GOVERNMENT OF MEGHALAYA

DIRECTORATE OF TOURISM

Meghalaya Ecotourism Infrastructure Development Project (MEIDP)

IFB No.: M/D Tour/Tech/77/2024/12 Dated : 19th November 2025

Corrigendum 2

This is to inform that the additional soecification for the work “Development of Accommodation Facilities & Development of Picnic Spot At Nakachikong, North Garo Hills, Meghalaya.” invited vide M/D Tour/Tech/77/2024/9 Dated :30th September 2025 is hereby placed for your reference.

Sd/-

Director of Tourism.

Meghalaya, Shillong.

Annexure-E

1. IT-Passive, Active, Wi-fi, EPBAX
2. CCTV System

PASSIVE COMPONENTS GENERAL SPECIFICATIONS:

1. The OEM of passive components should be present in India from at least past 20 years.(documentary proof to be attached)
2. The OEM of Passive components is required to provide the Performance warranty of offered products for minimum 25 years from the date of commissioning.
3. Should have Technical / Telephonic support center in India.
4. OEM must have ISO 9001:2008, ISO 9001:14001.
5. Factory Test report must be provided for the product during supply.
6. All passive components should be RoHS complied. And ROHS compliant should clearly be mentioned on data sheets of each Passive Components.
7. OEM should have manufacturing Unit and product design & Development center in India.
8. OEM should have at least two dedicated Pre-sales manpower in India for after sales support.
9. Only Premium Brand and No Class B Products should be quoted.
10. The entire passive components Copper & Fiber should be from single OEM of one make.
11. The products must be listed on OEM's web site.

ACTIVE COMPONENTS GENERAL SPECIFICATIONS:

1. All Active componets quoted must be from same OEM with 5 Year Repalcement Warranty without any additional cost & OEM must certify that on their letter head.
2. Cloud License should be compatible with the existing Cloud License (Insight Cloud) and existing cloud managed switchesShould have Technical / Telephonic support center in India
3. Bidder must submit tender specific MAF from the OEM for all active product with contact details of the signatory.
4. Competent authority may ask for demonstration of the product quoted by the bidder to check the performance and compatibility with existing systems/software.
5. The products must be listed on OEM's web site CCTV GENERAL SPECIFICATIONS:
1. All cameras shall support a Power over Ethernet (PoE) interface.
2. Cameras and NVR should be from the same manufacturer.
3. Bidder must submit tender specific MAF from the OEM for all product with contact details of the signatory.
4. Cameras shall offer wide dynamic range.
5. Cameras should have Built-in Video Analytics.
6. Cameras should have on board storage of 256 Gb
7. Cameras should have Triple stream.

A. DATA, Voice and WI-FI – Hardware Schedule

S.NO.	DESCRIPTION	UOM	QTY	
1	Supply , Installation , Testing and Commissioning of CAT6 A U/FTP Shielded Cable	MTR	37820	
	(Indoor) complete as per attached specifications			
2	Supply , Installation , Testing and Commissioning of CAT6 UTP Cable (Indoor) complete as per attached specifications	MTR	8845	
3	Supply , Installation , Testing and Commissioning of CAT 6A Shielded RJ45 I/O as per attached specifications	Nos	740	
4	Supply , Installation , Testing and Commissioning of CAT 6A Shielded Mounting Patch	Nos	740	
	Cords 1 mtr as per attached specifications			
5	Supply , Installation , Testing and Commissioning of CAT 6A Shielded Mounting Patch	Nos	740	
	Cords 3 mtr as per attached specifications			
6	Supply , Installation , Testing and Commissioning of Faceplate Single or Duplex as required as per attached specifications	Nos	914	
7	Supply , Installation , Testing and Commissioning of CAT 6A 24 Port Shielded Patch	Nos	31	
	Panel Loaded as per attached specifications			
8	Supply , Installation , Testing and Commissioning of Field Termination plug as per attached specifications	Nos	53	
9	Supply , Installation , Testing and Commissioning of Cable Manger	Nos	32	
10	Supply , Installation , Testing and Commissioning of Fiber Optic Outdoor Armored cable Uni-Tube Dry 12 Core Single Mode as per attached specifications	MTR	500	
11	Supply , Installation , Testing and Commissioning of 12 port Rack Mount LIU LOADED as per attached specifications	Nos	6	
12	Supply , Installation , Testing and Commissioning of 24 port Rack Mount LIU LOADED as per attached specifications	Nos	3	
13	Supply , Installation , Testing and Commissioning of Optical Fiber Pigtails SM – LC	Nos	144	
	Type as per attached specifications			
14	Supply , Installation , Testing and Commissioning of Optical Fiber Patch Cord, SM,	Nos	18	
	LC-LC as per attached specifications			
15	Supply , Installation , Testing and Commissioning of Wireless Access Point ,WiFi 6 Dual Band indoor 4 X4 Access Point with 2.5 Gbps POE+ port mesh Access Point with 5 years of Hardware replacement warranty) complete as per attached specifications.	Nos	58	
16	WIFI Cloud controller-(Insight Cloud 5 Year Subscription License)	Nos	58	
17	Supply , Installation , Testing and Commissioning of 24 Port L3 Fibre switch (Layer 3- Stackable Managed Switch with 24x10G including 12x10GBASE-T and 12xSFP+ -Core	Nos	2	

	Switch) complete as per attached specifications			
18	Supply , Installation , Testing and Commissioning of Distribution Switch 16-Port 10GGigabit/Multi-Gigabit Ethernet Switch, 8 X10G SFP+ & 8 X 10G Copper complete as per attached specifications	Nos	2	
19	Supply , Installation , Testing and Commissioning of 24 Port POE + Switch With 380 Watts Power Budget and 5 Year Replacement Warranty complete as per attached specifications	Nos	45	
20	Supply , Installation , Testing and Commissioning of 10G SFP module (same make as switch)	Nos	RO	
21	Supply , Installation , Testing and Commissioning of 42U Network rack with accessories and 3 nos shelf tray as per attached specifications	Nos	1	
22	Supply , Installation , Testing and Commissioning of 42U Server rack with accessories and 3 nos shelf tray as per attached specifications	Nos	1	
23	Supply , Installation , Testing and Commissioning of 24U Network rack with accessories and 3 nos shelf tray as per attached specifications	Nos	5	
24	Supply , Installation , Testing and Commissioning of 50 pair MDF with krone module as per attached specifications	Nos	6	
25	Supply , Installation , Testing and Commissioning of 300 pair MDF with krone module as per attached specifications	Nos	1	
26	Supply , Installation , Testing and Commissioning of 50 pair riser cable as per attached specifications	mtr	300	
27	Supply , Installation , Testing and Commissioning of MFP laser Printer as per attached specifications	nos	74	
28	Supply , Installation , Testing and Commissioning of USB Printer as per attached specifications	nos	26	
29	Supply , Installation , Testing and Commissioning of bar code printer as per attached specifications	nos	22	
30	Supply , Installation , Testing and Commissioning of OMNIKEY data card printer	nos	6	
31	Supply , Installation , Testing and Commissioning of Fast Bar Code Scanner with Stand as per attached specifications	nos	7	
32	Supply , Installation , Testing and Commissioning of EPABX as per attached specifications	Lot	1	
33	Supply , Installation , Testing and Commissioning of Analog Phone with CLI	Nos	174	
34	Supply , Installation , Testing and Commissioning of Digital Phone	Nos	1	
B. CCTV System- Hardware Schedule				
1	IR Dome Camera , 5MP (2880×1620) resolution,1/2.7" CMOSCMOS complete as per attached specifications	Nos	30	
2	Supply , Installation , Testing and Commissioning of IP outdoor PTZ camera as per attached specifications	Nos	1	
3	Supply , Installation , Testing and Commissioning of 24 Port POE + Switch With 380 Watts Power Budget and 5 Year Replacement Warranty complete as per attached specifications	Nos	2	
4	Supply , Installation , Testing and Commissioning of RJ45 Connectors	Nos	66	
5	Supply , Installation , Testing and Commissioning of 32 Ch NVR as per attached specifications	Nos	1	
6	Supply , Installation , Testing and Commissioning of 6 TB Survellance HDD as per attached specifications	Nos	2	
7	Supply , Installation , Testing and Commissioning of CAT6 Cable (Indoor) complete as per attached specifications	mtr	3050	
8	Supply , Installation , Testing and Commissioning of 42 " /43" Display as per attached specifications	Nos	1	
9	Supply , Installation , Testing and Commissioning of 3 KVA online UPS as per requirement	Nos	1	
10	Supply , Installation , Testing and Commissioning of 18 U Network rack with accessories as per attached specifications	Nos	1	

Specifications

Cat 6A U/FTP Shielded Cable (Indoor)
Make-Siemon,Molex and Panduit
Minimum Specifications
Category 6A 4 pair U/FTP shielded LSZH cable should be compliant with TIA/EIA-568-C.2
Should be of 4 twisted pairs of 23 AWG solid conductors
Should support network line speed up to 10 Gigabits per second.
Shall be 4-pair Unshielded twisted pair with a cross filler/ isolator (+), meeting Category 6A tested to 500 MHz or more (4 connector test report from ETL(Intertek)/UL to be submitted with offer).
Should be ETL verified to TIA/EIA-568-C.2 Category 6A standard for
500MHz (ETL certificate to be enclosed along with the bid)

Third party report of Full Cat6A Channel/Performance Test should be enclosed along with the technical bid.

Mechanical Characteristics
Construction: 4 pair shielded cable should be constructed of 4 individual screened pairs.
Conductor should be solid Copper
Conductor Size should be 23 AWG
Insulator should be Polyethylene/Polyolefin
Jacket/ Sheath type should be LS0H (Low Smoke Zero Halogen)
NVP should be 75-77% or better
Screen should be each individual pair enclosed in laminated aluminium foil with drain wire.
Propagation Delay Skew should be 45 nS/100 max @ 1-500 MHz
Mean Impedance should be 100Ω ± 6 @ 1-500 MHz
Coupling Attenuation should be 45dB min @30-100 MHz 40-20
Log (f/100) @ 100-500 MHz
Operating Temperature should be Installation: 0˚C to +50˚C and
Operation: -20˚C to +60˚C
Should be RoHS Compliant
Should be certified by ETL/UL

Cat 6 UTP Cable (Indoor)

Make-Siemon,Molex and Panduit
Minimum Specifications
Category 6 4 pair LSZH cable should be compliant with TIA/EIA-568
Should be of 4 twisted pairs of 23 AWG solid conductors
Should support network line speed up to 1 Gigabits per second.
Mechanical Characteristics
Construction: 4 pair d cable should be constructed of 4 individual screened pairs.
Conductor should be solid Copper
Conductor Size should be 23 AWG
Jacket/ Sheath type should be LS0H (Low Smoke Zero Halogen)
Should be RoHS Compliant
Should be certified by ETL/UL

CAT 6A Shielded RJ45 I/O
Minimum Specifications
Should be conform to Category-6A as per ANSI/TIA-568-C.2
Should be support network line speeds up to 10 Gbps
I/O operating Life should be minimum 750 insertion cycles and contact material should be copper alloy.
I/O contact plating should be 50µ Gold/ 50µ Nickel minimum
I/O should be Spring-loaded shutter or cap to protects from dust and contaminants.

All information outlets for 22-24 AWG copper cable should be use insulation displacement connectors (IDC)

Operating Life should be minimum 750 insertion cycles
Operating Life should Minimum 20 re-terminations.
Wire AccoSModation: 22-24 AWG solid
Plastic Housing must be Polycarbonate, UL94V-0 rated
I/O should be terminated using industry standard punch-down tools.
Should be RoHS Compliant
Should be certified by ETL/UL

CAT 6A Shielded Mounting Patch Cords (1 and 2 Mtr.)

Minimum Specifications
Category 6A Equipment cords (Length – 1 & 3 Mtr)
Conductors Should be of 4 twisted pairs of 26 AWG stranded copper for better flexibility
Patch cords should conform to ANSI/TIA-568-C.2 for Cat 6A
Should have RJ-45 jacks with boot at both the ends.
All patch cords should be factory crimped and packed.
Should have LSZH jacket for safety
Operating Temperature should be -25°C to +55°C
Screen material should be aluminum/polyester shield with tinned copper drain wire.
Plug Insertion Life should be Minimum 750 times
Contact Plating should be 1.27um gold or better
Shall be RoHS Compliant
Should be certified by ETL/UL.

Faceplate Single or Duplex without Gang Box
Minimum Specifications
Single square plate, 86SMx86SM,
Write on labels in transparent plastic window – supplied with plate
Screw hole covers – to be supplied with plate, Plug in Icons – Icon tree – to be supplied with plate
Should be able to support variety of jacks – UTP, STP, Fiber, Coax etc.
The faceplate should be without shutters as I/O should have provision with shutter.

CAT 6A 24 Port Shielded Patch Panel Loaded :-
Minimum Specifications

Should be supplied with individually replaceable 24 numbers
Category-6A I/O shielded Jacks complying as per the ANSI/TIA-568C.2
Should be 19" rack mountable and of 1U height & complete with all mounting accessories
Should have label holder/cover for identification of ports
IDC Connector plastic housing should be polycarbonate and UL94V-0 rated.
Operating Life sholuld be Minimum 20 reterminations and contact material should be copper alloy.
Material should be CRS (cold rolled steel)
Should be supplied with metallic integrated rear cable management shelf as for cable strain relief.
Should have provision for better cable dressing at the rear
I/O operating Life should be minimum 750 insertion cycles and contact material should be copper alloy.
I/O contact plating should be 50µ Gold/ 50µ Nickel minimum
I/O should be Spring-loaded shutter or cap to protects from dust and contaminants.
Should be RoHS Compliant
Should be certified by ETL/UL

Field Termination plug
Minimum Specifications
Should be conform to Category 6A
RJ-45 meets TIA-568.2-D Category 6A component performance.
Plug Insertion Life should be Minimum 750 times
Should support for 23-26 AWG wire size
Should Supports 10GB networks
Contact plating material should have 50u" gold plating
Shall be RoHS Compliant
Should be certified by ETL/UL.

Fiber Optic Outdoor Armored cable Uni-Tube Dry Core Single Mode
Minimum Specifications
6/12 -core SIngle Mode should be as per GR 20 STDS,TIA/EIA 568-C.3, ISO.IEC 11801 - 2nd Edition
Should have RIP Cords, ECCS tape Armored,
Should be suitable for outdoor use.
Optical Fiber cable should be in a Stranded Loose Uni Tube Gel free construction
Colored fibers shall be encased in a loose tube filled with a waterbarrier filling compound
JACKETING

Outer sheath should be made of HDPE/MDPE.
Overall diameter (nominal), should be 9 mm ±0.5mm (Max)

MECHANICAL PROPERTIES

Minimum Bend Radius: Loaded/Installation – not more than 180 mm
Max.Tensile Strength-Short Term should be 1500N or better
Min. Crush Resistance should be 2700/10 cm) or better
Operating Temperature should be -20º to +70º Degree C or better

STRENGTH MEMBERS

Peripheral should be water Blocking Swell able Tape/E-Glass
Fiber cable should be RoHS Compliant.

12/24/48 Rack Mount LIU LOADED

Minimum Specifications

Should be Front Patching Type, 1U/2U high for 12/24/48 fiber and rack mountable on standard 19" rack with mounting arrangements
Should have all accessories including removable coupler plates preloaded with duplex LC couplers
Should be supplied with splicing try for termination of fiber.
Should be made of (CRS) cold rolled steel
Should have slide-out type drawer enclosure for Easy access to splicing tray, Easy access to back side of the connector and have labels for better identification
Should have splicing trays for Fiber management and should have greater access during installation and rework.
Should have all necessary accessories for fiber management within the Fiber Patch Panel/Fiber LIU. such as Fiber guides, radius controls & secure tie downs
No of fiber ports should be upgradable up 96 ports LC Style
Should be RoHS Compliant.

Optical Fiber Pigtails SM – LC Type

Minimum Specifications

SIngle Mode 9/125µ
Connector Type - LC
Should be LSZH as per IEC 60332
Should be 100% factory tested
Optical Performance of Pigtails:
Should be of ROHS
Testing Report to attached ETL/UL

Optical Fiber Patch Cord, SM, LC-LC

Minimum Specifications

Length should be 3 meters
All patch cords shall conform to ANSI/TIA-568C.3
Patch Cord should be SIngle Mode 9/125µ, Duplex
LSZH Sheath should comply flame test method as per IEC 60332
Should have LC Connector jacks at both the ends
Optical Performance of fiber patch cord:
Insertion Loss: maximum 0.35 dB
Return Loss: minimum 50.0 dB
All patch cords should be factory terminated and packed.
Should be RoHS Compliant

Rack 22U/24U and Cable Manager

Minimum Specifications

Single Section Unit
Adjustable 19" rails in the front and rear

Top and bottom cable entry facility
Front section with glass door and lock
Maximum load rating of 40 kgs
600mm wide x 500mm deep

MDF Box with Krone Module

Minimum Specifications

Should be Category 6 IDC patch panel prepackaged with wiring block with legs, insert labels, label holders, jumper troughs, metal back panel duct assembly, screws washers and an instruction sheet for termination of incoming pairs. Rate shall include suitable size of lockable 1.6mm thick CRCA sheet steel enclosure duly powder coated

Riser Cable
Minimum Specifications
Solid copper conductors insulated with expanded polyethylene covered by a PVC sheet
Core shall be covered with a layer of plastic tape and overlaid with a corrugated PVC plastic
Core shall be covered with a layer of plastic tape and overlaid with a corrugated PVC plastic
Pair sizes shall be as per the schedule of quantities

Server/Network Rack
Minimum Specifications
Rack Size should be 800/1000W x 2000(42UH) x 1200D
Covered front and back, top and bottom
Copper earth bus bar for full height with 15 (or higher) earth wire and 15 (or higher) conductor connector should be provided
Load bearing capacity will be 1000Kg

EPABX
Minimum Specifications
Type of Switching Core-IP

Processor Speed -900 MHz Dual Core
supports up to 99 VoIP (SIP) trunks, 40 GSM ports, 8 T1/E1 ISDN PRI ports, and 64 analogtrunks with up to 999 UC users, 96 digital users, and 240 analog users.
RS232C (COM) Ports
Network Protocol
-IPv6, IPv4, TCP, UDP, SNTP, STUN, ARP,
ICMP, PPP, DNS, SMTP
Line Echo Cancellation-G.168 with 64/128ms Tail Length
voice-Dynamic Jitter Buffer (Adaptive), Comfort
Noise Generation and
Voice Activity Detection
voice codec-G.711 (A-law, μ-Law), G.723, G.729AB,
GSM-FR, GSM-EFR and iLBC
Call Progress Tones-Dial tone, Ring Back Tone, Busy Tone,
Error Tone
SIP-Maximum 99 SIP Accounts per System,
Out Bound Proxy Support, Display Name,
User Name, Password, URL, Proxy URL,
Register Interval
VOIP Protocols-SIP v2, SIP over TCP, Symmetric RTP, RTCP,
100rel/PRACK
Internal USB - Up to 64GB (8GB - for Software Firmware and 260 Hours of Recording
(Factory Fitted),64GB Pen Drive can be used for
2170 Hours of Recording)
External USB - for future use
15 nos Group Conference
(3-Party)
21 nos Maximum Participants in
Single Conference
15 nos Auto-Attendant, Voice Help,
Voice Tones
Web-based Configuration, PMS,
SMDR, System Log, VOIP
(LAN and WAN) and VMS
Universal Slots for Interface Expansion
Cards (except VOIP and
VMS)-12 nos
SLT/FXS Ports-240

		DKP/DSS Ports-96 CO/FXO (TWT) Ports-minimum 64 security-SRTP/TLS over SIP, MD5 Authentication for SIP, Password Protected Configuration by Admin and User BRI Ports Min-32 T1/E1 Ports -8 GSM/3G/4G LTE Ports Min-40 Registration of Hard SIP/IP Phones, UC Client for Android/iOS and Windows PC using Business Application-999 SIP Trunks minimum-99 VOIP Channels-128 Voice Mail Channels (Sessions) -64 Voicemail Box-Dedicated Mail Box for each type of Extension (Analog, Digital, IP) Expansion Card for GSM Interface GSM Band (MHz)-Quad-Band: GSM850, EGSM900, DCS1800, PCS1900 SIM Card -One SIM per GSM Port Transmission Power-Class 4 (2W) at GSM850 MHz and EGSM900 MHz Band/Class 1 (1W) at DCS1800 MHZ and PCS1900 MHZ Band Radio Interface Ports-16 E&M Ports-32
		Technical Specification of Indoor Access Point (4 X 4 MIMO Antenna)
	Approved Makes	**Netgear/ Cisco/ Extreme/Aruba and equivalent**
S.No.	**Parameter**	**Technical Specifications**
1	**Physical Interfaces**	One 2550 BASE-T Gigabit Ethernet (RJ-45) ports with Auto Uplink,(Auto MDI-X) supporting IEEE 802.3af or 802.3at Power over Ethernet (PoE) Internal antenna should be 3.1/4.3dBi (2.4GHz/5GHz) or higher Power and Cloud connection; LAN speed; 2.4GHz status; 5.0GHz status provision for power connector : 12V DC, 2.5A
2	**Standards**	IEEE 802.11AX,IEEE 802.11ac,IEE 802.11n IEEE 802.11AX standard, 2.4GHz and 5GHz 5GHz: 2400Mbps & 2.4GHz: 1200Mbps, Support MU-MIMO, Wireless Mode 4x4 in both the band 2.4GHZ and 5GHZ WMM - Wireless MultiMedia Prioritization WDS- Wireless Distribution System Power over Ethernet (PoE) IEEE 802.3af/802.3at
3	**Security**	Wi-Fi Protected Access (WPA3) Wired Equivalent Privacy (WEP) 64-bit, 128-bit, and 156-bit encryption Wireless access control to identify authorized wireless network devices MAC address filtering with access control Basic Service Set Coloring (BSS Coloring) Security Socket Layer (SSL) remote management login
4	Network Management	Remote configuration and management through Web browser, SNMP or Telnet For setup, monitoring and management through Standalone, Software\ Cloud based controller and Mobile App
5	**Manageability**	As standalone Remote/Cloud manageble with License
5	**Advanced Wireless Features**	Wireless Distribution System (WDS) Wireless backhaul to form Mesh Network Bridge mode: Point-to-multipoint wireless WDS mode

		Adjustable Transmit Power Control (TPC) Device detection
		AirQual feature enables spectrum analysis and interference identification
6	**Other specification**	PoE power consumption should not be more than 25.5W Watts
		Bandsteering, Bandwidth management, Link Layer Discovery Protocol AX3600 , 3.6Gbps / 4.2Gbps Target Wake Time (TWT) Block SSID Broadcast Ceiling mounting/ Wall mounting
		OFDM and OFDMA should be available
		Bidir and MU-MIMO
		Deployment Options: Standalone,Mobile App
7	**Warranty and support**	5 Years of Hardware Warranty.
		Under Warranty Should support replacement with New Product Only No repair or refurbished Products. Lifetime free latest firmware support

Techincal Specs for Layer 3- Stackable Managed Switch with 24x10G including 12x10GBASE-T and 12xSFP+ -Core Switch

Approved Makes	**Netgear/ Cisco/ Extreme/Aruba and equivalent**
	Switch should be capable of support to 24 Port -including 12 # 1/10G Base-X Fiber SFP+ Ports, 12 # 1/10G Base-T Copper Ports Should support minimum of 8 units to be stacked in a single group or an external stacking module should be supplied. Should support OOB Port, Console: RJ45 RS232 ,Mini-USB (Front) Should have built-in USB A port to facilitate upload and download of configuration file via pen drive Should support Minimum CPU 800 MHz, 1GB RAM with 256MB
	Flash or higher.
	Should have Switching fabric more that 480Gbps & Throughput of 340 Mpps or higher.
	Should support Forwarding mode: Store-and-forward
	Switch should support the 16K MAC Address database size (48-bit
	MAC addresses)
	Switch should support 4,093 VLANs (802.1Q)
	Should support Multicast Group 4K total (2,048 IPv4 and 2,048
	IPv6)
	Should support Number of LAGs (802.3ad): 128 LAGs with up to 8 ports per group
	Should support Number of hardware queues for QoS: 8
	(Standalone)
	Should support Number of routes: 512 IPv4 Unicast routes /256
	IPv6 Unicast routes
	Should support Jumbo frame support: up to 9K packet size
	Should support Mean time between failures (MTBF): 192,898 hours

(~22 years)

Should support sFlow=416 samplers, 416 pollers, 8 receivers

Should support Protocol based VLAN, IP Subnet, Subnet based VLAN,MAC based VLAN,Voice VLAN, Private Edge VLAN, Guest VLAN, Double VLAN Tagging (QoQ), GARP with GVRP/GMRP, MVR (Multicast VLAN Registration), Multiple Registration Protocol (MRP), Multicast VLAN Registration Protocol (MVRP), LAG Hashing, LAG Member Port Flaps Tracking

Should support UDLD , Distributed Link Aggregation,Storm Control,Link Dependency

Should support Spanning Tree Protocol, Per VLAN STP (PVSTP) ,Per VLAN Rapid STP (PVRSTP),STP Loop Guard, STP Root Guard BPDU Guard, STP BPDU Filtering, STP BPDU Flooding

Should support IGMP v2/v3 Snooping support,MLD v1/v2 Snooping support,Expedited Leave Function,Static L2 Multicast Filtering,MLDv1/2 Snooping Support,IGMPv2/3 Snooping Support

Should support Any Source Multicast (ASM),Source Specific Multicast (SSM),Multicast streams routing between subnets, VLANs,Multicast streams routing between subnets, VLANs, Multicast Static Routes (IPv4, IPv6), DVMRP,

Should support Neighbor discovery (IPv4, IPv6), PIM-DM (IPv4, IPv6),PIM-SM (IPv4, IPv6),PIM multi-hop RP support,

Should Support DHCP Client (IPv4, IPv6),DHCP Server (IPv4, IPv6),DHCP Snooping (IPv4, IPv6),DHCP/ BootP Relay (IPv4, IPv6),DHCP options 66, 67, 150, and 55, 125

Should support Static Routing (IPv4, IPv6), Port based Routing, ECMP Static Routing, VLAN Routing, RIP v1 and v2, OSPF v2 and v3, OSPF Flood Blocking,Route Redistribution,VRRP, Loopback Interfaces, Tunnel interfaces, Router Discovery, IP Helper, IP Source Guard

Should support ECMP, Proxy ARP, Multinetting, ICMP v4 and v6, Configured v6-over-v4 tunnels,

Should support IEEE 802.1p CoS, DiffServ QoS, WRED (Weighted Deficit Round Robin),Single Rate Policing,

Strict Priority queue technology

Should support IP DSCP, IP TOS, Minimum Bandwidth per-interface, Broadcast, Multicast and Unicast Network Storm Protection,CPU protection, DOS Attack Protection , ICMP throttling

Should Support Management ACL, Radius

accounting,TACACS+,L2/L3/L4 Access Control List (ACL), ACL over VLAN, Dynamic ACL

Should Support IEEE 802.1x Radius Port Access Authentication,

802.1x MAC Address Authentication Bypass (MAB)

Port Security, MAC Filtering, Dynamic ARP Inspection

Should Support IEEE Protocols IEEE 802.3 10Base-T,IEEE 802.3

Ethernet, IEEE 802.3i 10BASE-T, IEEE 802.3u 100BASE-T,IEEE 802.3ab

1000BASE-T, IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX,IEEE

802.3ae 10-Gigabit Ethernet,IEEE 802.3ad Trunking (LACP),IEEE

802.1AB LLDP with ANSI/TIA-1057 (LLDP-MED),IEEE 802.1D

Spanning Tree (STP),IEEE 802.1s Multiple Spanning Tree (MSTP)

,IEEE 802.1w Rapid Spanning Tree (RSTP), IEEE 802.1p Quality of

Service, IEEE 802.1Q VLAN tagging, IEEE 802.1v protocol-based VLAN, IEEE 802.1X Radius Network Access Control,IEEE 802.3x flow control

Should Support GMRP, GVRP, GARP,ISDP, 802.1ab LLDP and LLDP-

MED,SNMP v1, v2 and v3,RMON 1, 2, 3, 9,sFlow/netflow

Should support management through Command Line Interface

(CLI), Web-based graphical user interface (GUI)

Admin access control via Radius and TACACS+,Telnet,IPv6

Management

Should Support Dual Software (Firmware) images, Dual

Configuartion file (Text-based), Radius accounting

Malicious Code Detection, SNTP, XMODEM, Port Mirroring, SSH v1/v2, SSL/HTTPS and TLS v1.0 for web-based access

Should support Cable Test Utility

Should support File Transfer (uploads, downloads) through

TFTP/HTTP, SCP/ SFTP/ HTTPS, Syslog

Non disruptive Config Management,Remote Port Mirroring (RSPAN),Persistent log supported

Operating Temperature: 32° to 122°F (0° to 50°C), Storage

Temperature: – 4° to 158°F (–20° to 70°C)

Humidity: 90% maximum relative humidity, non-condensing

Should be CE mark, commercial, EN 60950-

1:2006+A11:2009+A1:2010+A12:2011+A2:2013; EN 62368-

1:2014+A11:2017; EN IEC63000:2018 (RoHS); Regulation 1907/2006

(REACH), N 55032:2015+A11:2020; EN 55035:2017/A11:2020; EN

55024:2010+A1:2015; EN 61000-3-2:2014;

EN 61000-3-3:2013

Should support Warranty of 5year of the product.

Should support Lifetime firmware upgrade without any charges.

Under Warranty Should support replacement with New Product Only No repair or refurbished Products.

Tech Specs for Distribution Switch 16-Port 10G-Gigabit/Multi-Gigabit Ethernet Switch,8 X10G SFP+ & 8 X 10G Copper

Approved Makes **Netgear/ Cisco/ Extreme/Aruba and equivalent**

Switch should be supported with 24# 100M/1G/2.5G/5G/10G

Copper RJ45 Ports, 2# 10G SFP+ Shared port

Switch Should be suitable for the rackmount.

Switch should support the packet buffer memory 3mb

Switch Should support Forwarding modes: Store-and-forward

Switch Should Support Bandwidth: 480 Gbps non-blocking

Switch should support Packet forwarding rate (64 byte packet size)

240Mpps

Switch should support the 32K MAC Address database size (48-bit

MAC addresses)

Switch should support the 9k Jumbo frame

Switch should support 64VLAN, Port based, IEEE 802.1QVLAN

Tagging,Broadcast, multicast, unknown unicast storm control,Port

Trunking, LACP,IEEE802.3x, IGMP snooping (v1, v2, and v3),

Switch should support the DHCP Client.

Switch should support LACP, 12 LAGS with max 8 member in each

LAG

Switch should support Port-based rate limiting ,Port-based

QoS,IEEE 802.1p COS,IPv4 DSCP,IPv4 ToS,

Weighted Round Robin (WRR)

Switch should support the IEEE Standard Protocol like IEEE 802.3

Ethernet, IEEE 802.3u 100BASE-TX

IEEE 802.3ab 1000BASE-T, IEEE 802.1Q VLAN Tagging, IEEE 802.3x

Full-Duplex Flow Control,

IEEE 802.1p Class of Service, IEEE 802.3az Energy Efficient Ethernet

(EEE) ,IEEE 802.3an 10GBASE-T,

IEEE 802.3bz 5Gbps and 2.5Gbps Ethernet Over Copper Twisted Pair Cable,

IEEE 802.3ae 10-Gigabit Ethernet Over Fiber, IEEE 802.3z Gigabit

Ethernet 1000BASE-SX/LX

Switch should Support the Web based GUI management, Password management, TFTP (Plus Utility) / HTTP (Web GUI) Firmware upgrade,

Switch Should support port mirroring, Dos Protection

Switch should support Mean Time Between Failures (MTBF):-

830,493Hrs

Operating Temp :- 0° to 50°C, Storage Temperature:- –20° to 70°C

Relative Humidity 90% maximum relative humidity (RH), noncondensing

Switch should comply CE mark Commercial, EN 60950, EN 62368,

EN IEC63000:2018 (RoHS); Regulation 1907/2006 (REACH) EN

55032, EN 55035, EN 61000-3-2:2014, EN 61000

Should support Warranty of 5year of the product.

Should support Lifetime firmware upgrade without any charges.

Under Warranty Should support replacement with New Product Only No repair or refurbished Products.

Tech Specs for 24-port 1G Base-T PoE+ with 4 x1G SFP ports Access Switch

Approved Makes **Netgear/ Cisco/ Extreme/Aruba and equivalent**

Switch Should support Forwarding modes: Store-and-forward

Support Weighted Round Robin (WRR) and Strict Priority

Switch should support 8,000 media access control (MAC) addresses, Jumbo Frame 9k

Switch should support 64 VLAN, 256 Multicast groups, 256 DHCP

Snooping, 100ACL

Switch Should Support Packet forwarding rate (64 byte packet size)

(Mpps) : 38.68

Switch should support Packet buffer memory (Dynamically shared across only used ports): 0.5 MB

Switch Should Support POE Budget 380W

IEEE Protocols as IEEE 802.3 Ethernet, IEEE 802.3u 100BASE-T, IEEE

802.1Q VLAN Tagging,IEEE 802.3ab 1000BASE-T,IEEE 802.3af

PoE,IEEE 802.3at PoE+

IEEE 802.3az Energy Efficient Ethernet (EEE),IEEE 802.3ad Trunking (LACP), IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX, IEEE 802.3x

Full-Duplex Flow Control,IEEE 802.1AB LLDP with ANSI/TIA-1057

(LLDP-MED), IEEE 802.1p Class of Service, IEEE 802.1D Spanning

Tree (STP), IEEE 802.1s Multiple Spanning Tree (MSTP), IEEE 802.1w Rapid Spanning Tree (RSTP), IEEE 802.1X Radius network access control

Switch should support RADIUS-based VLAN assignment via

.1x,RADIUS accounting, DoS attacks prevention, IP-based ACLs

(IPv4 and IPv6), MAC lockdown,Control MAC # Static entries :20, IEEE 802.1Q VLAN Tagging,IEEE 802.3ad - LAGs - LACP ((8 LAGS with max. of 8 members in each LAG)), Broadcast Storm

Control,IGMP Snooping (v1, v2 and v3),IGMP Snooping queriers

Switch should support Network Monitoring and Discovery Services like 802.1ab LLDP, SNMP V1, V2, V3, RMON 1,2,3,9

Switch Should Support QOS Services , Port-based rate limiting,

Port-based QoS, IEEE 802.1p COS, DiffServ QoS, IPv4 ToS,

Switch should support Admin access control via Radius and

TACACS+, Dual Software (firmware) image, Dual Configuration file, SNTP client over UDP port 123,

Switch should Support Port Mirroring, Many to One Port Mirroring, SSL/HTTPS and TLS v1.0 for web-based access,TFTP/HTTP File transfers (uploads, downloads),Syslog (RFC 3164),

Switch should support advance POE schedulling, Per port POE

Control, BPDU Flooding

Switch should support Web managed GUI, HTTP/TLS.

Operating Temperature :- (0° to 50°C), Storage temperature (–20° to 70°C)

Humidity :- 90% maximum relative humidity, non-condensing

Should be CE mark, EN 60950-1, EN 62368-1:2014, EN

IEC63000:2018 (RoHS); Regulation 1907/2006 (REACH),EN 55032,

EN 55035:2017, EN 61000-3-2:2014 EN 61000-3-3:2013

Should support Warranty of 5year of the product.

Should support Lifetime firmware upgrade without any charges.

Under Warranty Should support replacement with New Product Only No repair or refurbished Products.

USB Printer

Minimum Specifications

A4 Black and White Laser Jet Printer

Print; Copy; Scan and Fax

Bar Code Printer

Minimum Specifications

Print Speed 6 Inches Per Second

high Ribbon Capacity of 300 Meters

resolution of 203 dpi

Thermal Line Printing – Direct

Thermal & Thermal Transfer

32 bit RISC CPU

USB + serial

interface

Fast Bar Code Scanner

Minimum Specifications

Scan Pattern: Single scan line

Scan Angle Horizontal: 30°

Pitch, Skew: 60°, 60°

Decode Capabilities: Reads standard 1D and GS1 DataBar symbologies

Technical Specification for CCTV SYSTEM

IP DOME CAMERA

Minimum Specifications

Video Standard	NTSC/PAL
Scanning System	Progressive
Image Sensor	1/2.7" CMOS
Number Of Pixels (H × V)	2880×1620
Minimum Illumination (Color/BW)	0.007 lux @F1.6, AGC ON; 0 lux with IR
S/N Ratio	≥50db
Electronic Shutter Speed	1/2s ~ 1/100,000s
IR Distance	20 ~ 30 m
IR Light Control	Smart IR (Auto/Manual)/OFF
Day/Night	ICR
Backlight Compensation	WDR, HLC, BLC
White Balance	Auto/Indoor/Outdoor/Manual
Gain Control	Auto/Manual
Wide Dynamic Range	120dB
Noise Reduction	3D DNR
Lens	3.6mm@ F1.6

Angle Of View	H:78°, V:40°
Local Storage	Micro SD (up to 256 GB)
Video Compression	Main stream: H.265 / H.264
	Sub stream: H.265 / H.264 / MJPEG Third stream: H.265 / H.264 /
	MJPEG
Resolution	5MP (2880×1620), 4MP (2560×1440), 3MP (2304×1296), 1080P
	(1920×1080), 720P (1280×720), D1, 480×240, CIF
Number of Video Streams	3
Frame Rate Main Stream	60Hz: 5MP(1~20fps)/4MP/3MP/1080P/720 P(1~30fps);
	50Hz: 5MP(1~20fps)/4MP/3MP/1080P/720 P(1~25fps)
Frame Rate Second Stream	60Hz: 720P/D1/CIF (1~30fps); 50Hz: 720P/D1/CIF (1~25fps)
Frame Rate Third Stream	60Hz: D1/480×240/CIF (1~30fps); 50Hz: D1/480×240/CIF(1~25fps)
Bit Rate	64 Kbps ~ 8 Mbps
Audio Compression	G.711A/G.711U
Audio Stream	1-way
Audio Interface	1CH audio input
Ethernet	10 Base-T/100 Base-TX Ethernet (RJ-45)
Supported Web	Chrome/Edge
Browsers	
Supported OS	Microsoft Windows 10
Interoperability	ONVIF Profile G/S/T
Maximum Users	3 Users
Access	
Security	User account and password protection, HTTPS, IP Filter, Digest authentication, TLS1.2 only, AES128 / 256, SSH / Telnet closed
Built-in Video	Motion Detection, Tampering, Intrusion, Object, Video Exception (scene change, video blur and video cast detection), line crossing detection and region intrusion detection
Analytics	
Power	MAX 5W
Consumption	
(Max)	

IP PTZ Outdoor Camera

Minimum Specifications

Video Standard	NTSC/PAL
Scanning	Progressive
System	

Image Sensor	1/2.8" CMOS
Number Of Pixels (H × V)	2592 x 1944
Minimum Illumination (Color/BW)	Color: 0.005 lux @F1.6 BW: 0. lux @F1.6 (IR on)
S/N Ratio	50db
Electronic Shutter Speed	1/1 to 1/30,000 sec
IR Distance	up to 150 m
IR Light Control	Smart IR (Auto/Manual)/OFF
Day/Night	Auto (ICR) / Color / BW
Backlight Compensation	WDR, HLC, BLC
White Balance	Auto/Tungsten/Daylight/Manual
Gain Control	0~100%
Wide Dynamic Range	120dB
Noise Reduction	2D/3D DNR
Lens	30x Optical Zoom , 16x Digital Zoom Auto Focus , 5.3-159mm ,P iris, F1.6-F4.3
Angle Of View	H: 56.62° - 2.48°, V: 42.76° - 1.91°
Local Storage	Micro SD (up to 256 GB)

Video Compression	H.265 HEVC/H.264/MJPEG, Smart Codec
Number of Video Streams	3
Frame Rate Main Stream	MAX 30fps
Frame Rate Second Stream	MAX 30fps
Frame Rate Third Stream	MAX 30fps
Bit Rate	100K~12Mbps
Audio Compression	G.711A/G.711U
Audio Stream	2-Way, Full duplex
Audio Interface	Line In/Out
Ethernet	10 Base-T/100 Base-TX Ethernet (RJ-45)
Supported Web Browsers	Chrome/Edge
Supported OS	Microsoft Windows 10
Interoperability	ONVIF Profile G/S/T

Maximum Users	10 Users
Access	
Security	User account and password protection, HTTPS, IP Filter, Digest authentication, TLS1.2 only, Stream encryption, AES128 / 256, SSH / Telnet closed, PCI-DSS compliance
	Storage NVR

Minimum Specifications

Operating system	**Embedded LINUX**
System Resources	Simultaneous multi-channel live view, real-time recording, playback, network operation, remote access, USB backup
Interface	2 HDMI, 1 VGA
IP Video Input	32 channels
Video Compression	H.265S / H.265+ / H.265 / H.264
Resolution	1080P; 1280 × 1024; 960P; 720P; 960H; D1; CIF
Display Split	Main output: 1/4/6/8/9/13/16/25/32/36 (live view)
	AUX output: 1/4/6/8/9 (live view)
	Max. 32+9CH local live view
OSD	Camera title; time; video loss; motion detection; recording
Trigger Events	Recording; PTZ preset; alarm; email; snapshot; buzzer
Video Detection	Motion detection
Internal HDD	2 SATA III ports, up to 10 TB each
Search Mode	Play; pause; stop; rewind; fast play; slow play; next file; previous file; next camera; previous camera; full screen; repeat; shuffle; backup selection; digital zoom
Backup Mode	Compatible USB device; network
Ethernet	2 RJ-45 ports (10 / 100 / 1000 Mbps)
Smart Phone Compatibility	iPhone; iPad; Android
Recording Mode	Schedule (regular / continuous, motion detection, alarm); manual; stop
USB Ports	2 USB Ports (USB2.0) 1 USB Port (USB3.0)
	RoHS compliant

SATA HDD Internal (For NVR)

Minimum Specifications

Surveillance-optimized hard drive platform 6TB capacity video streaming and data integrity in surveillance applications

Display: Screen Size 42" /43"

Minimum Specifications

Screen Size (Diagonal) Minimum (cm)-42"

Panel Technology-IPS

Orientation-Landscape & Orientation

Native Resolution (Pixels)-1920 x 1080 (Full HD)

Aspect Ratio-16:9

Brightness (Nits) Minimum-350 nits

Native Contrast Ratio (Minimum)-1000:1

Viewing Angle (Horizontal:Vertical)-178/178

Response Time (milli seconds)-8ms

Wattage of Speakers -Built in Speaker(10W + 10W)

Input-HDMI 2.0 (3), USB 2.0 x 2, HDCP 2.2

Output-Stereo mini Jack

External Control -RJ 45

Inbuilt SOC and Features-Cortex - A53, x4 1.1 GHz Processor Dual

Core Mali 470 600 MHz Bluetooth, Built-In WI-FI, 8 GB Inbuilt

Memory with 1.5 GB DDR3 RAM 2133 MHz

Inbuilt OS-Android 9.0 Version

Note: **All Passive and Active Components Specifications as mentioned above**