FlexWave™ MMX 8000
Multi-Sector WiMAX Base Station

The FlexWave™ MMX 8000 is a member of the FlexWave MMX family, a line of mobile WiMAX broadband wireless access systems based on the 802.16e mobile standard, WiMAX forum WAVE2 (MIMO) certification.

The MMX 8000 base station is an ideal, cost-effective solution for wireless access services designed for point-to-multipoint broadband wireless access for mobile and fixed applications in various conditions and locations. This outdoor base station is designed for simple installation and mounting on poles, street lamps or walls.

The FlexWave MMX 8000 can be configured as a 1-, 2- or 3-sector base station with each sector supporting up to 1000 subscriber units. This system easily scales with subscriber growth by extending coverage through the inclusion of additional sectors to support additional subscribers and bandwidth.

The MMX 8000 base station provides all the functionality necessary to communicate with fixed and mobile subscriber units according to service criteria and customer Service Level Agreements (SLAs). It connects to the service provider's network backbone, supporting the necessary end-to-end Quality of Service (QoS).

The FlexWave system uses OFDMA radio technology, which is robust in adverse channel conditions and enables Non-Line-Of-Sight (NLOS) operation. This allows for improved coverage, while maintaining a high level of spectral efficiency. Modulation and coding are continuously adapted to prevailing link conditions, ensuring an optimal balance between robustness and efficiency. The use of STC/MRC and MIMO radio technologies optimize link performance to ensure maximum bandwidth and service coverage.

The MMX 8000 is supported by the FlexWave network management system.

Features

- Low cost compact base station for lower OPEX and CAPEX
- All outdoor unit – simple installation with easy mounting on walls, poles, street lamps
- Supporting 1.X, 2.X, 3.X GHz bands

SPEC SHEET

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MMX 7000 Highlights

- Mobile-WiMAX compliance based on IEEE 802.16e standard and WiMAX Forum Wave2 (MIMO) certification

- Support of worldwide WiMAX deployments in the 1.X, 2.X and 3.X GHz bands

- Daisy Chain architecture to support multi-sector sites

- Scalable architecture, supporting up to 1000 subscribers on the same unit

- Low cost of ownership - ideal solution for entry-level deployment with a pay-as-you-grow buildout for rapid penetration into new market segments with minimal CAPEX

- WiMAX relay (802.16j) support – for better network performance, higher bandwidth, longer range and lower networking costs (in development)

- Outdoor installation – easy to install on walls, poles and street lamps

- Optimize link performance in NLOS conditions through STC/MRC and MIMO radio technologies

- Adaptive modulation to optimize throughput and facilitate performance robustness

- Automatic Transmit Power Control (ATPC) to allow for optimal network deployment and interference avoidance

- Numerous applications and services - guaranteed voice, video and data services based on advanced QoS levels and a variety of classification/prioritization schemes

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Specifications

RADIO AND MODEM

Frequency:	MMX 7113-24: 1350 to 1400 MHz
	MMX 7114-24: 1400 to 1525 MHz
	MMX 7125-24: 2496 to 2690 MHz
	MMX 7135-24: 2496 to 2690 MHz
	MMX 7137-24: 3600 to 3800 MHz
Radio Access Method:	IEEE802.16-2005 (16e OFDMA)
Compatibility:	WiMAX Forum Wave 2 Profile
Operation Mode:	TDD
Channel Bandwidth:	3.5Mhz, 5 MHz, 7MHz, 10 MHz
Frequency Resolution:	0.25 MHz
Antennas:	Integral Omni External Sector
Number of Antennas Default Antenna:	2
Default Antenna:	Omni
Antennas Connectors:	2x N-Type, 50 Ohm, lightning protected STC-MIMO
Diversity Support:	2 x 10W; 2 x 45W; 2 x 90W
Output Power per Sector[P1dB]:	Type 10W: 30 dBm +/-1dB maximum
Output Power (average):	Type 45W: 36 dBm +/-1dB maximum
FFT/Modulation:	512/1024 FFT points; QPSK, 16QAM, 64QAM
FEC:	Convolution Code and Turbo Code
TPC:	15dB
Synchronization:	GPS or IEEE1588 (optional)

NETWORK INTERFACES

Network:	40.5-60VDC 10/100BaseT Half/Full Duplex IEEE 802.3 CSMA/CD
	Fiber Optic - optional
ASN GW Compatibility:	WiMAX Forum R6 Profile C Compatible with CISCO ASN-GW

CONFIGURATION AND MANAGEMENT

Management:	SNMP
SNMP Agent:	SNMP ver 2 client: MIB II (RFC 1213) Private Wi-Max MIBs
Software Upgrade:	FTP
Remote Configuration:	FTP

MECHANICAL

Dimensions [HxWxD]:	60cm x 27cm x 10cm/23.6" x 10.6" x 4"
Weight:	<15Kg / 33 lbs

POWER INTERFACE

Input:	48VDC
Power Consumption:	Type 10W: 75Watt maximum Type 45W: 140Watt maximum

ENVIRONMENTAL

Operating Temperature:	-40°C to +55°C
Operating Humidity:	5%-95% non condensing, weather protected

STANDARDS COMPLIANCE

EMC:	FCC Part 15, Subpart B, Class A ETSI EN 301489-1/4
Safety:	TUV-UL 60950-1 IEC 60950-1
Environmental:	ETS 300 019:
	Part 2-1 T 1.2 & Part 2-2 T 2.3
	Part 2-4 T 4.1E
	IP66
Immunity:	EN61000-4-2
	EN61000-4-4
	EN61000-4-5
Radio:	FCC Part 27 ETSI EN302 326

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