Request for Quotation (RFQ) - Supply of 4 Nos of OLTs

KFON are pleased to invite you to submit a quotation for the supply of 4 Nos of GPON OLTs (Optical Line Terminals) to support the delivery of KFON services. We are looking for reliable and high-quality OLT equipment that can meet the specific requirements of our LNPs in different districts. Your response to this Request for Quotation (RFQ) should be sent to us no later than **17/10/2023**.

We kindly request you to provide us with a detailed quotation for the supply of 4 Nos of OLTs that meet the specifications outlined in the attached Appendix - A.

- Quantity: 4 Nos

- Warranty: Please specify the warranty period and terms.

- Delivery Timeframe: Specify the expected delivery timeline.

- Price: Provide a detailed breakdown of the pricing, including unit prices, taxes, shipping, and any other applicable charges.

- Technical Specifications: Include technical details, compatibility, and any additional features or benefits of your OLT equipment.

- Terms and Conditions: Any specific terms and conditions related to the supply and support of the equipment.

Please submit your quotation to KFON Support at kfon@ksitil.org no later than 17/10/2023. If you have any questions or require further information, please feel free to contact 0471-2969640.

We appreciate your prompt attention to this RFQ and look forward to receiving your competitive quotation. Your response is crucial to ensuring the seamless delivery of KFON services to our LNPs.

S No.	Parameter	Sub Parameter	Minimum Specification of OLT
1	Generic Requirements	PON features	FTTx solution should be based on GPON
			OLT & ONT should be from the same OEM.
			Shall support 2.5G downstream, 1.25G upstream.
			The equipment must be able to operate at the physical distance of 20 km (between OLT and ONU/ONT) without any additional amplification required.
			The OLT should support 1310 and 1490 nm wavelengths
			The OLT should support a splitting ratio of 1:128
			The Interfaces for the offered FTTx systems shall be of "plug in type (PIU) SFP modules"
			The offered OLTs shall be inter- operable with any third party ONTs as per the OMCI standards. Inter-operability tests shall be done with different vendors
			Support uplink FEC, downlink FEC(Forward Error Correction)
			ONU identifier authentication: SN/SN+PASSWD/LOID
			Management System shall support bandwidth provisioning starting from 256 kbps granularity.
			Shall support Static Bandwidth Allocation as per the requirement on each PON interface.
			Shall support Dynamic Bandwidth Allocation (DBA) mechanism to allow optimum bandwidth utilization on each PON interface.
			MAC Support: 64K
			Switching Capacity: 40 Gbps
			Any other standards inter-related with the Specifications and any other standards deemed necessary by the bidder.

2	FTTx System General Requirements	General Features	Should be compliant to the relevant ISO/ETSI industry quality standards (e.g. ISO 9000/9001), defining the quality system requirements for the design, development, production, delivery, installation and maintenance of product and services.
			The offered equipment shall support single fibre operation on standard SMF G.652, G.655 & G.657.
			The equipment shall support IPv4 and IPV6.
			In the specification wherever support for a feature has been asked for, it will mean that the feature should be available without requiring any other hardware/software/licenses. Thus, all hardware/software/licenses required for enabling the support/feature shall be included in the offer.
			The equipment shall detect the optical power transmission of every ONT, once that it detects some problems in the status of the optical transmission power.
3	Subscriber Access methods supported		DHCP, DHCP option 82, Static IP, PPPoE, IPoE
			Shall support multiple service delivery of data, voice and video.
			The OLTs shall be able to support mobile traffic backhauling.
			The Equipment must support IP Multicasting to cater for interactive services such as broadcast IPTV, distance learning, etc.
4	ITU-T Related specifications		Shall comply to ITU-T recommendations.
			ITU-T G.983.4: A broadband optical access system with increased service capability using dynamic bandwidth assignment.
			ITU-T G.984.1: GPON General Characteristics.
			ITU-T G.984.2: GPON Physical Media Dependent (PMD) layer specification.
			ITU-T G.984.3: GPON Transmission convergence layer specification.

			ITU-T G.984.8: GPON ONT management and control interface specification.
5	L2 Features	VLAN	4K VLAN entries
			Port-based/MAC-based/IP subnet based VLAN
			Port-based Q-in-Q and Selective Q-in-Q(Stack VLAN)
			VLAN Swap and VLAN Remark and VLAN Translate Based on ONU service flow VLAN add, delete, replace
		Link Protection	STP, RSTP, MSTP or ERPS protocol support
		Port Features	Bi-directional bandwidth control
			Static link aggregation/LACP (recover-time<10ms)
			Port Mirroring and traffic mirroring support
6	L3 Features	Routing support	Static route, OSPF and BGP support from day one
		IPv4	ARP Proxy
			DHCP Relay
			DHCP Server
		IPv6	ICMPv6
			ICMPv6 redirection
			DHCPv6
			ACLv6
			Configured Tunnel
			6to4 tunnel
			IPv6 and IPv4 Tunnels
7	Security Features	User Security	IP Source Guard create IP+VLAN+MAC+Port binding
			Port Isolation
			IEEE 802.1x/AAA/Radius authentication
			ONU isolation control
		Device Security	Security IP login through Telnet
			Two level Hierarchical management (admin and user) and password protection of users
			SSHv2 Secure Shell
			User-based MAC and ARP traffic examination
			Restrict ARP traffic of each user and force-out user with abnormal ARP traffic
			L2 to L7 ACL flow filtration mechanism on the 80 bytes of the head of user-defined packet

		Network Security	Port-based broadcast/multicast suppression and auto-shutdown risk port
			URPF to prevent IP address counterfeit and attack
			DHCP Option82 and PPPOE+ upload user's physical location
			Plain-text authentication of OSPF/RIPv2 and MD5 cartography authentication
8	**Service Features**	**ACL**	Standard and extended ACL
			Time Range ACL
			Packet filter providing filtering based on source/destination MAC address, source/destination IP address, port, protocol, VLAN, VLAN range, MAC address range, or invalid frame.
			System shall support concurrent identification at most 50-service traffic
			System shall support packet filtration of L2~L7 even deep to 80 bytes of IP packet head
		QoS	Rate-limit to packet sending/receiving speed of port or self-defined flow and provide general flow monitor and two-speed tri-colour monitor of self- defined flow
			Priority remark to port or self-defined flow and provide 802.1P, DSCP priority and Remark
			CAR(Committed Access Rate),Traffic Shaping and flow statistics
			Packet mirror and redirection of interface and self- defined flow
			Super queue scheduler based on port and self- defined flow.
			The detail Downstream and Upstream QoS and traffic prioritization mechanism supported inclusive of the hardware queue available for each direction. A minimum of 8 hardware queues should be supported at both directions. The OLT should implement some queuing mechanism to manage the hardware queue such as SP, WRR, etc.
			Congestion avoid mechanism, including Tail-Drop and WRED

			Trusted connectivity where the QoS setting / traffic prioritization configured by customer can be preserved.
			Un-trusted connectivity where the QoS setting / traffic prioritization configured by customer can be overwritten by the Equipment.
		Multicast	The IGMP forwarding capabilities on OLT should not be less than 2000pps
			IGMPv1/v2/v3
			IGMPv1/v2/v3 Snooping
			IGMP Filter
			MVR and cross VLAN multicast copy
			IGMP Fast leave
			IGMP Proxy
			MLDv2/MLDv2 Snooping
9	**Maintenance**	**Device Management**	Web management
			Console/Telnet, Command-line interface CLI)
			Upgrade via FTP
			System configurationand monitoring with SNMPv1/v2/v3
			RMON(Remote Monitoring)
			Support SNTP/NTP
		Network Maintenance	Shall support basic OAM features such as loop back, remote diagnostic, Continuity Check, Link Trace and any other required mandatory features
			Telnet-based statistics
			RFC3176 sFlow
			LLDP
			RFC 3164 BSD syslog Protocol
			Ping and traceroute
10	**OLT Hardware features**		The OLT shall be rack mountable and meet ETSI standards for indoor equipment requirement
			The OLT shall be designed to Operate at 110-265 ac
			Dual power supply for redundancy (AC+AC, DC+DC OR AC+DC). Default supply has to be AC+AC until specified by the Authority.
			working temperature: 0 to 50 deg centigrade"
			Fan is required for cooling the OLT to force airflow.

			The OLT shall provide one craft port (RJ45) for local configuration access.
11	**Physical interfaces supported/loaded**		
			8*PON ports, 2*10G SFP+, 2*1G SFP and 2*1000Base-T
12	**TEC GR**		The constituents of GPON network shall be as per TEC/GR/FA/PON-002/02/NOV-18 certified with all amendments along with the following modifications as per the requirement of tenderer. In case of any conflict in interpretation of this GR, specifications of this tender supersedes GR. If the offered product is not having TEC certification as per TEC/GR/FA/PON-002/02/NOV-18, OEM shall submit an undertaking to obtain the same before the contract period.

Appendix - A

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