Communication Requirement for BK West Side 9 Story Building

SIGNALS
Maldives National Defence Force

Data Network

Description	QTY Needed
12 Core Single Mode Fiber Cable (Interconnect existing 9 Story and new 8 Story Building)	1
12 Core Single Mode Fiber Cable (New 8 Story SIGNALS Entrance Facility to 1st Floor SIGNALS Telecommunication Room)	1
06 Core Single Mode Fiber Cable (Interconnect SIGNALS Entrance Facility to all other Floors Telecommunication Enclosure) 1st, 2nd, 4th, 6th and Terrace	5
Duct System between Existing 9 Story building and New 8 Story Building	1
24 Core Fiber Patch Panel (SC/PC Type)	03
06 Core Fiber Patch Panel (SC/PC Type)	05
48 Port RJ45 Cat6 Patch Panel (for each Telecommunication Enclosure at First Floor)	04
24 Port RJ45 Cat6 Patch Panel (for each Telecommunication Enclosure at all other Floors)	06
Ubiquity UAP-AC-EDU Indoor Wireless Access Points	26
12U Rack with Ventilation and Lockable Door (600mmWidth x 600mmDepth x 501mmHeight) (SIGNALS Entrance Facility and Terrace Communication Room)	02
9U Rack with Ventilation and Lockable Door (600mmWidth x 600mmDepth x 635mmHeight) (2 x 1st Floor, 1 x 2nd Floor, 1x 4th Floor, and 1x 6th Floor)	05
42U APC NetShelter SX Rack with Ventilation and Lockable Door (600mmWidth x 1070mmDepth x 1991mmHeight) (First Floor SIGNALS Telecommunication Room)	1
48Port Layer2 Manageable Gigabit Switch with 4 SFP Ports (not Combo) and PoE+ Compatible (First Floor Network Distributions)	02
24Port Layer2 Manageable Gigabit Switch with 4 SPF Ports (not Combo) and PoE+ Compatible (1st, 2nd. 3rd, 4th, 5th, 6th, 7th and Terrace Network Distribution)	07
12 Port Gigabit SFP Layer Managed Switch (fiber uplinks)	02
GBIC 10/100/1000 PHY Type: 1000Base-LX (LC/PC), Single-Mode, WDM, Simplex, Wavelength: RX1310nm/TX1550nm, Ringle Color: Yellow	20
GBIC 10/100/1000 PHY Type: 1000Base-LX (LC/PC) Single-Mode, WDM, Simplex, Wavelength: RX1550nm/TX1310nm, Ringle Color: Blue	20
6KVA Rack Mount UPS (First Floor SIGNALS Telecommunication Room)	02
3KVA Rack Mount UPS (SIGNALS Entrance Facility and Terrace Communication Room)	02
1KVA Rack Mount UPS (Telecommunication Enclosures at 1st, 2nd, 4th, and 6th Floor)	05
Blade Server Chassis Solution with Servers	2
NAS Storage 100TB	1

Note:

1. Cat6 UTP Cable must be used for the Data Network Cabling within the Building.
2. RJ45 Cat6 Keystone Dual Face Plate Wall Outlet must be installed at the Network Dual Cable End Points.
3. RJ45 Cat6 Keystone Single Face Plate Wall Outlet must be installed at the Network Single Cable End Points.
4. Fiber Cable from existing 9 Story building to new 8 Story building 1st floor SIGNALS Telecommunication Room and other floors must be terminated to Ground Floor SIGNALS Entrance Facility near South Duct.
5. Fiber uplink cable from Ground Floor SIGNALS Entrance Facility to other floors must be terminated to 1st, 2nd, 4th, 6th South Duct Telecommunication Enclosures and terrace SIGNALS Communication Room.
6. All Cables at Ground floor must be terminated to SIGNALS Entrance Facility Room at ground floor near South Duct.
7. All the Network cables at First Floor within A to G must be terminated to South Duct Telecommunication Enclosure and within G to M to North Duct Telecommunication Enclosure.
8. Network Cables at 2nd & 3rd floor must be terminated to 2nd floor South Duct Telecommunication Enclosure
9. Network Cables at 4th & 5th floor must be terminated to 4th floor South Duct Telecommunication Enclosure
10. Network Cables at 6th & 7th floor must be terminated to 6th floor South Duct Telecommunication Enclosure
11. Network Cables at terrace must be terminated to terrace SIGNALS Communication Room
12. All network cables must be laid on Cable Tray, secured and properly labeled
13. Network Cables must NOT be in adjacent to any power cable. Network cables must be laid in separate cable tray from power lines and other cables.
14. All Network outlets installed at Ground Floor outside the building and at terrace must be waterproof

❖ CCTV Network

Description	QTY Needed
IP Indoor PoE Dome IR Cameras HD1080 2MP Auto Focus (including 2 Lifts) (21 Cameras Needed + 4 Spare Cameras)	25
IP Outdoor PoE Bullet IR Camera HD 1080 2MP Auto Focus (8 Cameras Needed + 4 Spare Cameras)	12
48 Channel NVR System	1
60TB Storage	1
4 Port Gigabit Switch PoE+	2

Note:

1. The cameras that need to be installed inside both the Elevators must be installed using Network Cables specially used for Cameras installed in Elevator.
2. All points marked with the CCTV symbol, the network point(s) must be installed 6" (six inches) bellow ceiling level.
3. All cables installed for CCTV must be labeled

❖ Telephone Network

Description	QTY Needed
200 Pair Telephone Underground Cable (interconnect Existing 9 Story and New 8 Story Building)	1
100 Pair Telephone Cable (Ground Floor SIGNALS Entrance Facility to 1ˢᵗ Floor SIGNALS Telecommunication Room)	1
50 Pair Telephone Cable (interconnect 1ˢᵗ Floor to the Main Cable)	2
20 pair Telephone Cable (Interconnect all other floors with the main Cable)	04
400 Pair Indoor Telephone Box with Krone	02
300 Pair Indoor Telephone Box with Krone	02
200 Pair Outdoor Telephone Box with Krone	02
100 Pair Outdoor Telephone Box with Krone	02
50 Pair Outdoor Telephone Box with Krone	05
IP and Analog Hybrid PABX System – 200 analog extensions, 100 IP channel	01

Note:

1. Cat6 UTP Cable must be used for the Telephone Network Cabling within the Building.
2. RJ11 Cat3 Keystone Single Face Plate Wall Outlet must be installed at the Telephone End Points.
3. All telephone cables at ground floor must be terminated to SIGNALS Entrance Facility.
4. All the telephone cables at First Floor within A to G must be terminated to South Duct Telecommunication Enclosure and within G to M to North Duct Telecommunication Enclosure.
5. Telephone Cables at 2ⁿᵈ & 3ʳᵈ floor must be terminated to 2ⁿᵈ floor South Duct Telecommunication Enclosure
6. Telephone Cables at 4ᵗʰ & 5ᵗʰ floor must be terminated to 4ᵗʰ floor South Duct Telecommunication Enclosure
7. Telephone Cables at 6ᵗʰ & 7ᵗʰ floor must be terminated to 6ᵗʰ floor South Duct Telecommunication Enclosure
8. Telephone Cables at terrace must be terminated to terrace SIGNALS Communication Room.
9. All telephone cables must be laid on Cable Tray, secured and properly labeled
15. Telephone Cables must NOT be in adjacent to any power cable. Telephone cables must be laid in separate cable tray from power lines and other cables.
10. All Telephone outlets installed at terrace must be waterproof

❖ CATV Network

Description	QTY Needed
RG11 75 Ohm Cable (interconnect existing 9 Story and new 8 Story Building fro CATV)	1
RG6 75 Ohm Cable (interconnecting Main to Distribution Taps and for End Points at floors)	
Amplifier	2
35DB 8 Way Tap Outdoor with Direct Out (ground floor)	1
32DB 8 Way Tap Outdoor with Direct Out (1st floor)	1
29DB 8 Way Tap Outdoor with Direct Out (2nd floor)	1
26DB 8 Way Tap Outdoor with Direct Out (3rd floor)	1
23DB 8 Way Tap Outdoor with Direct Out (4th floor)	1
20DB 8 Way Tap Outdoor with Direct Out (5th floor)	1
17DB 8 Way Tap Outdoor with Direct Out (6th floor)	1
14DB 8 Way Tap Outdoor with Direct Out (7th floor)	1
11DB 8 Way Tap-off Outdoor (terrace floor)	1

Note:

1. RG6 75 Ohm Cable must be used for the CATV Network Cabling within the Building.
2. RG6 F-Type Face Plate Wall Outlet must be installed at the CATV End Points.
3. CATV cable from Ground Entrance Facility must be terminated to South duct of 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, and terrace floor SIGNALS Communication Room.
4. CATV Cables at 2nd, 3rd, 4th, 5th, 6th, and 7th floor must be terminated South Duct of each respective floor and Terrace CATV Cables must be terminated to SIGNALS Communication Room at terrace.
5. All CATV cables must be laid on Cable Tray, secured and properly labeled
6. CATV Cables must NOT be laid in adjacent to any power cable. CATV Cables must be laid in separate cable tray from power lines and other cables.
7. All Taps must be securely installed in the Cable Duct at each Floor
8. All CCTV outlets installed at terrace Floor must be waterproof

Network, Telephone & CATV Cable End Point Numbers in Each Floors

	Network Dual Cable Points	Network Single Cable Points	Wireless AP Point	Telephone Point	CATV Point
Ground Floor	10	6	-	2	-
1st Floor	51	-	3	48	-
2nd Floor	6	-	4	4	4
3rd Floor	6	-	4	4	4
4th Floor	6	-	4	4	4
5th Floor	6	-	4	4	4
6th & 7th Floor	6	-	3	4	4
8th Floor	9	2	3	7	6
Terrace Floor	6	-	1	4	4

❖ PA System

- **Ceiling speaker**

   Full Range

   Max Power   60W

   Line Input   70/100, 4-16 ohm

   Frequency – Response   45Hz-20KHz

- 6 Zone selected pre- amplifier.
- Amplifiers.
- Paging Microphone.

The Amplifier must be compatible to the above specification of speakers.

Zone selection detail and QTY

Zone	Speaker Placing	Speaker QTY
Zone - 1	Ground and Terrace Floor	8
Zone - 2	First Floor	11
Zone - 3	Second, Third, Fourth and Fifth	36
Zone - 4	Senior Officers Rooms	46
Zone - 5	Executive Rooms	2
Zone - 6		

- All cable must be terminated to the SIGNALS Telecommunication Room at 1st Floor.
- The zone selection, cable distribution should be according to the table above.

❖ Equipment Grounding

Items Required

#	Item	Details	Qty
1	Ground rod	6 Feet with clip and joint	6
2	Copper tape	1 Inch x 3 mm	200 Feet
3	Teflon	1 inch diameter , for isolation	5 feet
4	Screw	2 inch	100
5	Wall anchors	plastic	100
6	Bolt	5 mm , with nut, washer and spring washer	60
7	Ground cable	6 mm	300 feet
8	Lug	6 mm	30
9	Lug	4 mm	30

STANDARDS

- **12U Wall Mount Rack Features**
  - 2 Sets of adjustable mounting rails (adjusting in 1 Inch increments)
  - Removable/lockable side panels
  - Cage nut style mounting rails
  - Top and Bottom removable cable slots
  - Glass front door with built in lock
  - Maximum Weight Capacity 150 Pounds

  Specifications
  - Depth – 620mm
  - Width – 600mm
  - Rail Width - 19 inch EIA Compliant
  - Height – 635mm

  Recommended options
  - Fan assembly kit
  - Racks Screws
  - Cage nuts

- **9U Wall Mount Rack Features**
  - 2 Sets of adjustable mounting rails (adjusting in 1 Inch increments)
  - Removable/lockable side panels
  - Cage nut style mounting rails
  - Top and Bottom removable cable slots
  - Glass front door with built in lock
  - Maximum Weight Capacity 150 Pounds

  Specifications
  - Depth – 620mm
  - Width – 600mm
  - Rail Width - 19 inch EIA Compliant
  - Height – 501mm

  Recommended options
  - Fan assembly kit
  - Racks Screws
  - Cage nuts

- **42U Wall Mount Rack Features**
  - Removable/lockable side panels
  - Cage nut style mounting rails
  - Top and Bottom removable cable slots
  - Glass front door with built in lock

  Specifications
  - Depth – 1070mm
  - Width – 600mm
  - Rail Width - 19 inch EIA Compliant
  - Height – 51991mm

  Recommended options
  - Fan assembly kit
  - Racks Screws
  - Cage nuts

➤ Layer2 Gigabit Network Switch Specifications (48 Port and 24 Port)

Interface(s)	48 Gigabit Ethernet Ports (10/100/1000BASE-T) 24 Gigabit Ethernet Ports (10/100/1000BASE-T) 04 SFP Ports (10/100/1000BASE-T/SFP)
Performance	***Switching Capacity*** 136 Gbps (48 Ports Switch) 88 Gbps (24 port Switch) ***64-Byte Packet Forwarding Rate*** 101.9Mbps (48 Port Switch) 65.48Mbps (24 Port Switch) ***Packer Buffer Memory*** 2MB ***Flash Memory*** 32MB

Layer 2 Features	MAC Address Table: 16K
	Flow Control
	   802.3x Flow Control
	   HOL Blocking Prevention
	Jumbo Frame up to 13K Bytes
	Spanning Tree Protocols
	   802.1D STP
	   802.1w RSTP
	   802.1s MSTP
	   BPDU Filtering
	   Root Restriction
	Loopback Detection
	802.3ad Link Aggregation
	   Max. 32 groups per device/8 Gigabit ports per group
	Port Mirroring
	   One-to-One
	   Many-to-One
	   Flow-based
	   RSPAN Mirroring
	
	L2 Multicasting
	IGMP Snooping
	   IGMP v1/v2/v3 Snooping
	   Supports 1024 IGMP groups
	   Port/Host-based IGMP Snooping Fast Leave
	   IGMP Snooping Querier
	Limited IP Multicast
	   Up to 24 IGMP filtering profiles, 32 ranges per profile
	MLD Snooping
	   MLD v1/v2 Snooping
	   Support 1024 MLD Groups
	   Host-based MLD
	   MLD Snooping Querier
	Snooping Fast Leave

	VLAN
	 LAN Group
	
	   Max. 4K VLAN Groups
	
	 GVRP
	
	   Max. 255 Dynamic VLAN Groups
	
	 802.1Q Tagged VLAN
	 Port-based VLAN
	 802.1v Protocol VLAN
	 Voice VLAN
	 MAC-based VLAN
	 ISM VLAN
	 Asymmetric VLAN
	 Private VLAN
	 VLAN Trunking

Access Control List (ACL)	Supports up to 1.5K Ingress access rules
	ACL based on
	   802.1p Priority
	   VLAN ID
	   MAC Address
	   Ether Type
	   IPv4 Address
	   DSCP
	   Protocol Type
	   TCP/UDP Port Number
	   User-Defined Packet Content
	   IPv6 Address
	   IPv6 Flow Label
	   IPv6 Traffic Class
	Time-based ACL
	CPU Interface Filtering

Security	SSH v2
	SSL v1/v2/v3 (for WebGUI)
	Port Security
	   Up to 64 MAC addresses per port/VLAN
	   Broadcast/Multicast/Unicast Storm Control
	   Traffic Segmentation
	   D-Link Safeguard Engine
	   NetBIOS/NetBEUI Filtering
	   DHCP Server Screening
	   ARP Spoofing Prevention
	   BPDU Attack Protection

QoS (Quality of Service)	802.1p
	8 queues per port
	Queue Handling
	   Strict Priority
	   Weighted Round Robin (WRR)
	   Strict + WRR
	CoS based on

	Switch Port
	VLAN ID
	802.1p Priority Queues
	MAC Address
	IPv4 Address
	DSCP
	Protocol Type
	TCP/UDP Port
	User-Defined Packet Content
	IPv6 Address
	IPv6 Traffic Class
	IPv6 Flow Label
	Supports following actions for flows
	   Remark 802.1p Priority Tag
	   Remark TOS/DSCP Tag
	   Bandwidth Control
	Bandwidth Control
	   Port-based (Ingress/Egress, Min. Granularity 64 Kbps)
	   Flow-based (Ingress/Egress, Min. Granularity 64 Kbps)

Management	Web-based GUI (Supports IPv4)
	Command Line Interface (CLI)
	Telnet Server (Supports IPv4)
	Telnet Client (Supports IPv4)
	SSH Server (Supports IP44)
	TFTP Client(Supports IPv4)
	ZModem
	SNMP v1/v2c/v3
	SNMP Traps
	System Log (Supports IPv4 Log Server)
	RMON v1
	   Supports 1,2,3,9 groups
	RMON v2
	   Supports ProbeConfig group
	LLDP
	BootP/DHCP Client
	DHCP Auto-Configuration
	DHCP Relay
	DHCP Relay Option 12
	DHCP Relay Option 82
	Flash File System
	Multiple Images
	Multiple Configurations
	CPU Monitoring
	Debug Command
	SNTP
	Password Recovery
	Password Encryption
	Trusted Host
	Microsoft® NLB (Network Load Balancing) Support

Power over Ethernet (PoE)	802.3af and 802.3at PoE+ Support
Warranty	Three (3) years Hardware Warranty and One (1) Year Service Warranty

➢ Layer2 12 Port Gigabit SFP Network Switch Specifications

Interface(s)	12 1000Mbps SFP Slots 04 10/100/1000BASE-T RJ45 Ports 1 Console Port
Performance	***Switching Capacity*** 24Gbps ***64-Byte Packet Forwarding Rate*** 17.9Mbps
Layer 2 Features	Link Aggregation Control Protocol (LACP) 4K VLAN GVRP (GARP VLAN Registration Protocol) STP/RSTP/MSTP IGMP Snooping LLDP (LLDP-MED)
Quality of Service (QoS)	4 priority queues Support IEEE802.1P DSCP QoS Rate Limit
Security Strategies	IP-MAC-Port-VID Binding Access Control List (L2~L4 ACL) 8021x and RADIUS Authentication Support DoS defend Port Security SSL and SSH encryption
Management	Web-based GUI Command Line Inteface SNMP V1/V2/V3 RMON (1,2,3,9 group) IP Clustering

➢ Ubiquity UAP-AC-EDU Indoor Access Point
  o This brand and Model is recommended to be used as the Wireless Access Point

➢ Blade Chassis Specification

Max No. of Blades	Should support minimum 8 half-height server blades or 4 full height blade servers
No. of Interconnect Modules supported	Minimum of 4 interconnect modules must be supported
Types of Blade System interconnect modules supported	Ethernet; Fiber Channel; Fibre Channel over Ethernet (FCoE); iSCSI; Serial Attached SCSI (SAS)
Interconnect Modules Required	No. of Interconnects required x 2
	10G Ethernet Downlinks for all Blade Severs
	Minimum 8 x 10G Uplink , should support FC,FCOE and Ethernet
No. of Power Supplies	Fully loaded Power Supplies (for the proposed Chassis)
No. of Fans	Fully loaded fans (for the proposed Chassis)
Administration Management Modules \ Chassis Management Controllers	Redundant Administration Management Modules \ Chassis Management Controllers
	Allows Single secure interface for inventory, configuration, monitoring, and alerting for the chassis and all components
	Integrated access to all blades server
	Provides access to all interconnect modules
	Real-Time Power/Thermal Monitoring and Management
Scalable	Allowing resources to be pooled and shared across multiple enclosures.
	And also management and network interconnects should extend scalability beyond a single enclosure.
Management software	Comprehensive Management software for all modules on the enclosure and blade servers
KVM	Integrated KVM Module
Additional Accessories to connect existing SAN and LAN infrastructure	Four (4) 8Gb Short Wave Fibre Channel SFP+ 1 Pack Four (4) 5M Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk Four (4) 3M 10G SFP+ SFP+ 10Gbps Direct Attached SFP+Copper Cable Ten (10) 5M LC to LC Fiber Cable Four(4) 10Gb Short Wave iSCSI SFP+ 4-pack Transceiver 10G Eight(8) 10G Ethernet SFP Modules
Warranty	Parts: 03 Year(s); Service: 03 Year(s); On-Site: 03 Year(s)

Blade Server Specification

Processor	Two (x2) Intel® Xeon Six-Core v3 3.0 GHz 20M Cache, 8.0GT/s Max Mem 2133MHz
No. of DIMM slot	Twelve (12) DIMM slots
Maximum Memory upgradable	Support Up to 192 GB (12 x 16 GB) RDIMMs (Dual Rank)
Memory	64GB (4x16GB RDIMM 2133MT/s, Dual Rank. X4 Data Width)
Raid Controller	Raid Controller with Raid Levels 0,1 (1 or 2 HDDs, SATA/SAS SSD)
Internal Drive Support	Two (2) hot-plug small form factor (SFF) drive bays – Should support SAS, SATA, and SSD hot-plug hard drives
Hard Drives:	Two (2) 600GB 6G SAS 10K rpm SFF (2.5-inch) Hot Plug Hard Drive
Network Controller	Integrated Dual Port 10Gb Network Adapter, Daughter cards if required as per interconnects supplied
Form Factor	Half-Height
Supported Operating Systems and Virtualization Software	MS Windows, RHEL, SLES, VMware, and Citrix XenServer
Operating System to be Installed	Genuine Microsoft Windows Server® 2012 R2 Standard 64Bit
Warranty	Parts: 3 Year(s); Service: 3 Year(s) On-Site: 3 Year(s)

➢ **Required CCTV Camera Specification(s)**

a) All cameras (Dome and Bullet) should possess day and night, inbuilt IR capability, low Light Capability or any other Technology that can see the complete darkness and should be galvanized.

b) All cameras clear object should be seen from 50m distance at day and night.

c) All cameras lens should be minimum 2.8mm - 12mm.

d) All cameras must have Auto Focus Capability.

e) All cameras should be HD1080 and 2 Megapixel or Higher resolutions at full frame rate.

f) Outdoor Bullet cameras should be Waterproof and IP66.

g) All cameras should be PoE (Power over Ethernet) powered.

h) All cameras should confirm and must be compatible to the **ONVIF** Standard (Open Network Video Interface Forum)

i) Three (03) Year Hardware Warranty and Two (02) Years' Service Warranty.

➢ **Network Video Recorder (NVR) & Storage**

a) Recording software for digital recorder and any licensing of software required for use with the network video recorder (NVR) should be supplied with the NVR.

b) Remote connection capability and access to live view facility.

c) NVR and Storage should be rack mountable.

d) NVR or Storage should support RAID capable to prevent data loss in case of HDD failures. RAID configuration can be in either in RAID1 or RAID 5 or RAID 1+0. The recorder should be capable of Hot Swap when configured for RAID1 or RAID5 or RADI 1+0.

e) NVR and Storage should support Uninterrupted Power Supply (UPS) controlled via RS-232 or TCP/IP.

f) NVR or Storage should be able to support minimum 30 days of recording at 25fps for 48 Cameras.

g) NVR or storage should have at least of 60 TB raw unformatted Storage Capacity and expandable.

h) The recorder should be capable of exporting recorded files to various media such as CD-R/RW, DVD+/- R, USB memory (flash drives, USB hard disks)

i) NVR and Storage Should have minimum Dual Port Redundant Gigabit Network Interfaces Base RJ-45 Connections. TCP, UDP, ICMP, IGMP, SNMP, HTTP, NTP, Telnet, FTP

j) The recorder should support recording to Storage Devices.

k) The recorder should include support for Remote Configuration and Management Software, client software, allow users to remotely configure the unit, view live images, play back and search the desired recorded images.

l) The recorder should support a frame rate recording of minimum 25 fps (frames per second), without local or remote monitoring, and support up to 30 fps when using local monitoring/remote client access

m) NVR and Storage must have Auto Switching capable, Single Hot Swappable PSU and a Secondary Dual-Redundant Hot Swappable PSU Support.

> **NAS Storage Specification**

- Two (2) 10GbE connectivity with one dedicated management port accessible through chassis management controller (CMC)

- Redundant Hot-Swappable controllers (2GB Cache to flash per controller)

- Redundant network path with internal fabric wiring

- Storage of 100TB Raw Capacity Hard Disk 15K SAS.

- SAN should have rich features including;
  - Thin Provisioning
  - Advanced Application aware snapshot for VMWare, MS SQL Server, Share Point and Exchange
  - Replication including Sync and A Sync replication,

- Should be able to add storage space non-disruptively

- Scale at least 500TB

- Support for Volume copy and cloning (if any additional license is required for these features, please mention in proposal.

- Parts: 3 Year(s); Service: 3 Year(s) On-Site: 3 Year(s) Warranty

> **RG11 Cable Standards**

Conductor Material:	BC/CCS/CCA/TC/CU/CCAG
Type:	Coaxial Cable Outdoor
Conductor Type:	Solid
Certification:	CE, ISO, RoHS, UL
Jacket Material:	PVC/PE
Flooding Compound:	Jelly
Shielded:	Bonded Al Foil Tri Shielded
Braid Coverage:	Al Brading (60%/90%)
Specification:	CE, RoHS, ETL, UL

➢ **RG6 Cable Standards**

Conductor Material:	BC/CCS/CCA/TC/CU/CCAG
Type:	Coaxial Cable Outdoor
Conductor Type:	Solid
Certification:	CE, ISO, RoHS, UL
Jacket Material:	PVC/PE
Flooding Compound:	Jelly
Shielded:	Bonded Al Foil Tri Shielded
Braid Coverage:	Al Brading (60%/90%)
Specification:	CE, RoHS, ETL, UL

➢ **SFP GBIC Fiber Card Features**

Ringle Color:	Blue and Yellow
Material:	Metal
Data Rate:	1.25G
Wavelength:	1310nm/1550nm
Fiber Types:	Single Mode (SM)
Fiber Connector Type:	Single SC/LC
Transmission Mode:	Simplex
Transmission Distance:	3km/20km
Laser Type:	Long-wavelength DFB Laser diode
Operating Case Temperature:	Standard: 0~70°C; Industrial: -40~85°C
Compatible Brands:	MUST BE Compatible with the Network switch procured.

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