

Compliance Matrix for Routers Specifications

Sr.	Parameter	Value	Compliance (Yes/No)	Offered specifications	Remarks
1	Device Category	Network router			
2	RJ-45 Ethernet L3 WAN ports	2x 1G L3 RJ-45 Ethernet WAN ports or more			
3	RJ-45 Ethernet L2 ports	4x 1G L2 RJ-45 Ethernet ports or more			
4	SFP ports	1x L3 SFP port or more			
5	IPv4 forwarding throughput	1Gbps or better			
6	IPsec throughput	50Mbps or better			
7	RAM	8GB or more			
8	Flash memory	16GB or more			
9	Serial WAN modules	Provision should be available in unit for adding serial WAN modules (supporting specified encapsulations) including E1.			
10	Voice modules	Provision should be available in unit for adding E&M, FXS, FXO voice modules			
11	Integrated voice and data services	The router should support integrated voice and data services through add-on voice modules as specified, configurable voice class, configurable source interface for voice services.			
12	Features	IPv4, IPv6, multi VRF (Virtual routing and forwarding) capable, IGMPv3 (internet group management protocol version 3), PIM (Protocol independent multicast) sparse mode, dense mode, sparse-dense mode, IKEv2 (Internet key exchange version 2), IPsec (IP security), GRE (Generic routing and encapsulation)			

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		<p>tunnels, VRF aware IPsec, Ethernet 802.1q VLAN, VLAN (Virtual LAN) interface, VLAN access and trunk mode, configurable L3 sub-interfaces with dot1q encapsulation, static routes, weighted static routes, OSPF (Open shortest path first), HSRP(hot standby redundancy protocol)/VRRP(virtual router redundancy protocol), BGP (Border gateway protocol), NTP (Network time protocol) client, DNS(Domain name system) client, TFTP(Trivial file transfer protocol), FTP (File transfer protocol), SCP (Secure copy), NAT (Network address translation), overload/PAT(port address translation), SIP(Session initiation protocol) for voice connectivity, loopback interface, TCP(Transmission control protocol) traffic MSS (Maximum segment size) adjustment, configurable MTU (maximum transmission unit), IP helper for routing of broadcast traffic, configurable AAA (Access, authorization and accounting) server, configurable source interface for TFTP, FTP, syslog, SNMP (Simple network management protocol), NTP, configurable tracks for IP SLA, line protocol, configurable down and up delay for tracks</p>			
13	Encapsulation	<p>GRE with configurable keepalive, configurable GRE tunnel key, capable of at least 100 instances of GRE tunnels, PPPoE (point to point over Ethernet) dialer, serial (RS-232, V.35, EIA-530)</p>			

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14	Login Management	Login authentication, configurable user privilege level, add/delete logins, Password storage in encrypted form			
15	Traffic management	QoS (Quality of service), traffic classification based on ACL (match any, match all), VLAN, DSCP marking, protocol, policy-based routing, CBWFQ (class based weighted fair queuing), WRED (Weighted random early detection), traffic DSCP (Differentiated services code point) remarking, traffic policing and traffic shaping, traffic bandwidth allocation based on class, per tunnel QoS, QoS pre-classify for GRE tunnel			
16	Access control lists (ACLs)	ACL permit/deny based on source IP, ACL permit/deny based on source and destination IP, protocol, port number, Configurable in and out ACLs on interfaces, IPsec traffic ACL			
17	Cryptographic algorithms	Advanced encryption standard: AES-128, AES-192, AES-256CBC and GCM, Secure hash algorithm: SHA-256, SHA-384, SHA-512, DH (Diffie-Hellman) group - 1, 2, 5, 14, 15, 16, 19, 20, 21, 24, Configurable PFS (perfect forward secrecy) group, RSA (Rivest-Shamir-Adleman) - 748, 1024, 2048 bit			
18	Voice Connection trunks	Configurable connection trunks for E&M voice ports for permanent voice connection over IP, configurable VOIP and POTS dial peers with digit pattern			

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		matching, configurable session transport(udp/tcp), configurable codec (g711a, g711u, g729a), configurable session protocol (SIP), configurable voice class, configurable frame duration, configurable VAD (voice activity detection), configurable DSCP for VOIP dial peers.			
19	IPsec	IKEv2, configurable IKEv2 proposal and policy, destination address based keyring configuration, PSK (pre-shared key), IKEv2 configurable lifetime, configurable cryptographic parameter for ikev2 and IPsec session, configurable ACL for IPsec traffic matching, IPsec tunnel and transport mode, point to point IPsec VPN, PFS			
20	WAN performance monitoring	The unit shall support following tools for WAN performance: 1) ICMP echo with configurable tag, frequency, threshold, timeout, destination address and source address. 2) UDP jitter with configurable tag, source address, source port, destination address, destination port, configurable codec (g711a, g711u, g729 codec), threshold, timeout, frequency, frame duration values. UDP jitter shall provide both one-way and two-way max RTT, packet loss, avg jitter, max jitter and min jitter values in results. Configurable scheduling of ICMP echo and UDP jitter.			

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21	Virtual routing and forwarding (VRF)	The unit shall support least 100 instances of VRFs, VRF aware routing, route distinguisher, VRF description			
22	Power Supply	230VAC 50-60Hz. Standard Indian power cord to be supplied.			
23	Operating temperature range	0 degree to 40 degree Celsius or better range			
24	Console	1x USB/RS-232 console. Console cable to be supplied			
25	Mounting	Standard 19-inch rack mountable. Mounting brackets to be supplied.			
26	Remote monitoring and control	SNMPv2, SNMPv3, RS-232 Console, SSH with configurable user login			
27	Logging	Configurable log levels (debug, informational, notification, warning, error, critical), logging to internal RAM, flash, remote logging through syslog. Configurable RAM and flash log buffer size.			
28	Firmware updates/configuration file	The unit shall support transfer of firmware updates and configuration files through TFTP, FTP.			
29	Dimensions	Unit shall be standard 19-inch network rack mountable. Height shall not be more than 2RU.			
30	Warranty	3 years or more			