

## Alcatel MDR-8000 Ethernet Radio



### Overview

Alcatel's MDR-8000 is the industry's premiere digital microwave radio for point to point wireless communication. It has demonstrated its versatility and scalability as a common platform for transport of Time Division Multiplex (TDM) signals such as DS1, DS3 and OC-3 over both licensed and unlicensed frequencies ranging from 2 GHz to 11 GHz. The evolution of this highly versatile platform continues with the addition of an Ethernet interface that transports Ethernet Frame Data over point-to-point microwave links.

The new Ethernet radio has much in common with the OC-3 radio architecture. The OC-3 optical interface is replaced with an Ethernet port that supports 10baseT, 100baseT, or 1000baseT interface rates (auto-sensing). The overhead capacity remains unchanged, with 4 DS1s, and 3 64 kb/s service channels (selectable as audio/orderwire, RS-232 data, or MCS-11 telemetry).

### R1.0 Features

- > One 10/100/1000BaseT Ethernet port
  - RJ-45 electrical interface
- > Up to 150 Mbps data capacity including 4 DS1s
  - 30 MHz RF channel, 128 TCM modulation
- > Up to 50 Mbps data capacity including 4 DS1s
  - 10 MHz RF Channel, 128 TCM
- > Non-standby and non-standby space diversity configurations (dual T/R shelf or CommPak shelf)
- > Same RF and common modules as the MDR-8000 TDM versions
  - Power Supply, Controller, RF and ancillary modules
- > New Input/Output (I/O) module, with RJ-45 connector for 10/100/1000baseT Ethernet interface (auto-sensing)

### R1.1 Features (Available 3Q 2006)

Release 1.1 of the Ethernet radio introduces protected radio configurations and SNMP.

- > Non Standby and Hot Standby single T/R and dual T/R configurations
  - Non-standby, non-standby space diversity, hot standby, hot-standby space diversity, frequency diversity, & quad diversity
- > Same modules as R1.0
- > SNMP option

The MDR-8000 Ethernet radio offers the same great performances, scalability and operational features as the MDR-8000:

- > Superior performance
- > Choices of transceiver power options in all frequency bands
- > Greatest system gain ranges in all bands
- > Highest Interference Tolerance
- > Easy migration from one capacity or interface type to another
  - All OC-3 radios can be field convertible to Ethernet
  - Other TDM capacities may be converted to Ethernet subject to bandwidth capability of transmission and receiver modules
- > Simplified Maintenance
  - Simple and proven PC-based User System Interface (USI)
  - Common Network Management platforms
  - Common spares

# Alcatel MDR-8000 Ethernet Radio



## Technical Summary

- > Licensed and unlicensed bands
  - 1.85 – 1.90 GHz
  - 2.025 – 2.285 GHz
  - 2.4 – 2.4835 GHz
  - 4.40 – 5.0 GHz
  - 5.725 – 8.500 GHz
  - 10.7 – 11.7 GHz
- > Modulation and data efficiency  
128 TCM, 5 bps/Hz
- > Transmit frequency stability  
0.001%
- > Transmit power options +14 – +33 dBm depending on frequency
- > Threshold/interference (10<sup>-6</sup> BER)  
Cochannel, similar Xmtr = 34 dB  
Adjacent channel, similar Xmtr = -8 dB

### Interfaces

- > Ethernet Interfaces
  - IEEE 802.3  
10/100baseT, Half/Full Duplex
  - 1000baseT, Full Duplex
  - Line Rates  
10/100/1000 Mbps
- > TDM Interfaces
  - DS1, ANSI, T1.102
  - Line Rate = 1.544 Mbps
- > Alarm/Management Interface  
SNMP = RJ45, 10baseT  
US1 = RS-232  
MCS-11 = RS-422  
TBOS = RS-422  
Parallel = form A relays
- > Orderwire Interface  
4-wire E&M  
2-wire
- > Support Jumbo Frame  
up to 8187

| Equipment Identifier                          | MDR-87XXE-150                         | MDR-87XXE-50                          |
|---|---------------------------------------|---------------------------------------|
| Emission designator                           | 30MOD7W                               | 10MOD7W                               |
| FCC Capacity/RF channel                       | 3 STS-1                               | 1 STS-1                               |
| Ethernet Forwarding Capacity                  | Up to 150 Mbps<br>278848 pps          | Up to 50 Mbps<br>91910 pps            |
| TDM lines capacity                            | 3 DS1 (Repeater),<br>4 DS1 (Terminal) | 3 DS1 (Repeater),<br>4 DS1 (Terminal) |
| Nominal channel bandwidth                     | 30 MHz                                | 10 MHz                                |
| RF Data rate                                  | 176.994 Mbps                          | 58.996 Mbps                           |
| Receiver Threshold                            |                                       |                                       |
| Typical (10 <sup>-3</sup> BER) (1)            | -72.0 dBm                             | -77 dBm                               |
| Typical (10 <sup>-6</sup> BER) (1)            | -70.0 dBm                             | -75 dBm                               |
| Dispersive Fade Margin (10 <sup>-3</sup> BER) | 48 dB                                 | 58 dB                                 |
| Ethernet Latency (S/F)                        | 66 – 142 μs                           | 194 – 425 μs                          |

1 Hot-standby configurations (without space diversity): 1dB less receiver threshold and system gain on the A side and 10 dB less on B side due to 1:10 coupler.

### Power Requirements

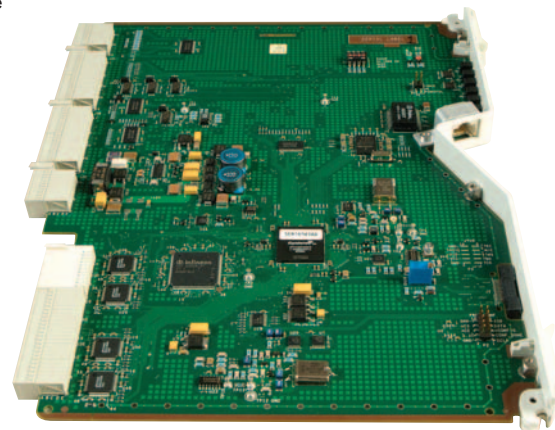
- > Input voltage: +/- 20 V dc to +/- 60 V dc
- > Typical power consumption per T/R @ 14 dBm: 71 watts

### Mechanical Dimensions and Interface

- > Size: 12.25 x 19.0 x 16.25 in.
- > Weight (1+1): 85 lb.
- > RF Interface: SMA
- > DS1 Interface: Two 9 pin D-type (one xmtr, one rcvr)
- > Ethernet Interface: RJ45
- > Orderwire handset  
RJ-11 standard telephone jack

### Environmental

- > Ambient temperature:  
Specification compliant, 0° to 50° C  
Operating without failure -20° to 70° C  
Storage -40° to 80° C
- > Relative Humidity: 5 to 95% noncondensing
- > Altitude:  
Operating -350 to 16,500 ft.  
Storage -350 to 40,000 ft.



Note: Specifications subject to change without notice. Contact Alcatel for latest information.

[www.alcatel.com](http://www.alcatel.com)

Alcatel and the Alcatel logo are registered trademarks of Alcatel. All other trademarks are the property of their respective owners. Alcatel assumes no responsibility for the accuracy of the information presented, which is subject to change without notice. © 06 2005 Alcatel. All rights reserved.523-0620225-003A3J