include fault prevention, adjustments, corrections, repairs and replacements- During the warranty period the contractor is required to provide the following:</p> <ul style="list-style-type: none"> o 4- hours response time on server hardware, 24 x 7 (remote, onsite if needed) o Software technical assistance o Software/firmware updates if necessary o NBD for CCTV software and hardware 	<p>Maintenance Requirements</p> <p>DOT needs a comprehensive maintenance service to include fault prevention, adjustments, corrections, repairs and replacements- During the warranty period the contractor is required to provide the following:</p> <ul style="list-style-type: none"> o 4- hours response time on server hardware, 24 x 7 (remote, onsite if needed) o Software technical assistance o Software/firmware updates if necessary o NBD for CCTV software and hardware 		
<p>Service Feature Highlights</p> <ul style="list-style-type: none"> o Remote problem diagnosis support for hardware products o Onsite hardware support o Materials excluding consumables o Onsite response time for hardware support o Work to completion for hardware support o Escalation/Service Level Management o Firmware and documentation updates o Electronic support information and services o Electronic remote support 	<p>Service Feature Highlights</p> <ul style="list-style-type: none"> o Remote problem diagnosis support for hardware products o Onsite hardware support o Materials excluding consumables o Onsite response time for hardware support o Work to completion for hardware support o Escalation/Service Level Management o Firmware and documentation updates o Electronic support information and services o Electronic remote support 		
<p>Technical Specification of ICT Equipment</p>			
<p>Item 1: 21 pcs. Indoor Dome CCTV Camera VIDEO</p>			
<p>Imaging Device</p>	<p>At least 1/2.8" 2MP CMOS</p>	<p>Imaging Device</p>	<p>At least 1/2.8" 2MP CMOS</p>
<p>Resolution</p>	<p>1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360</p>	<p>Resolution</p>	<p>1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360</p>

Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz)	Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz)
	MJPEG: Max. 15fps/12fps(60Hz/50Hz)		MJPEG: Max. 15fps/12fps(60Hz/50Hz)
Min. Illumination	Color: 0.03Lux(F1.6, 1/30sec) BW: 0Lux(IR LED on)	Min. Illumination	Color: 0.03Lux(F1.6, 1/30sec) BW: 0Lux(IR LED on)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation	Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation
LENS		LENS	
Focal Length (Zoom Ratio)	3.2~10mm(3.1x) manual varifocal	Focal Length (Zoom Ratio)	3.2~10mm(3.1x) manual varifocal
Max. Aperture Ratio	F1.6(Wide)~F2.9(Tele)	Max. Aperture Ratio	F1.6(Wide)~F2.9(Tele)
Angular Field of View	H: 109.0°(Wide)~33.2°(Tele) / V: 57.4°(Wide)~18.7°(Tele) / D: 132.0°(Wide)~38.0°(Tele)	Angular Field of View	H: 109.0°(Wide)~33.2°(Tele) / V: 57.4°(Wide)~18.7°(Tele) / D: 132.0°(Wide)~38.0°(Tele)
Focus Control	Manual	Focus Control	Manual
Lens Type	DC auto iris	Lens Type	DC auto iris
Pan / Tilt / Rotate Range	0°~350° / 0°~67° / 0°~355°	Pan / Tilt / Rotate Range	0°~350° / 0°~67° / 0°~355°
OPERATIONAL		OPERATIONAL	
Camera	Title Displayed up to 85 characters	Camera	Title Displayed up to 85 characters
Day & Night	Auto(ICR)	Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SDR	Backlight Compensation	BLC, WDR, SSDR
Wide Dynamic Range	At least 120dB	Wide Dynamic Range	At least 120dB
Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.	Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.
Motion Detection	4ea, polygonal zones	Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones	Privacy Masking	6ea, rectangular zones
Gain Control	Low / Middle / High	Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor	White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support	LDC	Support
Electronic Shutter Speed	Minimum / Maximum /Anti flicker (1/5~1/12,000sec)	Electronic Shutter Speed	Minimum / Maximum /Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)	Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line	Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line
Alarm I/O	Input 1ea / Output 1ea	Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input	Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output	Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output
Audio In	Built-in mic	Audio In	Built-in mic
IR Viewable Length	20m(65.62ft)	IR Viewable Length	20m(65.62ft)
NETWORK		NETWORK	
Ethernet	RJ-45(10/100BASE-T)	Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG	Video Compression	H.265/H.264: Main/High, MJPEG

Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps	Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
Bitrate Control	H.264/H.265: CBR or VBR	Bitrate Control	H.264/H.265: CBR or VBR
	MJPEG: VBR		MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)	Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP	Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)
GENERAL		GENERAL	
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)	Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)
Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB	Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB
Memory	512MB RAM, 256MB Flash	Memory	512MB RAM, 256MB Flash
ENVIRONMENTAL & ELECTRICAL		ENVIRONMENTAL & ELECTRICAL	
Operating Temperature / Humidity	-10°C ~ +55°C(+14°F ~ +131°F) / Less than 90% RH	Operating Temperature / Humidity	-10°C ~ +55°C(+14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH	Storage Temperature / Humidity	-30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC	Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 7.70W, typical 6.00W 12VDC: Max 6.50W, typical 5.10W	Power Consumption	PoE: Max 7.70W, typical 6.00W 12VDC: Max 6.50W, typical 5.10W
Item No. 2: 30 pcs. Outdoor Bullet CCTV Camera VIDEO		Item No. 2: 30 pcs. Outdoor Bullet CCTV Camera VIDEO	
Imaging Device	At least 1/2.8" 2MP CMOS	Imaging Device	At least 1/2.8" 2MP CMOS
Resolution	1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360	Resolution	1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)	Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)
Min. Illumination	Color: 0.03Lux(F1.6, 1/30sec) BW: 0Lux(IR LED on)	Min. Illumination	Color: 0.03Lux(F1.6, 1/30sec) BW: 0Lux(IR LED on)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation	Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation
LENS		LENS	
Focal Length (Zoom Ratio)	3.2~10mm(3.1x) manual varifocal	Focal Length (Zoom Ratio)	Minimum: 3.0 ~ Maximum: 12mm (3.1x) manual varifocal
Max. Aperture Ratio	F1.6(Wide)~F2.9(Tele)	Aperture Ratio	Maximum: F1.6(Wide) Maximum: F2.9(Tele)
Angular Field of View	H: 109.0°(Wide)~33.2°(Tele) / V: 57.4°(Wide)~18.7°(Tele) / D: 132.0°(Wide)~38.0°(Tele)	Angular Field of View	Minimum: H: 109.0°(Wide)~33.2°(Tele) Minimum: V: 57.4°(Wide)~18.7°(Tele)
Focus Control	Manual		

Lens Type	DC auto iris
OPERATIONAL	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SSSDR
Wide Dynamic Range	At least 120dB
Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.
Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output
Audio In	Selectable(mic in/line in)
	Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
IR Viewable Length	30m(98.42ft)
NETWORK	
Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log

	Minimum: D:132.0°(Wide)~38.0°(Tele)
Focus Control	Manual
Lens Type	DC auto iris
OPERATIONAL	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SSDR
Wide Dynamic Range	At least 120dB
Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.
Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output
Audio In	Selectable(mic in/line in)
	Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
IR Viewable Length	30m(98.42ft)
NETWORK	
Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP

	802.1X Authentication(EAP-TLS, EAP-LEAP)	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)
GENERAL		GENERAL	
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)	Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)
Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB	Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB
Memory	512MB RAM, 256MB Flash	Memory	512MB RAM, 256MB Flash
ENVIRONMENTAL / ELECTRICAL		ENVIRONMENTAL / ELECTRICAL	
Operating Temperature / Humidity	-30°C ~ +55°C(-22°F ~ +131°F) / Less than 90% RH	Operating Temperature / Humidity	-30°C ~ +55°C(-22°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH	Storage Temperature / Humidity	30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH
Certification	IP66, IK10	Certification	IP66, IK10
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC	Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 7.40W, typical 5.40W 12VDC: Max 6.50W, typical 4.80W	Power Consumption	PoE: Max 7.40W, typical 5.40W 12VDC: Max 6.50W, typical 4.80W

Item No. 3: 2 pcs. Mini Dome CCTV Camera for elevators VIDEO

Imaging Device	At least 1/2.8" 2MP CMOS	Imaging Device	At least 1/2.8" 2MP CMOS
Resolution	1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360	Resolution	1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)	Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)
Min. Illumination	Color: 0.03Lux(F2.0, 1/30sec)	Min. Illumination	Color: 0.03Lux(F2.0, 1/30sec)
LENS		LENS	
Focal Length (Zoom Ratio)	2.8mm fixed focal	Focal Length (Zoom Ratio)	2.8mm fixed focal
Max. Aperture Ratio	F2.0	Max. Aperture Ratio	Maximum: F2.0
Angular Field of View	H: 113.7 / V: 61.5° / D: 134.5°	Angular Field of View	Minimum: H: 113.7° Minimum: V: 61.5° Minimum: D: 134.5°
Focus Control	Fixed	Focus Control	Fixed
Pan / Tilt / Rotate Range	0°~350° / 0°~69° / 0°~355°	Pan / Tilt / Rotate Range	0°~350° / 0°~69° / 0°~355°
OPERATIONAL		OPERATIONAL	
Camera Title	Displayed up to 85 characters	Camera Title	Displayed up to 85 characters
Day & Night	Auto(Electrical)	Day & Night	Auto(Electrical)
Backlight Compensation	BLC, WDR, SDR	Backlight Compensation	BLC, WDR, SSDR
Wide Dynamic Range	120dB	Wide Dynamic Range	120dB
Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or	Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable.

	even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.				Therefore, the noise should be eliminated, or even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.
Motion Detection	4ea, polygonal zones			Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones			Privacy Masking	6ea, rectangular zones
Gain Control	Low / Middle / High			Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor			White Balance	ATW / AWC / Manual / Indoor / Outdoor
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)			Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)			Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Motion detection, Tampering			Analytics	Defocus detection, Motion detection, Tampering
Business Intelligence	People counting			Business Intelligence	People counting
Alarm Triggers	Analytics, Network disconnect			Alarm Triggers	Analytics, Network disconnect
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers			Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers
NETWORK				NETWORK	
Ethernet	RJ-45(10/100BASE-T)			Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG			Video Compression	H.265/H.264: Main/High, MJPEG
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR			Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)			Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP			Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)			Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)
GENERAL				GENERAL	
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)			Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window

Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB				64bit only), Apple Safari (Mac OSX)
Memory	512MB RAM, 256MB Flash			Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB
ENVIRONMENTAL & ELECTRICAL				Memory	512MB RAM, 256MB Flash
Operating Temperature / Humidity	-10°C ~ +55°C(-14°F ~ +131°F) / Less than 90% RH			ENVIRONMENTAL & ELECTRICAL	
Storage Temperature / Humidity	-30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH			Operating Temperature / Humidity	-10°C ~ +55°C(-14°F ~ +131°F) / Less than 90% RH
Certification	IP42, IK08			Storage Temperature / Humidity	-30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH
Input Voltage	PoE(IEEE802.3af, Class2)			Certification	IP42, IK08
Power Consumption	PoE: Max 4.80W, typical 2.80W			Input Voltage	PoE(IEEE802.3af, Class2)
				Power Consumption	PoE: Max 4.80W, typical 2.80W

Item No. 4: 2 pcs. Outdoor Bullet CCTV Camera with LPR	VIDEO	Item No. 4: 2 pcs. Outdoor Bullet CCTV Camera with LPR	VIDEO
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Imaging Device	At least 1/1.8" CMOS			Imaging Device	At least 1/1.8" CMOS
Resolution	3840x2160, 3072x1728, 2592x1944, 2688x1520, 2560x1440, 2048x1536, 1920x1080, 1600x1200, 1280x1024,1280x960, 1280x720, 1024x768, 800 x 600, 800 x 448, 720 x 576, 720x480, 640x480, 640x360			Resolution	3840x2160, 3072x1728, 2592x1944, 2688x1520, 2560x1440, 2048x1536, 1920x1080, 1600x1200, 1280x1024,1280x960, 1280x720, 1024x768, 800 x 600, 800 x 448, 720 x 576, 720x480, 640x480, 640x360
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)			Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)
Min. Illumination	Color: 0.05Lux(F1.6, 1/30sec) BW: 0Lux(IR LED on)			Min. Illumination	Color: 0.05Lux(F1.6, 1/30sec) BW: 0Lux(IR LED on)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation USB: Micro USB Type B, 1280x720 for installation			Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation USB: Micro USB Type B, 1280x720 for installation
LENS				LENS	
Focal Length (Zoom Ratio)	4.5~10mm(2.2x) motorized varifocal			Focal Length (Zoom Ratio)	Minimum: 4.2~ Maximum: 12mm (2.2x) motorized varifocal
Max. Aperture Ratio	F1.6(Wide)~F2.65(Tele)			Aperture Ratio	Maximum: F1.6(Wide) Maximum: F2.65(Tele)
Angular Field of View	H:101.4°(Wide)~45.5°(Tele) / V:53.6°(Wide)~25.5°(Tele) / D:120.7°(Wide)~52.3°(Tele)			Angular Field of View	Minimum: H:101.4°(Wide)~45.5°(Tele) Minimum: V:53.6°(Wide)~25.5°(Tele) Minimum: D:120.7°(Wide)~52.3°(Tele)
Min. Object Distance	0.5m(1.64ft)			Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple focus			Focus Control	Simple focus
Lens Type	DC auto iris, P iris			Lens Type	DC auto iris, P iris
OPERATIONAL				OPERATIONAL	
Camera Title	Displayed up to 85 characters			Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)			Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, DWDR, SDDR			Backlight Compensation	BLC, HLC, WDR, DWDR, SDDR
Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or even greatly reduced, this will			Digital Noise Reduction	The images should be cleaner, sharper and retain more detail. The images are captured in low light applications, has usually the high levels of noise which make them unusable. Therefore, the noise should be eliminated, or

	greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.			even greatly reduced, this will greatly enhance the performance of a camera. With reduced noise, it will keep image file sizes down when recorded digitally.
Digital Image Stabilization	Stabilization Support(built-in gyro sensor)		Digital Image Stabilization	Stabilization Support(built-in gyro sensor)
Motion Detection	8ea, polygonal zones		Motion Detection	8ea, polygonal zones
Privacy Masking	6ea, rectangle zones Color: Gray/Green/Red/Blue/Black/White		Privacy Masking	6ea, rectangle zones Color: Gray/Green/Red/Blue/Black/White
Gain Control	Low / Middle / High		Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor		White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support		LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)		Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)		Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Classified object type : Person/Face/Vehicle/License plate with attributes, BestShot per object		Analytics	Classified object type : Person/Face/Vehicle/License plate with attributes, BestShot per object
	Analytics events based on AI engine : Object detection, Face mask detection, Directional detection, Digital auto tracking, Enter/Exit, Loitering, Virtual line			Analytics events based on AI engine : Object detection, Face mask detection, Directional detection, Digital auto tracking, Enter/Exit, Loitering, Virtual line
	Analytics events : Defocus detection, Motion detection, Appear/Disappear, Tampering, Audio detection, Sound classification, Shock detection			Analytics events : Defocus detection, Motion detection, Appear/Disappear, Tampering, Audio detection, Sound classification, Shock detection
Business Intelligence	People counting, Queue management, Heatmap based on AI engine		Business Intelligence	People counting, Queue management, Heatmap based on AI engine
Alarm I/O	Input 1ea / Output 1ea / DC 12V Power(Max. 50mA) 1ea		Alarm I/O	Input 1ea / Output 1ea / DC 12V Power(Max. 50mA) 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input		Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output Handover Audio playback		Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output Handover Audio playback
Audio In	Selectable(mic in/line in)		Audio In	Selectable(mic in/line in)
	Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm			Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms		Audio Out	Line out, Max.output level: 1Vrms
IR Viewable Length	30m(98.42ft)		IR Viewable Length	30m(98.42ft)
NETWORK			NETWORK	
Ethernet	Metal shielded RJ-45(10/100/1000 BASE-T)		Ethernet	Metal shielded RJ-45(10/100/1000 BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG		Video Compression	H.265/H.264: Main/High, MJPEG
Audio Compression	G.711 u-law /G.726 Selectable		Audio Compression	G.711 u-law /G.726 Selectable
	G.726(ADPCM) 8KHz, G.711 8KHz			G.726(ADPCM) 8KHz, G.711 8KHz
	G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps			G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
	AAC-LC: 48Kbps at 16KHz			AAC-LC: 48Kbps at 16KHz
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR		Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR

Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)		Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)	
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP (TCP, UDP Unicast)		Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP (TCP, UDP Unicast)	
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP) Device Certificate(Hanwha Techwin Root CA)		Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP) Device Certificate(Hanwha Techwin Root CA)	
GENERAL			GENERAL		
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)		Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OSx10.12, 10.13, 10.14 Supported Browser: Google Chrome, MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari (Mac OSX)	
Edge Storage	Micro SD/SDHC/SDXC 2slots 512GB		Edge Storage	Micro SD/SDHC/SDXC 2slots 512GB	
Memory	4096MB RAM, 512MB Flash		Memory	4096MB RAM, 512MB Flash	
ENVIRONMENTAL & ELECTRICAL			ENVIRONMENTAL & ELECTRICAL		
Operating Temperature / Humidity	-40°C ~ +55°C(-40°F ~ +131°F) / Less than 90% RH		Operating Temperature / Humidity	-40°C ~ +55°C(-40°F ~ +131°F) / Less than 90% RH	
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH		Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH	
Certification	IP66/IP67, IK10, NEMA4X		Certification	IP66/IP67, IK10, NEMA4X	
Input Voltage	PoE+(IEEE802.3at), 12VDC		Input Voltage	PoE+(IEEE802.3at), 12VDC	
Power Consumption	PoE+: Max 20.0W, typical 17.00W 12VDC: Max 18.00W, typical 16.00W		Power Consumption	PoE+: Max 20.0W, typical 17.00W 12VDC: Max 18.00W, typical 16.00W	
Item No. 5: 1 pc. Central Video Management Software SYSTEM MANAGEMENT			Item No. 5: 1 pc. Central Video Management Software SYSTEM MANAGEMENT		
Camera Connection	Up to 3,000 channels			Minimum: 128 channels Maximum: 3,000 channels	
Server Clustering	Data sharing, Failure management		Camera Connection	Data sharing, Failure management	
System Dashboard	Real-time system status monitoring		Server Clustering	Real-time system status monitoring	
User Management	Configurable user group, LDAP supported Device access authority, Feature level authority		System Dashboard	Real-time system status monitoring	
Security	SSL, Database encryption, Login lockdown, Multi-level user access authority		User Management	Configurable user group, LDAP supported Device access authority, Feature level authority	
Federation	Multi-tier domain federation, Max 100 domains		Security	SSL, Database encryption, Login lockdown, Multi-level user access authority	
DEVICE MANAGEMENT			Federation	Multi-tier domain federation, Max 100 domains	
Centralized Device Configuration	Auto / Manual discovery, Device		DEVICE MANAGEMENT		

	and add-on server registration		Centralized Device Configuration	Auto / Manual discovery, Device and add-on server registration
Maintenance	Setup file backup / restore, Device firmware update		Maintenance	Setup file backup / restore, Device firmware update
EVENT MANAGEMENT			EVENT MANAGEMENT	
Event Configuration	4 levels event priority, Configurable event color		Event Configuration	4 levels event priority, Configurable event color
Event Action	Rule based event and triggering action setup Instant viewer pop-up, Alert sound, E-mail notification		Event Action	Rule based event and triggering action setup Instant viewer pop-up, Alert sound, E-mail notification
SITE / LAYOUT / MAP DESIGN			SITE / LAYOUT / MAP DESIGN	
Multi-Layered Site Configuration	Flexible site design, Site access authority		Multi-Layered Site Configuration	Flexible site design, Site access authority
Layout & Pattern	User defined layout and tile pattern		Layout & Pattern	User defined layout and tile pattern
Map	2D image map		Map	2D image map
RECORDING MODULE			RECORDING MODULE	
Max. Camera Per Server	Up to 128 channel		Max. Camera Per Server	Up to 128 channel
Recording Performance	Up to 400Mbps (@4 HDD)		Recording Performance	Up to 400Mbps (@4 HDD)
Recording Mode	Manual, Continuous, Event, Schedule		Recording Mode	Manual, Continuous, Event, Schedule
Pre / Post Event Recording	Pre : 10 ~ 60 sec / Post : 1,200 sec		Pre / Post Event Recording	Pre : 10 ~ 60 sec / Post : 1,200 sec
RAID	Hardware RAID controller required		RAID	Hardware RAID controller required
Etc	ARB (Auto recovery backup) from camera edge storage, Recoding retention time, iSCSI support		Etc	ARB (Auto recovery backup) from camera edge storage, Recoding retention time, iSCSI support
Item No. 6: 1 pc. Central Video Management Server		Item No. 6: 1 pc. Central Video Management Server		
<ul style="list-style-type: none"> 1 x PowerEdge R440 Motherboard 1 x Intel Xeon Gold 5217 3.0G, 8C/16T, 10.4GT/s, 11M Cache, Turbo, HT (115W) DDR4-2666 1 x iDRAC Group Manager, Enabled 1 x iDRAC Service Module (ISM), Pre-installed in OS 1 x iDRAC Factory Generate Password 1 x Chassis with up to 8 x 2.5" HOT Plug Hard Drives 1 x Standard Bezel 1 x Riser Config 1, 1 x 16 FH 1 x 14G OpenManage Placemat 1 x Quick Sync 2 (at-the-box mgmt.) 1 x 3200MT/s RDIMMs 1 x Performance Optimized 6 x 8GB RDIMM, 3200MT/s, Single Rank 1 x iDRAC, Enterprise 2 x 480GB SSD SATA Mix Use Gbps 512 2.5in Hot-plug AG Drive, 3 DWPD, 2628 TBW 1 x PERC H330 RAID Controller, Adapter, Low Profile 1 x Standard Heat Sink 1 x DVD +/-RW, SATA, Internal 1 x Dual, Hot Plug, Redundant Power Supply (1+1) 550W 2 x NEMA 5-15P to C13 Wall Plug, 10 feet (3m), 125V, 15AMP Power Cord North America 		<ul style="list-style-type: none"> 1 x PowerEdge R440 Motherboard 1 x Intel Xeon Gold 5217 3.0G, 8C/16T, 10.4GT/s, 11M Cache, Turbo, HT (115W) DDR4-2666 1 x iDRAC Group Manager, Enabled 1 x iDRAC Service Module (ISM), Pre-installed in OS 1 x iDRAC Factory Generate Password 1 x Chassis with up to 8 x 2.5" HOT Plug Hard Drives 1 x Standard Bezel 1 x Riser Config 1, 1 x 16 FH 1 x 14G OpenManage Placemat 1 x Quick Sync 2 (at-the-box mgmt.) 1 x 3200MT/s RDIMMs 1 x Performance Optimized 6 x 8GB RDIMM, 3200MT/s, Single Rank 1 x iDRAC, Enterprise 2 x 480GB SSD SATA Mix Use Gbps 512 2.5in Hot-plug AG Drive, 3 DWPD, 2628 TBW 1 x PERC H330 RAID Controller, Adapter, Low Profile 1 x Standard Heat Sink 1 x DVD +/-RW, SATA, Internal 1 x Dual, Hot Plug, Redundant Power Supply (1+1) 550W 2 x NEMA 5-15P to C13 Wall Plug, 10 feet (3m), 125V, 15AMP Power Cord North America 		

<p>1 x Broadcom 5720 Dual Port 1GbE Base-T Adapter, PCIe Full Height 1 x Dual-Port 1GbE On-board LOM 1 x ReadyRails Sliding Rails With Cable Management Arm 1 x RAID 1 1 x OpenManage Enterprise Advanced 1 x Windows Server 2019 Standard, 16Core, Digitally Fulfilled Recovery Image, Multi Language 1 x Windows Server 2019 Standard, 16Core, FI, No Med, No CAL, Multi Language 1 x No Systems Documentation, No OpenManage DVD Kit 1 x For SADMG Countries only - No Installation Service Required 1 x Integration Information 1 x OpenManage Enterprise Advanced 1 x Basic Next Business Day 36 Months-ACDTS 1 x ProSupport Plus and 4Hr Mission Critical-ACDTS Initial, 36 Month(s) 1 x ProSupport Plus and 4Hr Mission Critical-ACDTS Extension, 24 Month(s)</p>	<p>1 x Broadcom 5720 Dual Port 1GbE Base-T Adapter, PCIe Full Height 1 x Dual-Port 1GbE On-board LOM 1 x ReadyRails Sliding Rails With Cable Management Arm 1 x RAID 1 1 x OpenManage Enterprise Advanced 1 x Windows Server 2019 Standard, 16Core, Digitally Fulfilled Recovery Image, Multi Language 1 x Windows Server 2019 Standard, 16Core, FI, No Med, No CAL, Multi Language 1 x No Systems Documentation, No OpenManage DVD Kit 1 x For SADMG Countries only - No Installation Service Required 1 x Integration Information 1 x OpenManage Enterprise Advanced 1 x Basic Next Business Day 36 Months-ACDTS 1 x ProSupport Plus and 4Hr Mission Critical-ACDTS Initial, 36 Month(s) 1 x ProSupport Plus and 4Hr Mission Critical-ACDTS Extension, 24 Month(s)</p>
<p>Item No. 7: 1 pc. Workstation Enterprise or Business model Desktop Equivalent to 10th Generation Intel Core i5-10500 Processor (6 Cores/12MB/12T/3.1GHz to 4.5GHz/65W) At least 360W up to 92% efficient Power Supply (80Plus Platinum) Energy Star Qualified EPEAT Registered Must have Trusted Platform Module (TPM) Must have cable cover tower At least 8x DVD+/-RW 9.5mm Optical Disk Drive 8GB DDR4 non-ECC Memory 3.5" 1TB 7200rpm SATA Hard Disk Drive Equivalent to NVIDIA® GeForce® GT 730, 2 GB, GDDR5 With speaker for tower Internal Wireless Antennas Equivalent to intel wi-fi 6 AX201, Dual-band 2x2 802.11ax with MU-MIMO + Bluetooth 5.1 1 x Gigabit LAN Wired Mouse Same brand of desktop Black Wired Keyboard Same brand of desktop Black Latest Propriety Operating System (Professional) 64 bit Must have Client System Update (for BIOS, Drivers, Firmware and Apps) Must Support OS Recovery Tool Equivalent to Waves Maxx Audio Must have optimizer within built-in AI, intelligent audio and Intel Adaptix technology to learn usage or how a typical applications, continuously improving and applying settings to get the most nimble performance possible. Automatically tune system by adjusting background noise, managing speech volume and refining overall sound experience for every conference call in the room no matter where. Must be capable of digital delivery client for safe keeping of licenses key. Ports: 1 Universal Audio Jack (front) 2 USB 3.2 Gen 1 Type-A port (front) 2 USB 2.0 ports (front) 1 RJ-45 port 10/100/1000 Mbps (rear) 2 USB 2.0 ports with Smart Power on (rear) 2 USB 3.2 Gen 1 Type-A ports (rear) 1 Line-out audio port (rear) 1 DisplayPort 1.4 (rear) 1 HDMI 1.4 port (rear) 1 Optional 3rd Video Port (VGA/DP 1.4/HDMI 2.0b) 1 Serial /PS2 slot (optional) Warranty and Support Limited Warranty: 3 years labor and parts – PH:</p>	<p>Item No. 7: 1 pc. Workstation Enterprise or Business model Desktop Equivalent to 10th Generation Intel Core i5-10500 Processor (6 Cores/12MB/12T/3.1GHz to 4.5GHz/65W) At least 360W up to 92% efficient Power Supply (80Plus Platinum) Energy Star Qualified EPEAT Registered Must have Trusted Platform Module (TPM) Must have cable cover tower At least 8x DVD+/-RW 9.5mm Optical Disk Drive 8GB DDR4 non-ECC Memory 3.5" 1TB 7200rpm SATA Hard Disk Drive Equivalent to NVIDIA® GeForce® GT 730, 2 GB, GDDR5 With speaker for tower Internal Wireless Antennas Equivalent to intel wi-fi 6 AX201, Dual-band 2x2 802.11ax with MU-MIMO + Bluetooth 5.1 1 x Gigabit LAN Wired Mouse Same brand of desktop Black Wired Keyboard Same brand of desktop Black Latest Propriety Operating System (Professional) 64 bit Must have Client System Update (for BIOS, Drivers, Firmware and Apps) Must Support OS Recovery Tool Equivalent to Waves Maxx Audio Must have optimizer within built-in AI, intelligent audio and Intel Adaptix technology to learn usage or how a typical applications, continuously improving and applying settings to get the most nimble performance possible. Automatically tune system by adjusting background noise, managing speech volume and refining overall sound experience for every conference call in the room no matter where. Must be capable of digital delivery client for safe keeping of licenses key. Ports: 1 Universal Audio Jack (front) 2 USB 3.2 Gen 1 Type-A port (front) 2 USB 2.0 ports (front) 1 RJ-45 port 10/100/1000 Mbps (rear) 2 USB 2.0 ports with Smart Power on (rear) 2 USB 3.2 Gen 1 Type-A ports (rear) 1 Line-out audio port (rear) 1 DisplayPort 1.4 (rear) 1 HDMI 1.4 port (rear) 1 Optional 3rd Video Port (VGA/DP 1.4/HDMI 2.0b) 1 Serial /PS2 slot (optional) Warranty and Support Limited Warranty: 3 years labor and parts – PH:</p>

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<p>Item No. 8: 1 pc. CCTV Storage 1 x PowerEdge R740/R740XD Motherboard 2 x Intel Xeon Silver 4212 2.2G, 12C/24T, 9.6GT/s, 16.5M Cache, Turbo, HT (85) DDR4-2400 1 x iDRAC, Factory Generated Password 1 x iDRAC9, Enterprise 1 x Chassis with up to 12 x 3.5" HDDs on BP, 4 x 3.5" HDDs on MP and 2 x 3.5" HDDs Flexbay, 1 and 2 CPU Configuration 1 x 2U LCD Bezel 1 x Riser Config 2, 3x8 , 1x16 slots 4 x 16GB RDIMM, 3200MT/s, Dual Rank 9 x 8TB 7.2K RPM NLSAS 12Gbps 512e 3.5" Hot-Plug Hard Drive 2 x 600GB 10K RPM SAS 12Gbps 512e 2.5" Flex Bay Hard Drive, 3.5" HYB CARR 1 x PERC H730P RAID 2 x 1U Pipe Low Profile Heatsink 1 x 6 Performance Fan 1 x Dual, Hot-Plug, Redundant Power Supply (1+1), 750W 1 x Trusted Platform Module 2.0 1 x Quick Sync 2 (at the box management) 1 x Performance Optimized 2 x NEMA 5-15P to C13 Wall Plug, 10 feet (3m), 125V, 15AMP Power Cord North America 1 x Intel X550 Dual Port 10GbE Base-T & i350 Dual Port, 1 GbE Base-T, rNDC 1 x Windows Storage Servers 2016 Standard Edition 1 x ReadyRails Sliding Rails with Cable Management Arm 1 x RAID 6 1 x OpenManage Enterprise Advanced 1 x 5 Yr ProSupport Plus & Mission Critical(7x24) 4-hr Onsite Service 1 x 5 Yr ProSupport Plus & Mission Critical(7x24) Technical Support & Assistance 1 x 1-3 ProSupport Plus & Mission Critical(7x24) 4-hr Onsite Service 1 x 4-5 ProSupport Plus & Mission Critical(7x24) 4-hr Onsite Service</p>	<p>Item No. 8: 1 pc. CCTV Storage 1 x PowerEdge R740/R740XD Motherboard 2 x Intel Xeon Silver 4212 2.2G, 12C/24T, 9.6GT/s, 16.5M Cache, Turbo, HT (85) DDR4-2400 1 x iDRAC, Factory Generated Password 1 x iDRAC9, Enterprise 1 x Chassis with up to 12 x 3.5" HDDs on BP, 4 x 3.5" HDDs on MP and 2 x 3.5" HDDs Flexbay, 1 and 2 CPU Configuration 1 x 2U LCD Bezel 1 x Riser Config 2, 3x8 , 1x16 slots 4 x 16GB RDIMM, 3200MT/s, Dual Rank 9 x 8TB 7.2K RPM NLSAS 12Gbps 512e 3.5" Hot-Plug Hard Drive 2 x 600GB 10K RPM SAS 12Gbps 512e 2.5" Flex Bay Hard Drive, 3.5" HYB CARR 1 x PERC H730P RAID 2 x 1U Pipe Low Profile Heatsink 1 x 6 Performance Fan 1 x Dual, Hot-Plug, Redundant Power Supply (1+1), 750W 1 x Trusted Platform Module 2.0 1 x Quick Sync 2 (at the box management) 1 x Performance Optimized 2 x NEMA 5-15P to C13 Wall Plug, 10 feet (3m), 125V, 15AMP Power Cord North America 1 x Intel X550 Dual Port 10GbE Base-T & i350 Dual Port, 1 GbE Base-T, rNDC 1 x Windows Storage Servers 2016 Standard Edition 1 x ReadyRails Sliding Rails with Cable Management Arm 1 x RAID 6 1 x OpenManage Enterprise Advanced 1 x 5 Yr ProSupport Plus & Mission Critical(7x24) 4-hr Onsite Service 1 x 5 Yr ProSupport Plus & Mission Critical(7x24) Technical Support & Assistance 1 x 1-3 ProSupport Plus & Mission Critical(7x24) 4-hr Onsite Service 1 x 4-5 ProSupport Plus & Mission Critical(7x24) 4-hr Onsite Service</p>																																																				
<p>Item No. 9: 6 pcs. 24 port Network Switch (POE)</p> <table border="1"> <tr><td>10/100/1000 BaseT, POE+</td><td>24</td></tr> <tr><td>10/100/1000 SFP Ports</td><td>4</td></tr> <tr><td>Rackmount</td><td>19" 1U</td></tr> <tr><td>Total PoE Budget</td><td>185W</td></tr> <tr><td>PoE+ Capable Ports</td><td>1 to 24</td></tr> <tr><td>Switching Capacity</td><td>56 Gbps</td></tr> <tr><td>Forwarding Mode</td><td>Store-and-forward</td></tr> <tr><td>MAC Address Table</td><td>8k</td></tr> <tr><td>Packet Buffer Memory</td><td>512 KB</td></tr> <tr><td>Power Source</td><td>100 to 240 VAC (50/60Hz)</td></tr> <tr><td>Full Load Power Consumption</td><td>228.10 Watts</td></tr> <tr><td>VLANs</td><td>Max 4094 Static Groups, Voice VLAN</td></tr> <tr><td>Network Standards</td><td>IEEE 802.3 Ethernet IEEE 802.3i 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast</td></tr> </table>	10/100/1000 BaseT, POE+	24	10/100/1000 SFP Ports	4	Rackmount	19" 1U	Total PoE Budget	185W	PoE+ Capable Ports	1 to 24	Switching Capacity	56 Gbps	Forwarding Mode	Store-and-forward	MAC Address Table	8k	Packet Buffer Memory	512 KB	Power Source	100 to 240 VAC (50/60Hz)	Full Load Power Consumption	228.10 Watts	VLANs	Max 4094 Static Groups, Voice VLAN	Network Standards	IEEE 802.3 Ethernet IEEE 802.3i 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast	<p>Item No. 9: 6 pcs. 24 port Network Switch (POE)</p> <table border="1"> <tr><td>10/100/1000 BaseT, POE+</td><td>24</td></tr> <tr><td>10/100/1000 SFP Ports</td><td>4</td></tr> <tr><td>Rackmount</td><td>19" 1U</td></tr> <tr><td>Total PoE Budget</td><td>185W</td></tr> <tr><td>PoE+ Capable Ports</td><td>1 to 24</td></tr> <tr><td>Switching Capacity</td><td>56 Gbps</td></tr> <tr><td>Forwarding Mode</td><td>Store-and-forward</td></tr> <tr><td>MAC Address Table</td><td>8k</td></tr> <tr><td>Packet Buffer Memory</td><td>512 KB</td></tr> <tr><td>Power Source</td><td>100 to 240 VAC (50/60Hz)</td></tr> <tr><td>Full Load Power Consumption</td><td>228.10 Watts</td></tr> <tr><td>VLANs</td><td>Max 4094 Static Groups, Voice VLAN</td></tr> <tr><td>Network Standards</td><td>IEEE 802.3 Ethernet IEEE 802.3i 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast</td></tr> </table>	10/100/1000 BaseT, POE+	24	10/100/1000 SFP Ports	4	Rackmount	19" 1U	Total PoE Budget	185W	PoE+ Capable Ports	1 to 24	Switching Capacity	56 Gbps	Forwarding Mode	Store-and-forward	MAC Address Table	8k	Packet Buffer Memory	512 KB	Power Source	100 to 240 VAC (50/60Hz)	Full Load Power Consumption	228.10 Watts	VLANs	Max 4094 Static Groups, Voice VLAN	Network Standards	IEEE 802.3 Ethernet IEEE 802.3i 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast
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Item No. 10: 3 pcs. 34" FHD LED Monitor		Item No. 10: 3 pcs. 34" FHD LED Monitor	
Item No. 11: 1 pc. Uninterrupted Power Supply (UPS)		Item No. 11: 1 pc. Uninterrupted Power Supply (UPS)	
Max Power (Watts)	4.5kWatts / 5kVA	Max Power (Watts)	4.5kWatts / 5kVA
Output Voltage Distortion	Less than 2%	Output Voltage Distortion	Less than 2%
Output Frequency	50/60 Hz +/- 3 Sync to mains	Output Frequency	50/60 Hz +/- 3 Sync to mains
Other Output Voltages	220, 240	Other Output Voltages	220, 240
Input frequency	40-70 Hz Auto-sensing	Input frequency	40-70 Hz Auto-sensing
Input voltage range for main operation	100-275 Adjustable	Input voltage range for main operation	100-275 Adjustable
Other Input Voltages	220, 240	Other Input Voltages	220, 240
Battery Type	Lead-acid Battery	Battery Type	Lead-acid Battery
Included Battery Modules	2	Included Battery Modules	2
Typical recharge time	1.5hr	Typical recharge time	1.5hr
Nominal Battery Voltage	192 V	Nominal Battery Voltage	192 V
Interface Port(s)	RJ-45 10/100 Base-T, RJ-45 Serial, Smart-Slot, USB	Interface Port(s)	RJ-45 10/100 Base-T, RJ-45 Serial, Smart-Slot, USB
Control Panel	Multifunction LCD status and control console	Control Panel	Multifunction LCD status and control console
Audible Alarm	Audible and visible alarms prioritized by severity	Audible Alarm	Audible and visible alarms prioritized by severity
Emergency Power Off (EPO)	Yes	Emergency Power Off (EPO)	Yes
Surge energy rating	At least 480Joules	Surge energy rating	At least 480Joules
Max Height	44cm	Max Height	44cm
Max width	13cm	Max width	13cm
Max Depth	72cm	Max Depth	72cm
Features	Hot-swappable batteries Intelligent battery Management Automatic internal bypass Temperature-compensated battery charging Automatic restart of loads after UPS shutdown Plug-and-Play external batteries	Features	Hot-swappable batteries Intelligent battery Management Automatic internal bypass Temperature-compensated battery charging Automatic restart of loads after UPS shutdown Plug-and-Play external batteries
Protection	Resettable circuit breaker Power Conditioning Generator Compatible Frequency and Voltage Regulation Cold-start capable	Protection	Resettable circuit breaker Power Conditioning Generator Compatible Frequency and Voltage Regulation Cold-start capable
Warranty		Warranty	
One (1) year on workmanship 1 year on CCTV equipment. Server, Storage, workstation and UPS have five (5) years		One (1) year on workmanship 1 year on CCTV equipment. Server, Storage, workstation and UPS have five (5) years	

II. The following clarifications are provided for the guidance and reference of the shortlisted bidder:

- Server location will be located at the 5th floor mini data center of IT Division
- Complete set of Bidding Documents may be acquired by interested Bidders from **November 27 to December 16, 2020 (8:00 a.m to 5:00 p.m.)** and **December 17, 2020 (until 9:00 a.m.)** from the given address and website(s) below **and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Twenty-Five Thousand Philippine Pesos (PhP25,000.00) OR deposited to:**

Account Name	Department of Tourism-Regular Trust
Account Number	00-0-05002-407-4
Beneficiary's Bank	Development Bank of the Philippines (DBP)
Bank Branch	F. Zobel Branch
Address	809 J.P Rizal corner F. Zobel St., Makati City, Philippines

For the guidance and information of all the concerned.


OIC-USEC. ROBERTO P. ALABADO III
DOT-BAC Chairperson

10 December 2020