EXICOM

EX8500 is a very efficient digital microwave radio system covering up to 38 GHz and providing data rates at up to 68 Mbit/s full duplex with the flexibility of Ethernet and/or multiple 2 Mbit/s (E1) data streams. The advanced and robust design of the EX8500 microwave link is ideal for public and private networks using either plesiochronous heirachies or Internet Protocol for seamless networks.

COMPETITIVE ADVANTAGE

- Field proven technology
- Integral multiple E1 or IP interface
- ITU and ETSI compliant

APPLICATIONS

- Public telecommunication links
- Backhaul for cellular operators
- Public/private communication networks

EX8500

DIGITAL POINT-TO-POINT MICROWAVE DATA/TELECOMMUNICATIONS LINK

HIGH PERFORMANCE

- High system gain
- Integral antenna to 1.8m diameter
- Highly advanced modulation for greater spectral efficiency
- Forward Error Correction for greater system gain

LOW COST OF OWNERSHIP

- Fast deployment
- User friendly software
- Advanced diagnostic features
- Easy installation and setup
- Minimal routine maintenance

EX8500 Digital Microwave Radio

Features

- High system gain
- QPSK/4QAM and 16QAM modulation for efficient spectrum use or maximum range performance.
- Forward error correction for greater receive sensitivity
- Configurable PDH/Ethernet.
- Common ODU for all data rates
- Upgradeable IDU independent of frequency band
- Self diagnostics with loop back test features
- Advanced management facilities for management of an entire network from front panel, PC, or network management system
- Integral antenna options from 0.3 - 1.8 m (most bands)
- Modular architecture

System Parameters

Frequency bands (GHz) Note that sub-bands may apply.

7 GHz Band	7.110 to 7.443GHz
	7.443 to 7.751 GHz
8 GHz Band	8.275 to 8.500 GHz
11 GHz Band	10.7 to 11.7 GHz
13 GHz Band	12.75 to 13.25 GHz
15 GHz Band	14.40 to 15.35 GHz
18 GHz Band	17.70 to 19.70 GHz
23 GHz Band	21.20 to 23.60 GHz
38 GHz Band	37.00 to 39.50 GHz

Electronic Tuning Range (w/o filter change)

7/8 GHz Bands	60 MHz
11/13 GHz Bands	220 / 125 MHz
15 GHz Band	250 MHz
18/23/26/38 GHz Bands	600 MHz

Capacity (Mbps)

Bandwidth (MHz)	**3.5**	**7**	**14**	**28**
QPSK	N/A	8.5	17	34
16 QAM	8.5	17	34	68

Modulation Type

All bands QPSK or 16QAM

Configurations

1+ 0 Unprotected

1+ 1 Hot Stand-by, Space Diversity, Frequency Diversity
Independent Tx and Rx switching, Rx switching is “hitless”

Latency

PDH Latency	575uS@ 8Mbit/s to 150us@ 34Mbit/s
Ethernet Latency	510uS@ 34Mbit/s (no PDH services)
FEC Latency	575uS@ 8 Mbit/s to 150uS @ 34 Mbit/s

Interfaces

Type	G.703 compliant E1 (2.048Mbit/s)
Framing	G.704
Digital Line Code	HDB3
Digital I/O Connector	120 Ohm, balanced (25 pin D-Type)
Digital I/O Option	75 Ohm, unbalanced (BNC)
Type	IEEE 802.3 10/100BaseT auto select
Mode	Full/Half duplex
Voice Frequency Chan	VoIP telephone
Wayside Channel	10/100 BaseT

Electrical

Input Voltage range	21 to 57VDC, floating earth
Power Consumption	65 W (1+0)
	110W (1+1)

Transmitter Specifications

Transmitter Power (dBm)	**7/8GHz**	**11/13GHz**	**15GHz**	**18GHz**
4QAM	30	22	22	20
16QAM	27	19	19	17

	23 GHz	**26GHz**	**38GHz**
4QAM	20	20	19
16QAM	17	17	16

Frequency Stability	<10ppm for all bands
Attenuation Range	>15dB or muted

EX8500 Outdoor RF Unit (shown with integral antenna)

EX8500 Indoor Unit 1+0 (16E1/68Mbps)

Receiver Specifications

Receiver Type	Double conversion
Background BER	$<10^{-11}$
Receiver Upper Limit	-20dBm

RX Sensitivity (dBm)

@ 10^{-6} BER QPSK	**4E1**	**8E1**	**16E1**	**32E1**
Ethernet	**8Mb**	**17Mb**	**34Mb**	**68Mb**
7/8 GHz	-89.0	-86.0	-83.0	
11/13 GHz	-88.0	-85.0	-82.0	
15 GHz	-87.5	-84.5	-81.5	
18 GHz	-87.0	-84.0	-81.0	
23 GHz	-86.5	-83.5	-80.5	
26 GHz	-86.0	-83.0	-80.0	
38 GHz	-85.0	-82.0	-79.0	
@ 10^{-6} BER 16QAM				
7/8 GHz	-86.0	-83.0	-80.0	-77
11/13 GHz	-85.0	-82.0	-79.0	-76
15 GHz	NA	-81.5	-78.5	-75.5
18 GHz	NA	NA	-78	-75
23 GHz	NA	NA	-77.5	-74.5
26 GHz	NA	NA	-77.0	-74
38 GHz	NA	NA	-76.0	-73

Note: Receiver sensitivity figures are guaranteed performance, typical performance figures provide a 2dB improved gain

Integral Antenna Options

Gain (High End) in dBi	**0.3m**	**0.6m**	**1.2m**	**1.8m**
7/8 GHz	NA	30.8	37.1	40.3
11/13 GHz	NA	35.3	41.4	45.0
15 GHz	31.1	36.5	42.5	46.0
18/23 GHz	34.8	40.1	46.1	49.4
38 GHz	39.5	44.3	NA	NA

Management Capability

Loop back facility	Local base band, IDU IF & ODU RF
Signal Strength	Analogue test points (ODU)
Diagnostics & monitoring	Web page & USB configuration tool
Performance Monitoring	G.826 at radio frame level
Network Management	SNMP 1

Environmental

ODU Temperature Range	-30°C to +55°C
IDU Temperature Range	0°C to +50°C

Mechanical

ODU Size (mm)	350(h) x 410(w) x 110(d)
ODU Weight	9 kg excluding antenna
IDU up to 16E1/68Mbps	(45 x 482 x 300) mm (1U)
IDU up 32E1/68Mbps	(90 x 482 x 380) mm (2U)
	Front or rear mount options
	Approx 6 kg

Version 2.01

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