

## Nokia Wavence

### Microwave Service Switch | Release 20 (ANSI)

The Nokia Wavence family includes a flexible range of Microwave Service Switch (MSS) indoor units that provide advanced Carrier Ethernet networking, aggregation and demarcation functions. Optimized to reduce space and power consumption, the MSS exists in different form factors to address all network sizes and locations, including tail, hub and backbone. The entire MSS family uses the same software and management systems, enabling consistent operations across end-to-end packet microwave networks. Combined with the Wavence UBT and MPT units, the MSS sets the standard for delivering fast, efficient wireless transmission links with flexible networking and simple operations.



	MSS-1	MSS-4	MSS-8
Chassis	<ul style="list-style-type: none"> <li>• Fixed</li> <li>• Fanless</li> </ul>	<ul style="list-style-type: none"> <li>• Modular: four slots</li> <li>• Two core slots (1+1)</li> <li>• Two interface slots</li> </ul>	<ul style="list-style-type: none"> <li>• Modular: Eight slots</li> <li>• Two core slots (1+1)</li> <li>• Six interface slots</li> </ul>
Dimensions	½ RU	1 RU	2 RU
Nodal capability	Six radios	Twelve radios	Twenty-four radios
Switching capability	16 Gb/s	100 Gb/s	100 Gb/s
Weight	2 kg (4.4 lb)	Chassis: 1.8 Kg (4.0 lb)	Chassis: 3.6 kg (7.9 lb)
Interfaces	<ul style="list-style-type: none"> <li>• 16 DS1</li> <li>• 4 x 10/100/1000 RJ-45</li> <li>• 2 x SFP</li> </ul>	<ul style="list-style-type: none"> <li>• 64 DS1, 4 DS3 or 4 OC-3</li> <li>• 4 x 10 Gb/s SFP+ ports</li> </ul>	<ul style="list-style-type: none"> <li>• Up to 192 DS1, 12 DS3, 12 OC-3, 54 GE</li> <li>• 6 x 10 Gb/s SFP+ ports</li> </ul>
Power supply	Dual feeds -48 V	-48 V DC or optional +24 V DC	Dual feeds: -48 V DC or optional +24 V DC
Temperature	-40°C to +65°C (-40°F to +149°F)	-40°C to +50°C (-40°F to +122 °F)	-40°C to +65°C (-40°F to +149°F)

## Technical specifications

### Indoor/outdoor connections

- GE electrical or optical cable

### Synchronization

- Performance according to ITU-T G.813, G.823, G.8264, G.8273.2, G.8273.3
- Clock distribution options
  - DS1/OC-3
  - External reference sync-in/ sync-out (2 MHz, 5 MHz, 10 MHz)
  - Sync E + SSM
  - ITU-T G.8264
  - Built-in Stratum 3 clock
  - OC-3 line clock
  - 1588 T-TC and T-BC on path support

### Standards compliance

#### Environmental

- Telcordia® GR-63, GR-1089
- GR-3108
  - MSS-1, MSS-8: Class 2
- EMC: EN 55022 Class B, EN 301 489-1, EN 301 489-4

#### Safety

- EN 60950-1, UL

#### Ecological

- ECMA TR/70

### Networking and services

- IEEE 802.1p, 802.1Q: VLAN tagging
- IEEE 802.3: Ethernet
- IEEE 802.3u: 100Base-TX
- IEEE 802.3z: 1000Base-SX/LX
- IEEE 802.3ab: 1000Base-T
- IEEE 802.3x: Flow control
- IEEE 802.1D: MAC bridges
- IEEE 802.1AX-2008: Link aggregation
- IEEE 802.1ag: Ethernet OAM
- MEF CE 2.0: Carrier Ethernet
- MEF 8, MEF 9, MEF 14, MEF 22
- ITU-T G.7041: GFP
- ITU-T G.8032v2: ERPS
- ITU-T G.813: Timing characteristics
- ITU-T G.823: Control of jitter
- ITU-T G.8273.2, G.8273.3: Timing characteristics
- ITU-T Y.1731 BNM: OAM functions

### Traffic management and QoS

- Marking based on:
  - Layer 2 (IEEE 802.1p)
  - Layer 3 (DiffServ)

### Network and

#### element management

- Console, management, alarm
- Optional 256-bit AES Encryption compliant with FIPS PUB 140-2

- Secure FTP for software download and backup
- IPv4/IPv6 management
- Embedded web browser for network element configuration and monitoring
- Intuitive supervision systems
- NetConf/Yang Support
- Nokia NSP (Network Services Platform) Manager
- Nokia TSM-8000 Fault Management System

### Services

- Architecture and design
- Equipment and site engineering
- Installation services
- Integration services
- Performance analysis, network assessment, DCN, synchronization and QoS assessment
- Migration to packet microwave management
- Maintenance
  - 24x7 technical support
  - Return for repair or advanced exchange



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