



Alcatel 9400 AWY

Short-Haul Low and Medium Capacity Digital Microwave Radio Links

7-8-11-13-15-18-23-24-25-28-31-32-38 GHz

The Alcatel 9400 AWY is a family of digital point-to-point microwave radio systems. Designed with mobile networks in mind, its scalability and flexibility will satisfy the numerous digital transmission needs of cellular mobile networks and microcellular network backhauling (2G, 2.5G and 3G).

It is also suitable for public and private networks for multiple applications, such as private data networks (WANs, LANs), utility networks, and others.

The system offers homogeneous technical solutions from 7 GHz up to 38 GHz, ensuring maximum radio performance in each frequency band.

The Alcatel 9400 AWY's scalable architecture allows for flexibility and enables cost-effective solutions.

A LAN interface gives expanded freedom in network design and increases potential for new applications. The Alcatel 9400 AWY supports IP traffic-based solutions such as UMTS V.5.

Applications

- > Mobile network backhauling (GSM/GPRS/UMTS)
- > Wireless data access
- > WAN/LAN data networks
- > Data terminal connections (PABX, ATM application, videoconference)
- > Utility networks (pipelines, electricity, railways, municipalities)
- > Full product line: combines with the Alcatel 9600 family in the same network to fulfil different capacity needs
- > Offers complete compatibility and interoperability with Alcatel's mobile and transmission portfolio:
 - Wireless radio portfolio (short and long haul, PDH and SDH equipment)
 - ADM OMSN family to provide complete integrated network solutions

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Flexible and Scalable

The flexible and scalable characteristics of the Alcatel 9400 AWY offers sharp reductions in both CAPEX and OPEX, to meet the needs of today's customers.

- > Optimized IDU for 8xE1/DS1 traffic interfaces
- > Modular traffic interface upgrades, "buy as you grow" allowing CAPEX savings
- > Many equipment and material commonalities in 1+0 and 1+1 configurations, allowing maximum CAPEX and OPEX savings
- > Minimal number of outdoor units (ODUs) cover a complete frequency band, allowing CAPEX savings
- > One ODU to provide:
 - Modulation agility to support both 4 and 16 QAM, software upgradeable as the need arises
 - Capacity agility supporting 2 to 16 x E1/DS1 or E3/DS3 or Ethernet

Services

Support represents the highest form of commitment and basis for long-lasting customer relationships. Alcatel is committed to providing the best support to all operators with a full range of services:

- > Network design and planning
- > Hotline
- > Repair and return express, swap and repair, spare parts management
- > On-site visits, urgent interventions, technical assistance
- > Training from theory to installation, either Alcatel university-based, or at customer premises
- > Bundled services during warranty period and warranty extensions

Key Features

Small size, light weight and high reliability.

Flexible TDM/LAN interfaces

- > 8E1/16E1/E3 for ETSI
- > 8DS1/16DS1/DS3 for ANSI
- > Two 10/100BASE-T Ethernet
- > Flexible combination of mixed traffic $N \times E1/DS1$ and 10/100BASE-T Ethernet, software controlled with E1 granularity

Powerful and Flexible Design

- > Forward Error Correction (FEC) and Transversal Equalizer (FSE) for excellent radio performance
- > Embedded automatic errorless receiver switching for 1+1 protection

Software-Configurable System

- > Modulation agility: 4 QAM and 16 QAM, to satisfy high system gain and high spectrum efficiency respectively
- > Transmission capacity agility: 2E1/DS1 to 16E1/DS1
- > Transmit output power agility: automatic (ATPC) and static (RTPC) in all frequency bands

Easy Installation and Commissioning

- > Multilevel loop-back and test facilities
- > Link identity code to prevent the reception of an unwanted signal
- > Quick setup
- > Built-in test functions

Network Management

- > Integrated network management in Windows environment
- > Intuitive supervision systems
- > SNMP Agent with TCP/IP rerouting capability
- > Interoperability with all Alcatel wireless microwave portfolio and transmission equipment



Technical Summary

User Interfaces

- > 2 x 10/100 Base-T Ethernet IEEE 802.3
- > n x E1/DS1 (n ≤ 16)
- > E3/DS3

Service Channels

- > Omnibus voice channel DTMF (Q.23) EOW plus two-way party line
- > 64 kb/s G.703 or V11 co/contradirectional
- > 64 kb/s 1 port V11 co-directional, 1 port G703 co-directional (network management)
- > 9.6 kb/s asynchronous V24/V28
- > 4.8 kb/s asynchronous V24/V28
- > 9.6 kb/s V11
- > 4.8 kb/s V11

Network Management

- > Local Craft Terminal (LCT) interface: RS-232 C
- > Network management system interface: Ethernet 10/100 Base-T
- > Network management data channel interface: 64 kb/s RS-422/G703

Power Supply

- > Standard: ±40 to ±60 VDC (± 20%)
- > Optional: ±24 V DC (± 20%) ±24 to ±60 V DC (± 20%)

Indoor/Outdoor Connection

- > Single coaxial cable
- > Length up to 300 m
- > Impedance 50 Ω

Dimensions

- > IDU (rack, desk or wall mounting)

Main IDU

- > Height: 43 mm
- > Width: 210 mm
- > Depth: 443 mm
- > Weight: <2.5 kg

Extension IDU

- > Height: 43 mm
- > Width: 210 mm
- > Depth: 443 mm
- > Weight: <2.5 kg

ODU (Split Mount)

- > Height: 72 mm
- > Width: 235 mm
- > Depth: 235 mm
- > Weight: 4 kg

Environment

- > EMI-EMC:
 - EN 50022 Class B
 - EN 301489-1
 - EN 301489-4
- > Safety:
 - EN 60950: 2000
 - UL 60950
- > Ecological: ECMA TR/70
- > Temperature
 - IDU: -5 °C to +55 °C
 - ODU: -33 °C to +55 °C
 - Cold Start: -50 °C



Main IDU



Extension IDU



ODU Views

Technical Summary

(TYPICAL VALUE)

Frequency Band	7/8 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	25 GHz	28 GHz	32 GHz	38 GHz
Frequency Range										
ITU-R	7.1÷8.5	10.7÷11.7	12.7÷13.3	14.4÷15.4	17.7÷19.7	21.2÷23.6	24.5÷26.5	27.5÷29.5	31.8÷33.4	37.0÷39.5
FCC	7.1÷8.5			14.5÷15.4	17.7÷19.7	21.8÷23.6				38.6÷40.0
Channel Spacing										
ETSI 4 QAM	3.5 MHz (2E1), 7 MHz (4E1), 14 MHz (8E1), 28 MHz (16E1/E3)									
16 QAM	3.5 MHz (4E1), 7 MHz (8E1), 14 MHz (16E1/E3)									
ANSI 4 QAM	5 MHz (4DS1), 10 MHz (8DS1), 20 MHz (16DS1), 40 MHz (DS3)									
16 QAM	5 MHz (8DS1), 10 MHz (16DS1), 20 MHz (DS3)									
Nominal TX Output Power (dBm)										
4 QAM	25	24	24	24	22	19	17	16	16	16
16 QAM	21	20	20	20	19	16	14	13	13	13
ATPC Range (dB)	20									
RTPC Range (dB)	30									
16E1/E3 Sys Gain @10-3 typ (dB)										
4 QAM	111	110	110	110	106	103	100	99	98	98
16 QAM	103	103	103	102	99	96	93	92	91	91
16DS1 Sys Gain @10-3 typ (dB)										
4 QAM	112	111	111	111	107	104	101	100	99	99
16 QAM	104	103	103	103	100	97	94	93	91	91
DS3 Sys Gain @10-3 typ (dB)										
4 QAM	109	108	108	108	105	102	98	98	97	97
16 QAM	101	100	100	100	97	94	91	91	89	89
Switching Configuration	1+1									
Switching Type	Hitless - Revertive / Not Revertive									
Configuration	1+0 / 1+1 HSB / 1+1 HSB+SD / 1+1 FD									
1+0 Expected Operational MTBF (Years)	30									
Max. Power Consumption (W)	< 40 (1+0) / 80 (1+1)									

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