Alcatel-Lucent 9500 Microwave Packet Radio

NORTH AMERICAN/ANSI MARKETS | RELEASE 1.0 AND 2.0

The Alcatel-Lucent 9500 Microwave Packet Radio (MPR) is changing the world of wireless transmission; it provides seamless Internet Protocol (IP) migration for microwave networks. Mobile service providers, private operators and carriers now have a new platform adding exceptional functionality to their networks. The 9500 MPR handles traffic by packets natively, using IP instead of being locked into Time Division Multiplexing (TDM) formats; yet it still fully supports TDM circuits, providing a means to gracefully and seamlessly migrate to an all-IP infrastructure. The 9500 MPR offers the lowest total cost of ownership by reducing both fixed capital expenditures and recurring operational expenses.

Outdoor Units (ODU)

Microwave Packet Terminal (MPT-HL)

Microwave Service Switch (MSS)

Key features and benefits

- Multi-service aggregation layer
  - ¬ Provided by a fully scalable 10 gigabit Microwave Service Switch (MSS) with DS1, DS3 and Ethernet interfaces
  - ¬ Allows operators to adopt IP backhaul without abandoning existing TDM-based services
  - ¬ With Ethernet as the convergence layer, any kind of traffic can be carried, independent of the type of interface
- Service awareness
  - ¬ Encapsulates all traffic as packets, then queues and prioritizes packets by service type, criticality and Quality of Service (QoS) requirements before transporting packets across the radio link
  - ¬ Eliminates the potential for backhaul to become a choke point with limited growth for new data services while still supporting QoS requirements of existing voice services
- Service-driven adaptive modulation
  - ¬ This giant step forward in radio technology hitlessly adapts to changing link conditions to improve availability
  - ¬ Fully exploits the air link by allocating transport capacity according to dynamically varying bandwidth and QoS requirements for different services
  - ¬ Improves use of the premium microwave spectrum, boosts link performance and reduces antenna size requirements
- Multi-reach packet node
  - ¬ Combines up to 12 short haul and long haul radio transceivers plus a 10 Gigabit core switching matrix into a single network element
  - ¬ Provides optical Gigabit Ethernet (GigE) and metallic uplinks
  - ¬ Packets can be transported over any media in any direction
  - ¬ Dramatically reduces the total cost of ownership by eliminating service aggregation bottlenecks, serving a wide range of distances, connecting in several directions, minimizing space requirements, eliminating messy intershelf cabling, and simplifying operation

Technical specifications

Applications

- Backhaul and backbone transport for mobile service providers
- Interconnection of private land mobile radios for public safety and industry
- Private communications and tele-monitoring for critical infrastructure
- Wide area network (WAN) connectivity for enterprises, Internet service providers (ISPs) and carriers

Configuration options

- Radio terminal
- Radio repeater
- Multidirectional radio node
- Aggregation shelf (no radio frequency [RF])

Radio-to-MSS connections

- ODU: Up to 6 NSB or 3 MHSB
- MPT-HL: Up to 8 NSB or 4 MHSB
- Or a combination of the above

Operating frequencies

- ODU: Lower and upper 6 GHz, 7/8 GHz, 10/11 GHz, 18 GHz and 23 GHz
- MPT-HL: 5.8 GHz, Lower and upper 6 GHz, 7/8 GHz and 10/11 GHz

Radio frequency transceiver

- Synthesized source
- Transmitter output power agility

Modulation options

- ODU: 32 quadrature amplitude modulation (QAM), 128 QAM and 256 QAM
- MPT-HL: 32 QAM, 128 QAM and 256 QAM
- Adaptive modulation: 4/16/64 QAM

Capacity ranges

- ODU: 18 Mb/s to 267 Mb/s
- MPT-HL: 8 Mb/s to 214 Mb/s

Microwave service switch

- TDM encapsulation: Metro Ethernet Forum 8 (MEF8)
- Switching capacity: Greater than 10 Gb/s
- Aggregate radio throughput: Greater than 2 Gb/s

Traffic interfaces

- 100% front access for:
  - ¬ DS1 access card: 32 x DS1
  - ¬ DS3 access card: 2 x DS3
- Control and switching module:
  - ¬ 4 x 10/100/1000 BaseT
  - ¬ 1 x Small Form Factor Pluggable (SFP)
- 8 x Ethernet access card:
  - ¬ 4 x 10/100/1000 BaseT
  - ¬ 4 x SFP

Power requirements

- Input voltage range:
  - ¬ MSS - Standard: -48 V DC to -60 V DC ± 20%
  - ¬ MSS - Optional: +24 V DC to +60 V DC ± 20%
  - ¬ MSS - Optional: 110 V AC to 230 V AC, 50 Hz to 60 Hz
  - ¬ MPT-HL: ±24 V DC to ±60 V DC ± 20%
  - ¬ ODU: Powered over intermediate frequency (IF)/coaxial cable

Power consumption

- MSS (dependent on actual cards installed):
  - ¬ Control switching module: 15 W
  - ¬ 32 x DS1 access card: 12 W
  - ¬ 2 x DS3 access card: 12 W
  - ¬ Radio access card: 23 W
  - ¬ 8 x Ethernet access card: 15 W
  - ¬ Fan: 8 W
- MPT-HL: 140 W maximum per RF transceiver
- ODU: 50 W maximum

Dimensions

- MSS
  - ¬ Height: 88 mm (3.46 in.)
  - ¬ Width: 444 mm (17.48 in.)
  - ¬ Depth: 250 mm (9.84 in.)
- MPT-HL
  - ¬ Height: 108 mm (4.25 in.)
  - ¬ Width: 438 mm (17.25 in.)
  - ¬ Depth: 362 mm (14.25 in.)
- ODU
  - ¬ Height: 287 mm (11.29 in.)
  - ¬ Width: 287 mm (11.29 in.)
  - ¬ Depth: 119 mm (4.69 in.)

Weight

- MSS: Less than 5.98 kg (13.2 lb) fully loaded
- MPT-HL
  - ¬ 1+1 and 2+0: 12.7 kg (28 lb)
  - ¬ 1+0: 8.85 kg (19.5 lb)
- ODU: 5.98 kg (13.2 lb)

Operating environment

- MSS: -5°C to +55°C (23°F to 131°F)
- MPT-HL: 0°C to +55°C (32°F to 131°F)
- ODU guaranteed: -33°C to +55°C (-27°F to +131°F)
- NEBS Level 3
- Telcordia GR-63
- Telcordia GR-1089

Network and element management

- Integrated network management in Windows environment
- Embedded Web browser for network element (NE) supervision
- Software-based configuration by personal computer (PC)
- Intuitive supervision systems
- Simple Network Management Protocol (SNMP) agent with Transmission Control Protocol (TCP)/IP rerouting capability
- Interoperable with all Alcatel-Lucent wireless microwave and transmission equipment
- Fully compatible with the Alcatel-Lucent 8000 Transmission System Manager (TSM), 1340 Integrated Network Controller (INC), and 5620 Service Aware Manager (SAM)

Alcatel·Lucent