

# **Tender RFP:**

To: M/s \_\_\_\_\_

Subject: **Tender Inquiry - FOR**

1. Supply, installation, configuration, commissioning and support services of IT Equipment / Networking at National Curriculum Council at Turnkey basis.

Sr.#	Description	Qty.	
<b>Firewall</b>			
1	Firewall with 3-yr subscription, support	1	
<b>Active Part</b>			
<b>Core Switch</b>			
1	12 Port Core switch with all accessories, Installation and Configuration	1	
<b>Access Switch</b>			
1	48 Port 10/100/1000 switch with all accessories, Installation and configuration	2	
<b>SFP</b>			
1	Single Mode 1G SFP	4	
<b>Wireless Access Point</b>			
1	Wireless AP	12	<b>Lot</b>
<b>Switch Cabinet</b>			
1	12 U Rack with Fan and PDU	2	
<b>UPS</b>			
1	10 KVA	1	
<b>Passive Part (3M / Corning Brand)</b>			
1	Giga Cable UTP CAT6	80 Nodes	
2	CAT 6 Patch Panel		
3	CAT6 I/O		
4	Faceplate Single/Dual Shutter		
5	Patch Cords CAT 6, 1 & 3 meter		
6	Fiber Cable for back bone		
7	ODF		
8	Dura Duct, Pipe and Accessories (Adamjee)		

## **SCOPE OF WORK**

- i) Hardware /software installation, configuration and support services will be solely responsibility of the vendor.
- ii) Software bidder will be responsible for the installation, configuration and support services.
- iii) Turnkey solution vendor must offer all items, increase of any discrepancy or less item bid will be rejected.
- iv) Product Support Services must be within 24 hours
- v) In case of failure or malfunctioning of hardware equipment/component, a free replacement and installation of the device/part will be the responsibility of the vendor and on exchange bases as Free of Cost (FOC) under warranty.
- vi) Technical Support services should include resolution of complaints related to equipment.
- vii) All operating system support, compatibility issues and setup/configuration, services are the responsibility of equipment provider.
- viii) The drivers/applications support CD/media must be provided for hardware equipment compatible with the OS respectively (if any)
- ix) Hardware devices having end of life must be communicated, Moreover, nearly end of life hardware devices will not be acceptable.
- x) Vender will responsible for all types of IT equipment being delivered.
- xi) 24 x 7 availability of hotline.

**Note:** *Vendor is solely responsible to provide the support services for the offered product even the support for the same product would have been discontinued by the OEM.*

# **TERMS, CONDITIONS AND INSTRUCTIONS FOR THE BIDDERS**

*(Please Read Carefully)*

Respondent organization is bound to accept all supply orders issued on the offered rates for supply of required quantities of product within prescribed period after receipt of the supply order. A formal agreement will be signed by the qualified bidder with the **NATIONAL CURRICULUM COUNCIL** in this regard.

## **1- Documents Attached**

- i. Company profile with list of its recent clients.
- ii. Copy of NTN Certificate of the firm.
- iii. Copy of Active Sales Tax Registration Certificate of the firm.
- iv. Earnest money equals to 2% in favor of DDO, NCC of quoted price in the shape of Bank Draft/Pay Order bearing No. ...., Date .....& Rs. ....
- v. Name & address of scheduled Bank for Rs.....
- vi. Compliance sheet for offered product.
- vii. Official Authorized Partnership Certificate from sole manufacture along with Product Broachers.
- viii. Bid authorization letter from OEM in favor of **NATIONAL CURRICULUM COUNCIL** must be attached.
- ix. Affidavit certifying that the Firm/bidder is not blacklisted/suspended by any Government Department/ office.
- x. Proof of Financial capability and at least five years experience of supplying and installation of the same IT-Equipment and networking (service) with at least five successfully completed work-orders/projects from public sector organization.
- xi. All imported devices must be genuine and online verifiable from manufactures through their model/serial number.
- xii. Proof of after sale Service Centre located in Islamabad/ Rawalpindi.

## **2- Opening of Competitive Bids**

- i. A method of Single Stage- Two Envelope will be followed. The bidders must furnish technical proposals and financial proposals in different envelopes. The envelope must be clearly marked as “**Technical proposal**” and “**Financial Proposal**”.
- ii. Earnest money should be enclosed in financial proposal. And a copy of the earnest money must be attached with the technical proposal. (HIDING THE QUOTED AMOUNT).
- iii. **Project must be completed within Twenty (20) days from the award of contract of contract**
- iv. Technical evaluation process examines the strict compliance for the offered product with the required specifications, terms and conditions. Financial proposal of the firm will not be considered and returned un-opened if product not compliant.
- v. Schedule for Opening of Bids.

<b>Date/ Time</b>	<b>Venue</b>	<b>Bid Validity</b>
<b>19<sup>th</sup> October 2021 11.30 am</b>	<b>NCC Secretariat, Plot 35, Sector H-9/4 Islamabad</b>	<b>60 days</b>

### **3- Rejection of the Bid**

- i. Any offer not compliant with the terms & conditions of the tender enquiry is liable to be rejected under provision of PP Rules-2004.
- ii. Any offer will not be entertained if:
  - Firm/bidder is blacklisted/suspended by any Government department.
  - Firm is not official partner for hardware, OS & software from principal.
  - Offer with shorter price/delivery validity than required in the tender enquiry.
  - Not compliant with the required specifications, terms & conditions.
  - Bid offering less items as defined in Turnkey solution.
  - Bid submission after the time and date fixed for its receipt.
  - Received without earnest money.
  - Tender/offer is un-signed.
  - Offer is ambiguous.
  - Offer is conditional.
  - NATIONAL CURRICULUM COUNCIL Islamabad further reserves the right to accept or reject any or all tender(s) without assigning any reason.

### **4- Performance Guarantee**

- i. The qualified bidder/ firm will be required to furnish 2% performance guarantee of the total amount of supply order in the shape of CDR/Bank Guarantee and released after satisfactory completion of the warranty/guarantee period. In addition, earnest money can also be retained as a performance guarantee, if vendor desires.
- ii. The Bank Guarantee must be issued by scheduled bank.
- iii. In case, if supplier/contractor fails to complete the given assignment within specified timeframe, the performance guarantee/security deposit will be for held in favor of NATIONAL CURRICULUM COUNCIL.

### **5- Warranty/ Guarantee**

- i. The successful bidder shall provide warranty/guarantee as specified in detailed specifications against each hardware item.
- ii. The warranty period will start from the date of supplies received in NATIONAL CURRICULUM COUNCIL.
- iii. The qualified bidder must warrant the ITE equipment and ensure availability of Technical support services as informed through electronic & non-electronic means. Each and every complaint should be completely responded by the competent resource of the firm and visit on-site within 24 hours of its notification.
- iv. If any bidder fails to rectify the problem in the provided equipment during warranty period due to any reason, NATIONAL CURRICULUM COUNCIL will be authorized to repair or replace the faulty equipment/component thereof and for it the Bank Guarantee/retained value.
- v. This security deposit for warranty and guarantee will be released after expiry of the warranty period.

### **6- Taxes**

- i. The rate should be quoted inclusive of all applicable taxes.
- ii. The bidder should provide the Income Tax and Sales Tax Registration Certificates.
- iii. The project authorities will deduct the taxes at source as per prevailing rules/regulations of the Government.

- iv. In case the supplies or part here of are exempt from levy of any tax, the bidder shall provide an exemption certificate (SRO) to this effect, otherwise taxes will be deducted.

#### **7- Bidding**

- i. Rate quoted for the offered product and services in Pak Rupees.
- ii. Installation and commissioning charges of equipment must be included in the quoted rates.
- iii. Tender documents must be filled in, stamped and signed by authorized representative of the firm.
- iv. Any bid with erasing/cutting/crossing/dual rate etc will not be considered.
- v. The participated firm must be an official authorized partner from principal for the quoted brand.

#### **8- Bid Evaluation**

- i. Bids shall be evaluated in accordance with advertised specifications of equipment, terms & conditions.
- ii. Rates offered by the firms.
- iii. Supply time, and maintenance of warranty period.
- iv. Physical compliance with required specifications and quality conformance for the offered product in demonstration session.
- v. Active part inspection will be carried-out visiting the site where offered product installed and operational.
- vi. Willingness of the firm to enter into contract agreement with the NATIONAL CURRICULUM COUNCIL for supply of equipment on the rates tendered by the firm/bidder in its financial bid.

#### **9- Supply of Stores**

- i. The items mentioned in the list are required to be delivered at NATIONAL CURRICULUM COUNCIL within time period mentioned in the tender document.
- ii. The stores are required by the consignee within stipulated date. However, the tender is required to indicate their own guarantee earliest date by which the items/store should be brand new and in original manufacturers packing.

#### **10- NATIONAL CURRICULUM COUNCIL Rights Within Provision Of PP Rules-**

##### **2004**

- i. NATIONAL CURRICULUM COUNCIL reserves the right to:
  - Award contract to more than one bidder.
  - Accept or reject any or all tenders.
  - Increase the quantity of items or may order partial supplies or cancel any or all items.
  - Purchase full or part of the store or ignore/scrap/cancel the tender.
  - Claim compensation for the loss caused by the delay in the delivery or any other damage pointed out at time of delivery or commissioning or installation or during warranty period.

## **11- Payment**

- i. The invoice is complete, accurate and to the entire satisfaction of the procuring agency/client.
- ii. Supplies are delivered/installed according to the instructions of the NATIONAL CURRICULUM COUNCIL.
- iii. Vendor must produce satisfactory inspection with the invoice issued by the NATIONAL CURRICULUM COUNCIL that authenticates the quality conformance, quantity of products delivered and amount of work done successfully.
- iv. 2% performance guarantee is provided with the invoice having validity up to the date of Warranty period.
- v. The payment against a supply order shall be made on the completion of the delivery of supplies including installation, commissioning, etc. as mentioned in the supply order.
- vi. Cheque will be issued through AGPR, Islamabad.

## **12- Arbitration**

Any disputed situation / condition between the bidder and the procuring agency regarding this bid or any other matter ancillary there to what so ever, the same shall be referred to the sole arbitrator. Grievance Redressed Committee of NATIONAL CURRICULUM COUNCIL.

The Arbitrator shall give it's a ward within two months from the date on which it enter sup on the reference. The provisions of the Arbitration Act, 1940 shall apply to the arbitration proceeding. Reference to arbitration shall be a condition precedent for any other action at law.

## **13- Penalty**

For failure to comply with the supply/work order and the liquid at damages will be levied as under:-

- i. 1% of the cost of that items mentioned in the supply order that remain un-delivered/un-finished for each day of non-supply up to maximum of twenty (20) days exceeding the job completion/delivery period.
- ii. If the material is not supplied even after payment of penalty for 20 consecutive days, NATIONAL CURRICULUM COUNCIL reserves the right to cancel the contract and get the full or remaining assignment completed from the other competitive bidders on the equivalent price/amount that will be deducted from the securities deposited by the default firm/supplier.

**14-** Only registered suppliers, who are on Active Taxpayers List (ATL) of FBR, are eligible to supply goods / services to Government departments.

**15-** The payment to the registered persons may be linked with the active tax payer status of the suppliers as per FBR database. If any registered supplier is not in ATL his payment should be stopped till he file shis mandatory returns and appear son ATL of FBR.

## **16- Undertaking**

We undertake and declare that

- i. The prices quoted including of all taxes, transportation and cost of installation etc. The quantity of above items can be increased.
- ii. The offered prices must be valid up to 60 days starting from the date of tender opening.
- iii. All products are covered under warranty issued by manufacturer/principal starting from the date of supply/installation and incase of any defect and malfunctioning we shall be responsible for repair/replacement as per guarantee/warranty.
- iv. The supplier is responsible to arrange replacement/technical support during warranty/guarantee period.

We understand that:-

NATIONAL CURRICULUM COUNCIL reserves the right to accept or reject our bid and we undertake not to question the decision in this regard.

The earnest money amounting Rs.....submitted by us is liable to for feature incase our firm fails to abide by the terms and conditions given in the advertisement referred to above

**Signature & Stamp**  
**Of Authorized Agent**

## Next Generation Firewall

## Annexure A

- Minimum Firewall Throughput 4Gbps, IPS throughput 1.8Gbps or more and Anti-Virus throughput 2 Gbps.VPN Throughput 1.6Gbps or more, Minimum of Concurrent session 2 Million and connection per seconds – 40,000
- Firewall must be rated 95% or above in the latest NSS lab Report (2019).
- The Complete UTM Throughput after Switching on the Deep Packet Inspection with APT Blocker and Other Security Services minimum UTM Throughput – 1.6 Gbps
- 8 x 1GE Copper (RJ45) Interfaces with all interface Auto configurable and unlimited WAN.
- Should Have Complete Visibility with Hostname, IP Address, Mac Address, Open Ports and Should be able to Integrate with Logging tool to see real time traffic and application users is using.
- Minimum Authentication Database should be at least 500 users.
- Geo location blocking for incoming and outgoing traffic
- Should Include Host Ransom ware prevention for the Endpoints to block any malicious services or activity running using Heuristic Engine, Behavior Analysis and Network Events.
- Should Have IP Intelligence Technique for Block the Bad IP Address automatically in the cloud sending TOP VIRUSES, TOP SPAMMERS, ZERO DAYS Attacks. Etc. The Database should be automatically updated and should also include separate Botnet Detection features.
- Should Have added Management server for managing at least 4 remote devices without any additional cost and have below features:
  - A. Should Have VPN, Web blocker, Application Control Policy template creation option.
  - B. Automatic Scheduling of Policy with date and time and feature synchronization with Schedule OS Update for all the location.
  - C. Users with limited right to manage the firewall, (Administrator, Super Administration, VPN Administration, Status Users, Log Administrator)
  - D. Should have real time traffic monitor view with Source IP, Destination IP, Date Time in seconds, Src Port, Dst Port, Ports / Protocols, Src Interface, Dst Interface, Policy, Application information, Web sites information, HTTP request and response with username and GEO location.
- Fully Support Routing Protocols Static and Dynamic (OSPFv2, OSPFv3, BGP, RIP, RIPing) and Support of HA in Active-Passive mode (Cluster-Mode)
- Should have Blocking of Malicious Traffic using DNS and should give email notification with threat analysis and Malware Analysis report to administrator. Also, users should receive blocking page with video giving information about this harmful websites access.
- Application Proxies support for HTTP, HTTPS, SMTP, FTP, DNS, TCP-UDP, POP3, SIP, H.323
- Should Support SSLVPN, IPSEC VPN, IKE2 VPN and L2TP. All VPN clients should not be less than 100.Also should support Static NAT, Dynamic NAT, 1:1 NAT and NAT Loopback with Server Load Balancing Features.



- Free Clientless VPN should be included with n number of Application publishing to users accessing via SSLVPN portal and should have complete records in reporting about user's activity.
- Should Have time quota Bandwidth quota with automatic quota renewal.
- Firewall Should be application Layer gateway firewall inspecting, HTTP request, HTTP response, and should cover all the UTM features including (IPS, Reporting, VPN Clientless, DNS, Gateway Antivirus, APT, DLP, Web filtering and Application Filtering,
- Should support BOVPN virtual interface to a third-party VPN endpoint with the GRE tunneling protocol. Should configure a BOVPN virtual interface to a third-party VPN endpoint or cloud-based endpoint without GRE. Supported endpoints include cloud-based virtual networks like Microsoft Azure and Amazon AWS,
- License for UTM is required for 3 years with UTM license

## Annexure B

### Layer 3 Switch

Sr. No	Requirement	Compliance
1.	The switch must be equipped with 4 x SFP ports	
2.	The switch must be equipped with 12 x 10/100/1000BaseT Combo ports	
3.	Switch must be Gartner leader guardant.	
4.	The switch must support 4 x SFP+ ports	
5.	The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.	
6.	The switch bandwidth must be not less than 104 Gbps	
7.	The maximum number of stored MAC addresses in the switching table the switch shall be not less than 16000	
8.	The routing table of the switch must store not less 480 IPv4 routes	
9.	The switch must support 256 or more Multicast groups	
10.	The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports.	
11.	The failure of any switch in the stack should not cause stack outage more than 50ms.	
12.	The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.	
13.	The failover configuration must be supported for two separate switches and two separate stacks of switches.	
14.	The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.	
15.	The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols	
16.	The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.	
17.	The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching	
18.	The switch must support 802.1w, 802.1s, PVST+ protocols	
19.	The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA	
20.	The switch must support Policy-based Routing	
21.	The switch must support the IEEE 802.1x protocol.	
22.	The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.	
23.	The switch must supports Flow version 5.	

24.	The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.	
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25	The switch must support the XML language for a simple embedding procedures for the management switch into external systems	
26	The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.	
27	The switch must support ITU-T Y.1731 protocol	
28	The switch must support Cloud Management System	
29	Then switch must support following routing protocols:	
30	OSPF	
31	RIP v1/v2, PIM,	
32	The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3	
33	VMAN Customer Edge Port CVID Egress Filtering / CVID Translation	
34	LAG (802.3ad LACP) core, between switches	
35	VLAN aggregation	
33	Ethernet Audio Video Bridging (AVB) support	

## Annexure C

### Access Switch 48 Port

Sr. NO	Requirement	Compliance
1	The switch must be equipped with 48 x 10/100/1000BaseT ports,	
2	The switch must be equipped with SFP ports, not less than 8 (2+6 combo)	
3	The switch must be equipped with SFP+ ports, not less than 4	

4	The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.	
5	The switch bandwidth must be not less than 176 Gbps	
6	The maximum number of stored MAC addresses in the switching table the switch shall be not less than 16000	
7	The routing table of the switch must store not less 480 IPv4 routes	
8	The switch must support 256 or more Multicast groups	
9	The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports	
10	The failure of any switch in the stack should not cause stack outage more than 50ms.	
11	The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.	
12	The failover configuration must be supported for two separate switches and two separate stacks of switches.	
13	The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.	
14	The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols	
15	The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.	
16	The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching	
17	The switch must support 802.1w, 802.1s, PVST+ protocols	
18	The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA	
19	The switch must support Policy-based Routing	
20	The switch must support the IEEE 802.1x protocol.	
21	The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.	
22	The switch must support s Flow version 5.	
23	The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.	

24	The switch must support the XML language for a simple embedding procedures for the management switch into external systems	
25	The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.	
26	The switch must support ITU-T Y.1731 protocol	

27	The switch must support Cloud Management System.	
28	Ethernet Audio Video Bridging (AVB) support	

**Single Mode 1G SFP**

**Annexure D**

- 1.25G 1310nm 1km SMF DDM LC

**Annexure E**

**Wireless Access Point**

<b>Sr. No</b>	<b>Requirement</b>	<b>Compliance</b>
1	The AP shall support 802.11 a/b/g/n/ac standards and can be managed by a centralized wireless LAN Controller, if required.	
2	Supports Wireless Intrusion Prevention System (WIPS)	
3	2x2 MIMO	

4	Access point shall support a/b/g/n/ac standard	
5	512 MB RAM	
6	32 MB Flash	
7	1 x 10/100/1000BASE-T autosensing (RJ-45), Power over Ethernet (PoE)	
8	Management console port (RJ-45)	
9	USB 2.0 (enabled via future software)	
10	At least one 802.3at PoE+ supported PoE port	
11	At least one management console port	
12	Input point for 802.3at power injector	
13	At least one status LED showing boot loader status, operating status, boot loader warnings, boot loader errors	
14	Integrated Antenna with flexible radio either 2.4GHz or 5GHz	
15	At least one status LED showing boot loader status, operating status, boot loader warnings, boot loader errors	

**UPS**

10KVA

True Online Double Conversion

Pure Sinewave UPS

Single Phase IN / Single Phase OUT

Frequency: 50 Hz, +/- 5% Hz

Power factor: 0.9

Power bypass system: Built in maintenance

**Annexure E**

Frequency: 50Hz, +/-0.5 Hz

Crest factor: 3:1

SNMP / Web browser Connectivity Slot.

USB Port option.

High instantaneous overload Capacity.

Backup time – 30 min with Sealed lead Acid Maintenance Free Battery

Centralized power to all switch rack and all switches must be connected to UPS

Power cable must be well known brand i-e Pakistan cable or equivalent

## **Passive Networking**

**(Annexure E)**

**Passive work including ducting, copper/ fiber laying, termination and fluke testing.**

i. Giga Cable UTP CAT6

ii. CAT 6 Patch Panel

iii. CAT6 I/O

iv. Faceplate Single / dual Shutter

v. Patch Cords CAT 6, (1 & 3 meter)

vi. Fiber Backbone Cable for Uplink the network switches. (Fiber



vii. Optical Distribution Frame.

viii. Dura Duct, Pipe and Accessories

Sr. No	Requirement	Compliance
1	<b>CAT 6 Cable</b>	
1.1	Cat 6 Cable, UTP, PVC, 4 pairs, 305 meter /Box Gigabit original copper cable Category 6 U/UTP Cable (with cross-shaped separator) offer the possibility to deploy	
1.2	Un shielded Category 6/Class E systems when installed with Cat-6 RJ45 Jacks.	
1.3	• Conductor Diameter: AWG 24 ( $\varnothing$ 0.525 +/- 0.015mm)	
1.4	• Insulation Diameter: PE $\varnothing$ 0.95 +/- 0.05 mm	
1.5	• Cable assemblies: pairs	
1.6	• Sheath material: PVC	
1.7	<b>Mechanical Features:</b>	
1.7a	Maximum cable diameter (mm) 5.40 +/- 0.30	
1.7b	Bending Radius (mm)	
1.7c	Dynamic (installation) / Static (installed) $\geq$ 8x outer diameter / $\geq$ 4x outer diameter	
1.7d	Temperature Range In service / Installation, Transport and Storage -20°C +60°C / 0°C +50°C	
1.8	<b>Electrical Features at 20°C:</b>	
1.8a	DC Resistance	max 9.38 $\Omega$ /100m
1.8b	Resistance Unbalance	$\leq$ 2 %
1.8c	Insulation Resistance (500 V)	$\geq$ 5000 M $\Omega$ /km
1.8d	Mutual capacitance	nom. 5.1 nf / 100 m at 1 kHz
1.8e	Test Voltage (DC, 1 min)	1 kV / 1m
1.8f	Capacitance Unbalance (pair to ground) kHz	max. 160 pf / 100 m at 1 kHz
1.8g	VPN (nominal)	67%
1.9	<b>Standards Cables</b>	
1.9a	IEC 61156-5 ed. 2	
1.9b	ANSI/TIA 568-C.2	
1.9c	ISO/IEC11801 ed.2	
1.10	<b>Fire Rating</b>	
1.10a	LSZH: IEC 60332-1	
1.10b	PVC: IEC 60332-1	
2	<b>CAT6 I/O</b>	
2.1	RJ45 K6 Jack, Cat 6, UTP, Shuttered (tool-less termination),	
2.2	Category 6/Class E system, fully compliant with Category 6 ISO/IEC, EN and TIA standards	
2.3	for hardware performance, confirmed by independent laboratory certifications (Delta, GHMT).	

2.4	The jacks have the following features:	
2.4a	• Category 6 UTP	
2.4b	• Keystone fixing;	
2.4c	• Tool less assembly (mandatory)	
2.4d	• Capable of being wired to both 568B and 568A	
2.4e	• three cable entry points	
2.4f	• Integral shutter/shuttered jack	
2.4g	• Jacks must be reusable i.e it must support multiple termination.	
2.5	Applications	
2.5a	- IEEE 802.3 1GBASE-T	
2.5b	- PoE – IEEE 802.3at	
2.6	Standards	
2.6a	- ISO/ IEC 11801 Edition 2, Am 1-2	
2.6b	- ISO/ IEC 60603-7-5	
2.6c	- EN 50173-1	
2.6d	- ANSI/ TIA/ EIA-568-C.2-2009	
2.6e	- IEC 60512-99-001	
3	Faceplate	
3.1	Single non-shuttered	
3.2	U.K. Single Gang Faceplate, 1 port, w/o shutter.	
3.3	86 x 86 faceplate range can be loaded with Cat-6 UTP I/O to provide the following configurations:	
3.3a	• Single gang, 1 port	
3.3b	• Single gang, 2 ports	
3.4	Specifications	
3.4a	Faceplates – size (h x w x d)	Single gang – 86 x 86 x 10mm
3.4b	Material	V0 – ABS
4	Optical Distribution Frame	
4.1	along with supporting accessories	
5	Rack mount with sliding tray pre-loaded with SC Duplex couplers	
6	Fluke Testing of Copper Nodes & OTDR testing of fiber links.	
7	Dura Duct	
7.1	Duct, Pipe and accessories 16x25mm, 16x38mm, 40x40mm, 60x60 ,1inch pipe etc.- with Adamjee or equivalent ducting and flexible PVC pipe fiber termination unit/ODF	