Alcatel-Lucent Enterprise OmniSwitch 6865 GOLDEN RFP

Version 8.9R3

Alcatel·Lucent Enterprise

Contents

1. Introduction

The Alcatel-Lucent OmniSwitch 6865 is a family of ruggedized, advanced Layer 3, scalable Ethernet switches, designed to operate reliably in the harshest industrial environments and severe temperatures.

OS6865 switches are rugged, high bandwidth switches that are ideal for industrial and mission critical applications that require wider operating temperature ranges, stringent EMC/EMI requirements and an optimized feature set for high security, reliability, performance and easy management. These switches run on the widely deployed and field proven Alcatel-Lucent Operating system offering SPB-M based VPNs and other advanced routing and switching capabilities.

The OS6865 series offers a unique mix of features to cater to the Hardened Ethernet applications such as IEEE 1588v2 PTP capabilities for timing requirements of industrial IoT devices, HPoE (75W) for those power-hungry devices on the access network, Fast PoE / Perpetual PoE for seamless connectivity of the IoT PoE devices. SPB-M for fast, cost-efficient roll-out of VPN services on the edge and a comprehensive suite of security features to secure the network edge. These switches are easy to deploy with Alcatel Lucent's award winning Intelligent-Fabric technology which offers out-of-the-box plug-and-play, Zero-touch provisioning and network automation. The OS6865 family offers advanced system and network level resiliency features and convergence through standardized protocols.

These versatile industrial switches are ideal for deployment in transportation and traffic control systems, power utilities, video surveillance systems and outdoor installations.

2. OmniSwitch 6865 Links:

https://www.al-enterprise.com/en/products/switches/omniswitch-6865
https://www.al-enterprise.com/-/media/assets/internet/documents/omniswitch-6865-datasheet-en.pdf

Common Criteria EAL2

Common Criteria NDcpp

FIPS 140-2
Certified for U.S. DoD interoperability by JITC

3. The switch must support the following characteristics (OS6865-P16X)

1.	Fanless equipment	C/PC/NC
2.	Non-blocking equipment (for layer 2 and layer 3 in all ports)	C/PC/NC
3.	Support of the mounting options: DIN, Wall, Panel and 19" rack	C/PC/NC
4.	Maximum Height of 8.8 cm (3.47 in)	C/PC/NC
5.	Maximum Width of 21.56 cm (8.49 in)	C/PC/NC
6.	Maximum Depth (without Power supplies) of 26 cm (10.24 in)	C/PC/NC
7.	Maximum Weight (without Power supplies) of 5.07 Kg (11.18 lbs)	C/PC/NC
8.	Minimum of 12 ports 10/100/1000 Base T RJ45	C/PC/NC
9.	Minimum of 2 SFP ports (1 Gbps)	C/PC/NC
10.	Minimum of 2 SFP+ ports (10 Gbps)	C/PC/NC
11.	Minimum of 8 ports 10/100/1000 Base T with support of RJ45 PoE+, 803.3at	C/PC/NC
12.	Minimum of 4 ports 10/100/1000 Base T supporting also 75W HPoE	C/PC/NC
13.	Minimum PoE budget of 300 Watt capable	C/PC/NC
14.	Maximum Surge protection in the RJ45 of 6KV	C/PC/NC
15.	Minimum support of 12 ports 10/100/1000 with 1588v2 capable	C/PC/NC
16.	Minimum support of 2 SFP ports (1 Gbps) with 1588v2 capable	C/PC/NC

17.	Minimum support of 2 SFP+ ports (10 Gbps) with 1588v2 capable	C/PC/NC
18.	Minimum switching capacity (Gbps): 68 Gbps	C/PC/NC
19.	Operating Temperature: -40°C to 74°C (-40ºF to 165ºF)	C/PC/NC
20.	Humidity (operation): 5% to 95% non-condensing	C/PC/NC
21.	Minimum MTBF in hours (with one power supply): 767.181	C/PC/NC
22.	Minimum MTBF in hours (with two power supply): 1.044.414	C/PC/NC

4. The switch must support the following characteristics (OS6865-U12X)

23.	Fanless equipment	C/PC/NC
24.	Non-blocking equipment (for layer 2 and layer 3 in all ports)	C/PC/NC
25.	Support of the mounting options: DIN, Wall, Panel and 19" rack	C/PC/NC
26.	Maximum Height of 8.81 cm (3.47 in)	C/PC/NC
27.	Maximum Width of 21.56 cm (8.49 in)	C/PC/NC
28.	Maximum Depth (without Power supplies) of 26 cm (10.24 in)	C/PC/NC
29.	Maximum Weight (without Power supplies) of 5.17 Kg (11.40 lbs)	C/PC/NC
30.	Minimum of 4 ports 10/100/1000 Base T RJ45	C/PC/NC
31.	Minimum of 6 SFP ports (1 Gbps)	C/PC/NC
32.	Minimum of 2 SFP+ ports (10 Gbps)	C/PC/NC
33.	Minimum of 4 ports 10/100/1000 Base T with support of RJ45 PoE+, 803.3at	C/PC/NC
34.	Minimum of 4 ports 10/100/1000 Base T supporting also 75W HPoE	C/PC/NC
35.	Minimum PoE budget of 300 Watt capable	C/PC/NC
36.	Maximum Surge protection in the RJ45 of 6KV	C/PC/NC
37.	Minimum support of 4 ports 10/100/1000 with 1588v2 capable	C/PC/NC

38.	Minimum support of 6 SFP ports (1 Gbps) with 1588v2 capable	C/PC/NC
39.	Minimum support of 2 SFP+ ports (10 Gbps) with 1588v2 capable	C/PC/NC
40.	Minimum switching capacity (Gbps): 60 Gbps	C/PC/NC
41.	Operating Temperature: -40°C to 74°C (-40ºF to 165ºF)	C/PC/NC
42.	Humidity (operation): 5% to 95% non-condensing	C/PC/NC
43.	Minimum MTBF in hours (with one power supply): 827.848	C/PC/NC
44.	Minimum MTBF in hours (with two power supply): 1.141.692	C/PC/NC

5. The switch must support the following characteristics (OS6865-U28X)

45.	Fanless equipment	C/PC/NC
46.	Non-blocking equipment (for layer 2 and layer 3 in all ports)	C/PC/NC
47.	Support of the mounting options: 19” rack	C/PC/NC
48.	Maximum Height of 4.39 cm (1.73 in)	C/PC/NC
49.	Maximum Width of 43.99 cm (17.32 in)	C/PC/NC
50.	Maximum Depth (without Power supplies) of 27 cm (10.63 in)	C/PC/NC
51.	Maximum Weight (without Power supplies) of 6.28 Kg (13.85 lbs)	C/PC/NC
52.	Minimum of 4 ports 10/100/1000 Base T RJ45	C/PC/NC
53.	Minimum of 20 SFP ports (1 Gbps)	C/PC/NC
54.	Minimum of 4 SFP+ ports (10 Gbps)	C/PC/NC
55.	Minimum of 4 ports 10/100/1000 Base T with support of RJ45 PoE+, 803.3at	C/PC/NC
56.	Minimum of 4 ports 10/100/1000 Base T supporting also 75W HPoE	C/PC/NC
57.	Minimum PoE budget of 280 Watt capable	C/PC/NC

58.	Maximum Surge protection in the RJ45 of 6KV	C/PC/NC
59.	Minimum support of 4 ports 10/100/1000 with 1588v2 capable	C/PC/NC
60.	Minimum support of 20 SFP ports (1 Gbps) with 1588v2 capable	C/PC/NC
61.	Minimum support of 4 SFP+ ports (10 Gbps) with 1588v2 capable	C/PC/NC
62.	Minimum switching capacity (Gbps): 208 Gbps	C/PC/NC
63.	Operating Temperature: -40°C to 74°C (-40ºF to 165ºF)	C/PC/NC
64.	Humidity (operation): 5% to 95% non-condensing	C/PC/NC
65.	Minimum MTBF in hours (with one power supply): 709.199	C/PC/NC
66.	Minimum MTBF in hours (with two power supply): 952.763	C/PC/NC

6. The switch must support the following Resiliency and high availability functionalities:

67.	Unified management, control and virtual chassis technology	C/PC/NC
68.	Virtual Chassis 1+N redundant supervisor manager	C/PC/NC
69.	Minimum number of units in VC per line model of: 2	C/PC/NC
70.	Virtual Chassis In-Service Software Upgrade (ISSU)	C/PC/NC
71.	Remote Virtual Chassis - Up to 10-km fault-tolerant remote stacking supported	C/PC/NC
72.	Smart continuous switching technology	C/PC/NC
73.	IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) encompasses IEEE 802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)	C/PC/NC
74.	Per-VLAN spanning tree (PVST+) and 1x1 STP mode	C/PC/NC
75.	IEEE 802.3ad/802.1AX Link Aggregation Control Protocol (LACP) and static LAG groups across modules	C/PC/NC

76.	Dual-home link support for sub-second link protection, without STP	C/PC/NC
77.	ITU-T G.8032/Y1344 2010: Ethernet Ring Protection	C/PC/NC
78.	IEC 62439-2: Media Redundancy Protocol	C/PC/NC
79.	Virtual Router Redundancy Protocol (VRRP) with tracking capabilities	C/PC/NC
80.	IEEE protocol auto-discovery	C/PC/NC
81.	Bidirectional Forwarding Detection (BFD) for fast failure detection and reduced re-convergence times in a IPv4/IPv6 routed environment	C/PC/NC
82.	Redundant and hot-swappable power supplies	C/PC/NC
83.	Built-in CPU protection against malicious attacks	C/PC/NC
84.	Split Virtual Chassis protection: Autodetection and recovery of Virtual Chassis splitting due to one or more VFL or stack element failures	C/PC/NC

7. The switch must support the following L3 IPv4 routing features and capacity:

85.	Multiple VRF & inter-VRF route leaking	C/PC/NC
86.	Static routing	C/PC/NC
87.	RIP v1 and v2	C/PC/NC
88.	Open Shortest Path First (OSPF) v2 with Graceful Restart	C/PC/NC
89.	Intermediate System to Intermediate System (IS-IS) with Graceful Restart	C/PC/NC
90.	Border Gateway Protocol (BGP) v4 with Graceful Restart	C/PC/NC
91.	Generic Routing Encapsulation (GRE) and IP/IP tunneling	C/PC/NC
92.	Maximum number of L2 GRE tunnel is 2000	C/PC/NC
93.	Virtual Router Redundancy Protocol (VRRPv2)	C/PC/NC
94.	DHCP Relay (including generic UDP relay)	C/PC/NC
95.	Address Resolution Protocol (ARP)	C/PC/NC

96.	Policy-based routing and server load balancing	C/PC/NC
97.	DHCPv4 server	C/PC/NC

8. The switch must support the following L3 IPv6 routing features and capacity:

98.	Multiple VRF & Inter-VRF route leaking	C/PC/NC
99.	Internet Control Message Protocol version 6 (ICMPV6)	C/PC/NC
100	Static routing	C/PC/NC
101	Routing Information Protocol Next Generation (RIPng)	C/PC/NC
102	Open Shortest Path First (OSPF) v3 with Graceful Restart	C/PC/NC
103	Intermediate System to Intermediate System (IS-IS) with Graceful Restart	C/PC/NC
104	Multi-Topology IS-IS (M-ISIS)	C/PC/NC
105	BGP v4 multiprotocol extensions for IPv6 routing (MP-BGP)	C/PC/NC
106	Graceful Restart extensions for OSPF and BGP	C/PC/NC
107	Virtual Router Redundancy Protocol (VRRPv3)	C/PC/NC
108	Neighbor Discovery Protocol (NDP)	C/PC/NC
109	Policy-based routing and server load balancing	C/PC/NC
110	DHCPv6 server	C/PC/NC
111	DHCPv6 Relay and UDPv6 relay	C/PC/NC

9. The switch must support the following layer-2 capabilities and services:

112	Virtual Fabric Link (VFL) ports raw capacity: 42 Gb/s or 84 Gb/s aggregate	C/PC/NC

113	Up to 48k MAC Addresses	C/PC/NC
114	Up to 4000 VLANs	C/PC/NC
115	Total number of IPv4 routes: 64,000	C/PC/NC
116	Total number of IPv4 routes:128	C/PC/NC
117	Max Frame: 9216 bytes jumbo frame size, for 1/10 Gbs	C/PC/NC
118	Ethernet services support using IEEE 802.1ad Provider Bridges (also known as Q-in-Q or VLAN stacking	C/PC/NC
119	Ethernet OAM (802.1ag, ITU-T Y.1731): Connectivity Fault Management (L2 ping & Link trace)	C/PC/NC
120	Ethernet in First mile: Link OAM (802.3ah)	C/PC/NC
121	Fabric virtualization services IEEE 802.1aq Shortest Path Bridging (SPB-M)	C/PC/NC
122	In-band management for SPB-M	C/PC/NC
123	AOS functionality of advertising SPB L3VPN routes is extended to exchange and inject the route-tag field to be carried across the SPB-ISIS network.	C/PC/NC
124	Ethernet network-to-network interface (NNI) and user network interface (UNI)	C/PC/NC
125	Service Access Point (SAP) profile identification	C/PC/NC
126	Hybrid access port feature allows a single port to function both as an access port and a bridging port. Hybrid configured port can be understood as a bridge port with a default VLAN and tagged VLAN for bridging and the user can configure SAPs for services with mapped tagged VLANs.	C/PC/NC
127	Service VLAN (SVLAN) and Customer VLAN (CVLAN) support	C/PC/NC
128	VLAN translation and mapping including CVLAN to SVLAN	C/PC/NC
129	Port mapping	C/PC/NC
130	DHCP Option 82: Configurable relay agent information	C/PC/NC
131	Multiple VLAN Registration Protocol (MVRP)	C/PC/NC

132	HA-VLAN for Layer 2 clusters such as MS-NLB and active-active Firewall clusters	C/PC/NC
133	TR-101 Point-to-Point Protocol over Ethernet (PPPoE) Intermediate Agent allowing for the PPPoE network access method	C/PC/NC
134	Service Assurance Agent (SAA) for proactively measuring network, health, reliability, and performance.	C/PC/NC
135	Bridge Protocol Data Unit (BPDU) blocking	C/PC/NC
136	STP Root Guard	C/PC/NC
137	Loopback Detection to auto-detect and prevent L2 loops	C/PC/NC
138	Media Redundancy Protocol (MRP)	C/PC/NC
139	MRP - Media redundancy Interconnection Manager (MIM)	C/PC/NC

10. The switch must support the following IPv4/IPv6 multicast protocols and features:

140	IGMPv1/v2/v3 snooping to optimize multicast traffic	C/PC/NC
141	Protocol Independent Multicast – Sparse- Mode (PIM-SM)	C/PC/NC
142	Protocol Independent Multicast – Source Specific Multicast (PIM-SSM)	C/PC/NC
143	Protocol Independent Multicast – Dense- Mode (PIM-DM)	C/PC/NC
144	Protocol Independent Multicast – Bidirectional Protocol Independent Multicast (PIM-BiDir)	C/PC/NC
145	Distance Vector Multicast Routing Protocol (DVMRP)	C/PC/NC
146	Multicast Listener Discovery (MLD) v1/v2 snooping	C/PC/NC
147	PIM to DVMRP gateway support	C/PC/NC

11. The switch must support the following security features:

148	Autosensing IEEE 802.1X multiclient, multi-VLAN support	C/PC/NC
149	MAC-based authentication for non-IEEE 802.1X hosts	C/PC/NC
150	Web based authentication (captive portal): a customizable web portal residing on the switch	C/PC/NC
151	Dynamically provide pre-defined policy configuration to authenticated clients — VLAN, ACL, BW	C/PC/NC
152	Secure Shell (SSH) with public key infrastructure (PKI) support	C/PC/NC
153	Terminal Access Controller Access- Control System Plus (TACACS+) client	C/PC/NC
154	Centralized Remote Access Dial- In User Service (RADIUS) and Lightweight Directory Access Protocol (LDAP) administrator authentication	C/PC/NC
155	Centralized RADIUS for device authentication and network access control authorization	C/PC/NC
156	Kerberos snooping authentication for user authentication and network access control	C/PC/NC
157	Learned Port Security (LPS) or MAC address lockdown	C/PC/NC
158	LPS is supported both on SAP ports mapped to SPB services.	C/PC/NC
159	Access Control Lists (ACLs); flow based filtering in hardware (Layer 1 to Layer 4)	C/PC/NC
160	DHCP v4 & v6 Snooping, DHCP IP and Address Resolution Protocol (ARP) spoof protection	C/PC/NC
161	DHCPv6 guard and DHCPv6 Client guard	C/PC/NC
162	ARP poisoning detection	C/PC/NC
163	IP v4 & v6 Source Filtering as a protective and effective mechanism against ARP attacks	C/PC/NC
164	Private VLAN	C/PC/NC
165	LLDP Security mechanism for rogue device detection and restriction	C/PC/NC
166	The minimum password size range is 1-30 characters.	C/PC/NC

167	Allows the switch to be authenticated as a supplicant device using X.509 certificates. Customers can either download their custom X.509 certificates or use default ALE X.509 certificates for switch authentication. If the switch does not pass authentication, it will be placed in Restricted mode. The switch will only transition out of the restricted state when it successfully completes the authentication process. Ability to download and manage the customer X.509 certificate on switch without removing the default ALE certificates. Use this downloaded X.509 certificate for 802.1x authentication of the switch itself as a supplicant.	C/PC/NC

12. The switch must support the following Quality of Service (QoS) features:

168	Eight hardware based queues per port for flexible QoS management	C/PC/NC
169	Flow-based QoS traffic policing and bandwidth management	C/PC/NC
170	32-bit IPv4/128-bit IPv6 non-contiguous mask classification	C/PC/NC
171	Egress traffic shaping	C/PC/NC
172	DiffServ architecture	C/PC/NC
173	Congestion avoidance: Support for End- to-End Head-Of-Line (E2E-HOL) Blocking prevention	C/PC/NC
174	IEEE 802.1Qbb Priority-based Flow Control (PFC)	C/PC/NC
175	IEEE 802.3X Flow Control (FC)	C/PC/NC

13. The switch must support the following manageability and configuration features:

176	Intuitive CLI in a scriptable Python & BASH environment via console, Telnet or Secure Shell (SSH) v2 over IPv4/IPv6	C/PC/NC
177	Powerful WebView Graphical Web Interface via HTTP and HTTPS over IPv4/IPv6	C/PC/NC
178	This feature allows for a USB-to-Ethernet interface for switches that lack an OOB management port. This interface is treated just like an OOB interface. All functions and CLIs related to an OOB management port are applicable to the USB-to-Ethernet dongle.	C/PC/NC

179	This feature allows for applying an ACL on the EMP port of the switch. It enables policy-based routing on the EMP ports. The configuration is enabled using the empacl policy-list type.	C/PC/NC
180	Network Automation and Programmability Abstraction Layer with Multivendor (NAPALM) support	C/PC/NC
181	Fully programmable RESTful web services interface with XML and JSON support. API enables access to CLI and individual MIB objects	C/PC/NC
182	Full configuration and reporting using SNMPv1/2/3 to facilitate third party network management over IPv4/IPv6	C/PC/NC
183	File upload using USB, TFTP, FTP, SFTP or SCP using IPv4/IPv6	C/PC/NC
184	Boot from USB and/or external flash	C/PC/NC
185	Human-readable ASCII-based configuration files for off-line editing, bulk configuration and out-of-the-box auto-provisioning	C/PC/NC
186	Fully programmable OpenFlow 1.3.1 and 1.0 agent for control of native OpenFlow and hybrid ports	C/PC/NC
187	Non-volatile memory for start-up configuration	C/PC/NC
188	Multiple microcode image support with fallback recovery	C/PC/NC
189	Dynamic Host Configuration Protocol (DHCP) relay for IPv4/IPv6	C/PC/NC
190	IEEE 802.1AB Link Layer Discover Protocol (LLDP) with Media Endpoint Discover (MED) extensions	C/PC/NC
191	Network Time Protocol (NTP)	C/PC/NC
192	Dynamic PoE allocation delivers only the power needed up to the total power budget for most efficient power consumption	C/PC/NC
193	Configurable per-port PoE priority, max power and time-of-day policy for PoE power allocation	C/PC/NC
194	The equipment can work in a“thin client” mode. In this mode no configuration can be saved in the “Running” directory of the switch. A basic configuration with minimal network reachability configuration is stored on the switch running directory. The final configuration of a thin client is pushed by a Network Management System (NMS).	C/PC/NC
195	Must support hitless upgrade of IP services	C/PC/NC

14. The switch must support the following Monitoring and troubleshooting features:

196	Local (on the flash) and remote server logging (Syslog): event and command logging	C/PC/NC
197	IP tools: ping and trace route	C/PC/NC
198	Dying Gasp support via SNMP and syslog messages	C/PC/NC
199	Loopback IP address support for management per service	C/PC/NC
200	Management virtual routing and forwarding (VRF) support	C/PC/NC
201	Policy- and port-based mirroring	C/PC/NC
202	Remote port mirroring	C/PC/NC
203	sFlow v5 and Remote Monitoring (RMON)	C/PC/NC
204	Unidirectional Link Detection (UDLD)	C/PC/NC
205	Digital Diagnostic Monitoring (DDM)	C/PC/NC
206	Time Domain Reflectometry (TDR)	C/PC/NC

15. The switch must support the following Compliance and Industrial Certifications:

16. Industrial environment:

207	IEC 60870-2-2 (operational temperature)	C/PC/NC
208	IEC 60068-2-1 (temperature type test – cold)	C/PC/NC
209	IEC 60068-2-2 (temperature type test – hot)	C/PC/NC
210	IEC 60721-3-1: Class 1K5 (storage temperature)	C/PC/NC

211	IEC 60068-2-30: 5% to 95% non-condensing humidity	C/PC/NC
212	IEC 60255-21-2 (mechanical shock)	C/PC/NC
213	IEC 60255-21-1 (vibration)	C/PC/NC

17. Industrial safety:

214	UL 508	C/PC/NC
215	UL 61010	C/PC/NC
216	EN 50021	C/PC/NC
217	Hazardous location - ISA 12.12.01 (UL 1604)	C/PC/NC
218	Hazardous location - CSA22.2/213	C/PC/NC
219	IP30	C/PC/NC

18. Industrial emission:

220	EN 61805-3	C/PC/NC
221	EN 55032 (Emission Standard)	C/PC/NC
222	EN 61000-3-2	C/PC/NC
223	EN 61000-3-3	C/PC/NC
224	EN 55024/EN 55035 (Immunity Standard)	C/PC/NC
225	EN 61000-4-2 to EN 61000-4-8	C/PC/NC
226	EN 61000-4-11	C/PC/NC
227	EN 61000-4-12	C/PC/NC
228	EN 61000-4-16	C/PC/NC
229	EN 61000-4-17	C/PC/NC

230	EN 61000-4-29	C/PC/NC
231	IEC 60255-5	C/PC/NC
232	IEEE 61850-3	C/PC/NC

19. Electric Power Substation:

233	IEEE 1613, Section 4 to 8	C/PC/NC
234	IEC 61850-3	C/PC/NC

20. Railway applications:

235	EN 50121 - 4	C/PC/NC
236	EN 50155:2017	C/PC/NC
237	EN 61373	C/PC/NC
238	EN 62236-4	C/PC/NC
239	EN61000-6-4	C/PC/NC

21. Intelligent transportation (road):

240	NEMA TS - 2	C/PC/NC

22. Marine:

241	DNVGL-CG-0339	C/PC/NC
242	IEC 60945:2002	C/PC/NC

23. Federal:

243	FIPS 140-2	C/PC/NC

244	Common Criteria EAL2	C/PC/NC
245	Common Criteria NDcPP	C/PC/NC
246	JITC	C/PC/NC
247	Trade Agreements Act (TAA)	C/PC/NC

24. Military:

248	MIL-STD-810F	C/PC/NC
249	MIL-STD-461	C/PC/NC

25. Commercial EMI/EMC:

250	47 CRF FCC Part 15: 2015 Subpart B (Class A)VCCI (Class A, with UTP Cables)	C/PC/NC
251	ICES-003:2012 Issue 5, Class A	C/PC/NC
252	AS/NZS 3548 (Class A) – C-Tick	C/PC/NC
253	CE marking for European countries (Class A)	C/PC/NC

26. CE Emission:

254	EN50581 (RoHS Recast)	C/PC/NC
255	EN 55022 (EMI & EMC requirement)	C/PC/NC
256	EN 55024/ EN 55035 (Immunity Characteristics)	C/PC/NC
250	EN 61000-3-2(Harmonic Current emissions)	C/PC/NC
257	EN 61000-3-3	C/PC/NC
258	EN 61000-4-2	C/PC/NC

259	EN 61000-4-3	C/PC/NC
260	EN 61000-4-4	C/PC/NC
261	EN 61000-4-5 (Surge Immunity, Class 4)	C/PC/NC
262	EN 61000-4-6	C/PC/NC
263	EN 61000-4-8	C/PC/NC
264	EN 61000-4-11	C/PC/NC
265	IEEE802.3: Hi-pot Test (2.25 KV DC on all Ethernet Ports)	C/PC/NC

27. Commercial safety:

266	UL 60950-1, 2nd Ed	C/PC/NC
267	IEC 60950-1; all national deviations and amendments	C/PC/NC
268	EN 60950-1; all deviations	C/PC/NC
269	CAN/CSA-C22.2 No. 60950-1-03	C/PC/NC
270	NOM-019 SCFI, Mexico	C/PC/NC
271	AS/NZ TS-001 and 60950:2000, Australia	C/PC/NC
272	UL-AR, Argentina	C/PC/NC
273	UL-GS Mark, Germany	C/PC/NC
274	CU, EAC, Russia	C/PC/NC
275	ANATEL, Brazil	C/PC/NC
276	CCC, China	C/PC/NC
277	KCC Korea	C/PC/NC
278	BSMI, Taiwan	C/PC/NC
279	EN 60825-1 Laser	C/PC/NC

280	EN 60825-2 Laser	C/PC/NC
281	CDRH Laser	C/PC/NC
282	RoHS & WEEE directives compliant	C/PC/NC

28. Security features

The switch must support the following:

283	The switch proposed must possess a Common Criteria certification, ensuring compliance with internationally recognized security standards.	C/PC/NC
284	The switch proposed must hold a valid Federal Information Processing Standards (FIPS) certification, meeting the designated FIPS publication 140-2.	C/PC/NC

29. Video surveillance

The switch must support the following:

285	The switch support plugins that enable remote troubleshooting for common camera issues directly from the video surveillance management system.	C/PC/NC