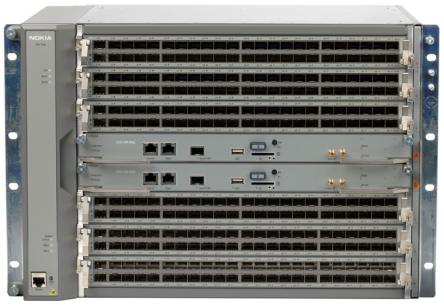
Nokia 7250 IXR-R series Interconnect Routers

Release 26

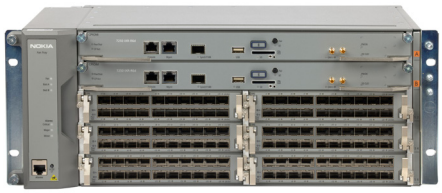
The Nokia 7250 Interconnect Router (IXR)-R series[1] delivers high port density in compact, modular, extended-temperature form factors. These routing platforms are designed for IP any-haul, aggregation, fixed-mobile convergence and mission-critical applications for telecommunication providers, AI and cloud providers, and enterprise environments.

The Nokia 7250 IXR-R series offers four ETSI-300mm-compliant, chassis-based systems, scaling capacity from 300 Gb/s full duplex (FD) up to 2.4 Tb/s FD with control-plane and fabric redundancy. It delivers low-latency performance, precise timing and synchronization, and feature-rich IP routing in an ETR and PCB-enhanced plating (PEP) platform.

Modular line cards support 400GE down to 1GE interfaces using 400G QSFP-DD, 100G QSFP28, 50G SFP56, 25G SFP28 and 10/1G SFP+/SFP optical interfaces. These platforms also support pluggable Digital Coherent Optics (DCO) 100ZR and 400ZR/ZR+. Designed to maximize port density, the line cards provide options for 10, 20, 46 or 80 physical ports per adapter.



7250 IXR-R6dl



7250 IXR-R6d



7250 IXR-R6



7250 IXR-R4

New service opportunities

The 7250 IXR-R series supports new 5G transport requirements. It delivers low latency for fronthaul, Internet of Things (IoT) and mission-critical applications while providing a large buffer memory for less delay-sensitive applications.

Per-service queuing features support differentiated quality of service (QoS), which is ideal for any-G aggregation and fixed-mobile network convergence. These features also help industrial enterprises attain IT/OT convergence by simultaneously carrying both their business and operational traffic.

1 The 7250 IXR-R-series is part of the 7250 IXR product family. Additional data sheets are available for other series in this product family.

Automation

To simplify and automate network operations, the 7250 IXR-R series enables model-driven network management features through the Nokia SR OS and is managed by the Nokia Network Services Platform (NSP). The NSP offers a rich set of service management features that automates new service delivery and reduces operating cost.

Standards-based software-defined networking (SDN) interfaces enable best-path computation to be offloaded to SDN controllers such as the Nokia NSP. These platforms, operating as path computation clients (PCCs), collect and report per-link and per-service delay, jitter and loss metrics together with port utilization levels, for efficient path computation by a path computation element (PCE) function in the SDN controller.

Network longevity

The modular architecture used by routers in the 7250 IXR-R series supports a variety of deployment options. High-density 1GE/10GE/25GE/40GE/100GE media-dependent adapter (MDA) cards accommodate future growth. CFP2 DCO optics provide high bandwidth over extended distances, lowering the total cost of operations. Legacy interface cards support transport over existing TDM interfaces and allow for seamless migration to a next-generation IP/MPLS infrastructure.

Side-to-side airflow with a fan filter and redundant fans increases system lifetime and reduce maintenance costs. Side-to-side airflow also guarantees compatibility with 300 mm ETSI-compliant cabinets. This capability is typically not available with front-to-back cooled systems.

High performance

The 7250 IXR-R series offers industry-leading control-plane performance using a multi-tasking, multi-priority operating system to take full advantage of multi-core processors combined with symmetrical multiprocessing (SMP). Network operators benefit from faster convergence times and powerful operations, administration and maintenance (OAM) and security features.

Accurate timing

The 7250 IXR-R series provides precise timing and accurate synchronization to meet the stringent requirements of 4G/5G mobile base stations and other networks. These platforms improve timing accuracy over packet networks by combining built-in architectural features with Global Navigation Satellite System (GNSS) capabilities, ITU-T Synchronous Ethernet (SyncE) and the Nokia Bell Labs IEEE 1588v2 algorithm. Powerful QoS mechanisms deliver best-in-class performance by minimizing the delay and delay variation experienced by packet synchronization technologies. Port-based timestamping delivers consistently accurate IEEE 1588v2 performance.

Reliable service delivery

Granular, in-depth and scalable per-service monitoring offers visibility into packet flows. The 7250 IXR-R series provides comprehensive reporting on key performance indicators such as packet discard and forward counters. These capabilities improve reliability and help service providers fulfill service-level guarantees. Industry, enterprise and public sector operators can ensure that their critical operations traffic is receiving the required treatment.

These platforms provide excellent protection against link or equipment failures through control and datapath redundancy options. It quickly reroutes traffic and re-converges networks using a robust set of dynamic routing and recovery capabilities. Superior network resiliency reduces network downtime and improves the overall productivity of network operations. With a highly resilient network, network operators can reduce operating costs, improve end-user satisfaction and offer higher-value SLAs.

For harsh environments

The 7250 IXR-R series, with its extended temperature range, mechanical hardening and robust EMC design, meets the IEEE 1613, IEC 61850-3 and EN 50121-4 standards for power substation and railway environments.

For uncertain environmental conditions, PCB enhanced plating (PEP) is included on the 7250 IXR-R6, IXR-R6d and IXR-R6dl variants to provide robustness without the need for conformal coating.

Technical specifications

Table 1. 7250 IXR-R series specifications

Feature	7250 IXR-R4	7250 IXR-R6	7250 IXR-R6d/R6dl
System throughput Full duplex IMIX traffic	300 Gb/s with single or redundant active/standby control processor modules (CPM)	800 Gb/s with single or redundant active/standby control-processor input/ output modules (CPIOMs)	2.4 Tb/s with single or redundant active/standby control-processor input/ output modules (CPIOMs)
Card slot throughput	160 Gb/s FD per slot	160 Gb/s full duplex (FD) per slot	500 Gb/s or 300 Gb/s full duplex (FD) per slot
Card slots	Four	Six	• Six (compact slots) for R6d • Six for R6dl
Media Dependent Adapters (MDAs)	See Table 2	See Table 2	See Table 3
Control interfaces*	Console, management, SyncE/1588, BITS (IXR-R4/R6), Bluetooth, USB, GNSS in (IXR-R6/R6d/R6dl), 1PPS out, SD slot		
Timing and synchronization	• Stratum 3E oscillator • ITU-T SyncE – ITU-T G.8262.1 (eEEC) • IEEE 1588v2 – MC, BC, SC – Profiles: IEEE 1588v2 default, G.8265.1, G8275.1, G8275.2 with PTS – UDP/IPv4, UDP/IPv6 and Ethernet encapsulations • Nokia Bell Labs IEEE 1588v2 algorithm • PTP Profile Interworking • RFC 5905 Network Time Protocol (NTP) • BITS port (T1, E1, 2M) and 1PPS timing • Support for GNSS SFP	• Stratum 3E oscillator • ITU-T SyncE – ITU-T G.8262.1 (eEEC) • IEEE 1588v2 PTP Clock Types – Boundary – Slave – Grandmaster • IEEE 1588v2 PTP Profiles – ITU-T G.8275.1 – ITU-T G.8275.2 with PTS and APTS – ITU-T G.8265.1 – IEEE 1588v2 Default – IEC/IEEE 61850-9-3 and C37.238-2017 Power Utility • IEEE 1588v2 PTP Encapsulations – Ethernet – UDP/IPv4 – UDP/IPv6 • PTP Profile Interworking • ITU-T G.8273.2 Class C performance** • Integrated, redundant GNSS receivers • ITU-T G.8272 PRTC-A • RFC 5905 Network Time Protocol (NTP) • Building Integrated Timing Supply (BITS) port (T1, E1, 2M) and pulse-per-second (1PPS) timing	• Stratum 3E oscillator • ITU-T SyncE – ITU-T G.8262.1 (eEEC) • IEEE 1588v2 PTP Clock Types – Boundary – Slave – Grandmaster • IEEE 1588v2 PTP Profiles – ITU-T G.8275.1 – ITU-T G.8275.2 with PTS and APTS – ITU-T G.8265.1 – IEEE 1588v2 Default – IEC/IEEE 61850-9-3 and C37.238-2017 Power Utility • IEEE 1588v2 PTP Encapsulations – Ethernet – UDP/IPv4 – UDP/IPv6 • PTP Profile Interworking • ITU-T G.8273.2 Class C performance** • Integrated, redundant GNSS receivers • ITU-T G.8272 PRTC-B • RFC 5905 Network Time Protocol (NTP) • Pulse-per-second (1PPS) timing

* Some control processor port features are future software deliverables.
** For noise generation

Feature	7250 IXR-R4	7250 IXR-R6	7250 IXR-R6d/R6dl
Common connectors/ indicators (on the fan tray)	• Alarm input/output • Alarm cutoff/lamp test (ACO/LT) button • Power status (A & B), fan and alarm LEDs		
Memory buffer size	3 GB	8 GB	4 GB
Enhanced statistics collection	Standard	Full-scale	Full-scale
Common equipment redundancy	Control, switch (IXR-R6/R6d/R6dl), power feeds, cooling fans		
Dimensions	• Height: 2RU, 8.9 cm (3.5 in) • Width: 44.5 cm (17.5 in) • Depth: 26.5 cm (10.4 in) • Rack-mountable in a 48.2-cm rack, 30-cm depth (standard 19-in equipment rack, 12-in depth)	• Height: 3RU, 13.3 cm (5.25 in) • Width: 44.5 cm (17.5 in) • Depth: 26.5 cm (10.4 in) • Rack-mountable in a 48.2-cm rack, 30-cm depth (standard 19-in equipment rack, 12-in depth)	• Height: 4RU, 17.8 cm (7.0 in) for R6d • Height: 7RU, 31.1 cm (12.25 in) for R6dl • Width: 44.5 cm (17.5 in) • Depth: 26.4 cm (10.4 in) • Rack-mountable in a 48.2-cm rack, 30-cm depth (standard 19-in equipment rack, 12-in depth)
Power	• DC input (two feeds, rated): -48 V DC/-60 V DC • AC power solutions available: 100 V AC to 240 V AC, 50 Hz/60 Hz		
Cooling	• One tray of fans with redundancy • Safety electronic breaks on removal • Right-to-left airflow • Front-to-back airflow (optional with add-on ancillaries) • Fan filter		
Normal operating temperature range	-40°C to +65°C (-40°F to +149°F) sustained	-40°C to +65°C (-40°F to +149°F) sustained -40°C to +70°C*	-40°C to +65°C (-40°F to +149°F) sustained
Shipping and storage temperature	-40°C to +70°C (-40°F to +158°F)		
Normal humidity	5% to 95%, non-condensing		
PCB Enhanced Plating (PEP)	MDAs	Yes	Yes

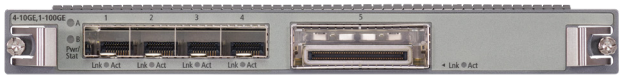
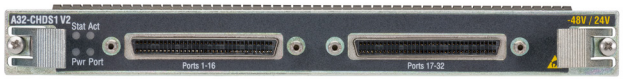
Optical breakout options include 4 x 100GE, 2 x 100GE on QSFP-DD ports and 4 x 25GE and 4 x 10GE on QSFP28/QSFP+ ports.

High-density MDA cards provide flexibility with breakout options and multiprotocol ports. Legacy TDM interfaces are also supported on the 7250 IXR-R6.

The 7250 IXR-R4 input/output module (IOM) has two SFP+/SFP 10GE ports and ten SFP GE ports providing an initial service configuration before any MDA cards are installed.

* See product documentation for details

Table 2. 7250 IXR-R4/R6 Media Dependent Adapters

Card name	Details	
1-port 100GE + 6-port 10GE	• 1 x QSFP28/QSFP+ 100/40GE • 6 x SFP+/SFP 10/1GE	
1-port 100GE + 4-port 10GE	• 1 x CFP2 DCO 100GE • 4 x SFP+/SFP 10/1GE	
4-port 25GE + 6-port 10GE	• 4 x SFP28/SFP+ 25/10GE • 6 x SFP+/SFP 10/1GE	
10-port 10GE	• 10 x SFP+/SFP 10/1GE	
20-port GE	• 20 x cSFP 1GE (also accepts SFPs)	
32-port ASAP E1*	• TDM services	

* Supported on the 7250 IXR-R6. Compatible with 7705 SAR-8. See the 7705 SAR data sheets for more details

Table 3. 7250 IXR-R6d/R6dl Media Dependent Adapters

MDA types	Ethernet Speed options	7250 IXR-R6d	7250 IXR-R6dl	7250 IXR specific configuration
2-connector CFP2-DCO	400/100GE			
5-connector QSFP28	100/10GE			
1-connector QSFP-DD, 1-connector QSFP28	400/100/10GE			
2-connector QSFP28, 16-connector SFP+	100/10/1GE			
10-connector SFP56	50/25/10GE			
18-connector SFP28	25/10GE			15-port SFP28/SFP+ 3-port SFP+
20-connector SFP+	10/1GE			
32-connector cSFP	1GE/FE			
46-connector SFP+	10/1GE			45-port SFP+ 1-port SFP
80-connector cSFP	1GE/FE			

Table 4. Maximum platform density per interface

Port speed	7250 IXR-R4	7250 IXR-R6	7250 IXR-R6d	7250 IXR-R6dl
400GE	NA	NA	4 x 400GE	4 x 400GE
100/40GE	4 x 100/40GE	6 x 100/40GE	26 x 100GE	26 x 100GE
50GE	NA	NA	52 x 50GE	52 x 50GE
25GE	16 x 25GE	24 x 25GE	80 x 25GE	80 x 25GE
10GE	42 x 10GE	60 x 10GE	120 x 10GE	210 x 10GE
1GE	80 x GE Above configurations include Ethernet ports on the IOM card	80 x GE	192 x SFP GE	480 x SFP GE

Software features

The 7250 IXR-R series supports, but is not limited to, the following features.[2]

Services

- Point-to-point Ethernet pseudowires/virtual leased line (VLL)
- Ethernet Virtual Private Network (EVPN) – Virtual Private Wire Service (EVPN-VPWS)
  - Virtual Private LAN Services (EVPN-VPLS): IPv4 and IPv6 support, including Virtual Router Redundancy Protocol (VRRP)
  - Multihoming with single active or active/active modes
  - Virtual eXtensible LAN (VXLAN) tunnel termination in VPLS and Routed-VPLS[3]
- Multipoint VPLS services based on Targeted Label Distribution Protocol (T-LDP) and Border Gateway Protocol (BGP) Autodiscovery
- Multipoint VPLS services based on Border Gateway Protocol (BGP)
- Routed-VPLS services with Internet Enhances Services (IES)/IP-VPN IPv4 and IPv6
- Ingress and egress VLAN manipulation for L2 services
- IP VPN Virtual Private Routed Network (VPRN), Inter- Autonomous System (Inter-AS) Option A, B, and C
- IPv6 VPN Provider Edge (6VPE)
- EVPN Interface-less IPv4 and IPv6 prefix routes (EVPN-IFL)
- MPLS (including SR-MPLS) to SRv6 interworking GW, Multi-Instance Services[3]
- E1 TDM PW (CESoPSN and SATOP)[4]

Network protocols

- Segment Routing MPLS (SR-MPLS)
  - Intermediate System-to-Intermediate System (SR-ISIS) and Open Shortest Path First (SR-OSPF)
  - Traffic engineering (SR-TE) IPv4, IPv6
- Segment Routing IPv6 (SRv6)[3]
  - SRv6 IS-IS shortest path tunnel support in MT=0 and MT=2
- Flexible Algorithms
  - Admin-group include/exclude, IGP/TE/Latency metric
- MPLS label edge router (LER) and label switching router (LSR) functions
  - LDP
  - Resource Reservation Protocol with traffic engineering (RSVP-TE)
- BGP Labeled Unicast (LU) (RFC 3107) route tunnels

2 This section provides an overview of key features supported. Some platforms may have feature exclusions or exceptions. Consult Nokia documentation for detailed feature support and interdependencies.

3 Supported only on 7250 IXR-R6d and 7250 IXR-R6dl variants

4 Supported only on 7250 IXR-R4 and 7250 IXR-R6 variants

- Segment Routing with IPv6 dataplane (SRv6)[5]
  - Classic SID, uSID
  - PSP and USP of SRH, USD
  - FlexAlgo
  - BGP SRv6 Policy
  - Hashing based on flow label
  - IPv4/v6 IP-VRF, GRT
  - EVPN-VPLS/VPWS with MH'ing
  - OAM, ping/traceroute SID/locator, VRF
- IP routing
  - Dual-stack Interior Gateway Protocol (IGP)
  - Multi-topology, multi-instance IS-IS
  - Multi-instance OSPF
  - Multiprotocol BGP (MP-BGP)
  - BGP-LU support in edge, area border router (ABR) and autonomous system boundary router (ASBR) roles
  - Usage-triggered download of BGP label routes to Label - Forwarding Information Base (L-FIB)
  - BGP Prefiix SID
  - Accumulated IGP (AIGP) metric for BGP
  - BGP monitoring protocol (BMP)
  - BGP route-reflector for EVPN and IP-VPN with VPNv4 and VPNv6 address families (AFs)
  - BGP confederations
  - BGP Flowspec[5]
  - IGP and BGP shortcuts
  - IP Fragmentation (IPv4)
- Layer 3 Multicast – base routing
  - Internet Group Management Protocol (IGMP)
  - Protocol Independent Multicast – Sparse Mode (PIM-SM), Source Specific Multicast (SSM)
  - Multicast Listener Discovery (MLD)
  - Multicast Source Discovery Protocol (MSDP)
- Layer 3 Multicast – VPRN
  - IGMP/MLD
  - IGMP/MLD on Routed VPLS Interface
- Layer 2 Multicast
  - IGMP/MLD snooping
- IP-GRE tunnel support[5]

SDN

- SR-TE LSPs, RSVP-TE LSPs, SR Policy
  - PCC initialized, PCC controlled – PCC initialized, PCE computed
  - PCC initialized, PCE controlled
- SR-TE LSPs: PCE initialized, PCE controlled
- SR policy: BGP and static
- Topology discovery: BGP-Link State (BGP-LS) IPv4 and IPv6
- Netflow/cflowd
- LSP Stats[5]

Load balancing and resiliency

- IEEE 802.1.AX Link Aggregation Group (LAG) and multi-chassis (MC) LAG
- Weighted LAG hash
- GTP/teid based hashing
- VRRP
- IP and MPLS load balancing by equal-cost multipath (ECMP)
- ECMP for SRv6 tunnels[5]
- Fast reroute (FRR): Segment routing topology independent loop-free alternate (TI-LFA) and remote loop-free alternate (rLFA) in both SR-MPLS and SRv6[6]
  - LDP with loop-free alternate (LFA) and remote loop-free alternate (rLFA) policies
  - RSVP-TE FRR
  - Segment routing with rLFA and topology independent LFA (TI-LFA) in both SR-MPLS and SRv[6]
  - BGP Edge and Core Prefix Independent Convergence (BGP PIC)
- Entropy label (IETF RFC 6790)
- Pseudowire and LSP redundancy
- Ethernet Ring Protection Switching ITU-T G.8032v2

5 Supported only on 7250 IXR-R6d and 7250 IXR-R6dl variants
6 7250 IXR-R4 and IXR-6 variants do not support SRv6

- Configurable polynomial and hash seed shift
- IEEE 802.1d Classic spanning tree (STP)
- IEEE 802.1s Multiple spanning trees (MSTP)
- IEEE 802.1w Rapid reconfiguration of spanning tree (RSTP)
- IEEE 802.1AX (2008) Link Aggregation Group (LAG) and multi-chassis (MC) LAG pseudowire and LSP redundancy
- Control plane high availability (HA)
- HA routing and forwarding (excluding 7250 IXR-R4)
- LAG adaptive load balancing[7]
- In-service software upgrade (ISSU) (excluding 7250 IXR-R4)

Platform

- Ethernet IEEE 802.1Q (VLAN) and 802.1ad (QinQ) with 9k jumbo frames (7250 IXR-R4/R6) and 9.8K jumbo frames (7250 IXR-R6d/R6dl)
- Detailed forwarded and discarded counters for service access points (SAPs) and network interfaces in addition to port-based statistics
- High-scale, per-policer, detailed counters on a per-state basis (7250 IXR-R6 only)
- High-scale, per-Virtual Output Queue (VoQ) packet and byte counters (7250 IXR-R6)
- VLAN range-based SAPs
- Dynamic Host Configuration Protocol (DHCP) server for IPv4 IES, VPNv4
- DHCP relay, IPv4 and IPv6, IES, IP-VPN, EVPN-VPLS
- Accounting records

QoS and traffic management

- Hierarchical QoS (H-QoS)
  - Hierarchical egress schedulers and shapers per forwarding class, SAP, network interface, port, or LAG
  - Port sub-rate
- Intelligent packet classification, including media access control (MAC), IPv4, IPv6 match-criteria-based classification
- Granular rate enforcement with up to 32 policers per SAP/VLAN including broadcast, unicast, multicast and unknown policers
- Hierarchical policing for aggregate rate enforcement
- Strict priority, weighted fair queuing schedulers
- Congestion management via weighted random early discard (WRED)
- Egress marking or re-marking
- Low latency, low jitter forwarding

System management

- Simple Network Management Protocol (SNMP)
- Model-driven (MD) management interfaces
  - NETCONF
  - MD-CLI
- Comprehensive management with Nokia NSP

Operations, administration and maintenance

- IEEE 802.1ag, ITU-T Y.1731: Ethernet Connectivity Fault Management (CFM) for both fault detection and performance monitoring, including delay, jitter, and loss
- Ethernet bandwidth notification (ETH-BN) with egress rate adjustment
- IEEE 802.3ah: Ethernet in the First Mile (EFM)
- ETH-CFM LBM Responder
- Y.1564 Service Activation Test (SAT)
- Bidirectional Forwarding Detection (BFD) IPv4, IPv6
- Micro-BFD - per member link
- Hardware based sBFD[7]
- Link Layer Discovery Protocols (LLDP) (IEEE 802.3AB-2005)
- Two-Way Active Measurement Protocol (TWAMP), TWAMP Light for base and flex-algo topologies
- A full suite of MPLS OAM tools, including LSP and virtual circuit connectivity verification (VCCV) ping
- Service assurance agent

7 Supported only on 7250 IXR-R6d and 7250 IXR-R6dl variants

- Mirroring with slicing support
  - Port
  - VLAN
  - Filter output: MAC, IPv4/IPv6 filters
  - Local/remote
  - Ingress label[8]
- Port and VLAN loopback with MAC-swap

Security

- Remote Authentication Dial-In User Service (RADIUS), Terminal Access Controller Access Control System Plus (TACACS+), and comprehensive control plane protection capabilities
- Distributed CPU Protection (DCP)
- MAC, IPv4/IPv6 filters and criteria-based classifiers
- Secure Shell (SSH)
- MAC security (MACsec) LAN mode
- MAC security (MACsec) WAN mode
- SR OS Secure Boot
- CPM filters[8]
- IP unicast RPF (uRPF)[8]

Standards compliance[9]

Environmental specifications

- ATIS-0600015.03
- ATT-TP-76200
- ETSI EN 300 019-2-1; Storage Tests, Class 1.2
- ETSI EN 300 019-2-2; Transportation Tests, Class 2.3
- ETSI EN 300 019-2-3; Operational Tests, Class 3.2
- ETSI EN 300 753 Acoustic Noise, Class 3.2
- GR-63-CORE
- GR-3108-CORE
- VZ-TPR-9205
- VZ.TPR.9203 (CO)

Safety

- AS/NZS 62368.1
- IEC/EN 60825-1
- IEC/EN 60825-2
- IEC/EN/UL/CSA 62368-1 Ed2
- IEC 60529 IP20

Electromagnetic compatibility

- AS/NZS CISPR 32 Class A
- ATIS-0600315
- BSMI CNS15936 Class A
- BT GS-7
- EN 300 386
- EN 301 489-1 (excluding 7250 IXR-R4)
- EN 301 489-19 (GNSS) (excluding 7250 IXR-R4)
- EN 55032 Class A
- EN 55024
- EN 55035
- ES 201 468
- ETSI EN 300 132-2
- FCC Part 15 Class A
- GR-1089-CORE
- ICES-003 Class A
- IEC 61000-6-2
- IEC 61000-6-4
- IEC CISPR 24
- IEC CISPR 35
- IEC CISPR 32 Class A
- IEC/EN 61000-4-2 ESD
- IEC/EN 61000-4-3 Radiated Immunity
- IEC/EN 61000-4-4 EFT
- IEC/EN 61000-4-5 Surge
- IEC/EN 61000-4-6 Conducted Immunity
- IEC/EN 61000-4-11 Voltage Interruptions

8 Supported only on 7250 IXR-R6d and IXR-R6dl variants.

9 System design intent is according to standards listing. Refer to product documentation for detailed compliance status.

- IEC/EN 61000-6-2 Immunity for industrial environments
- IEC/EN 61000-6-4
- KCC Korea-Emissions & Immunity (in accordance with KS C 9832/KS C 9836)
- VCCI Class A

Radio (excluding 7250 IXR-R4)

- EN 303 413 (GNSS)

Power utility substations

- IEEE 1613 (exception, forced air system)
- IEEE 1613.1
- IEC 61000-6-5
- IEC 61850-3 (normal environmental conditions)
- IEC/AS 60870.2.1

Railway

- AREMA
  - Supported on the 7250 IXR-R6 and & 7250 IXR-R6d/R6dl with some exceptions. Refer to product documentation for detailed compliance status.
- EN 50121-4
- IEC 62236-4

Directives, regional approvals and certifications

- Directive 2011/65/EU Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (Recast) Directive (including Commission Delegated Directive (EU) 2015/863)
- DIRECTIVE 2012/19/EU Waste Electrical and Electronic Equipment (WEEE)
- DIRECTIVE 2014/30/EU Electromagnetic Compatibility (EMC)
- DIRECTIVE 2014/35/EU Low Voltage Directive (LVD)
- DIRECTIVE 2014/53/EU Radio Equipment Directive (RED)
- Mplify Carrier Ethernet For Business Certified
- NEBS Level 3
- CRoHS - China RoHS
- BSMI Mark - Taiwan
- CE Mark - Common Europe
- KC Mark - South Korea
- RCM Mark - Australia
- UKCA Mark – United Kingdom
- VCCI Mark – Japan

About Nokia

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As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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