

IEEE 802.16 for Field Area Networks

FullMAX Rhodium End to End Network

40 MHz to 6 GHz Frequencies

Rhodium Base Station RS5000

Remote Radio RS1000



Product Highlights

- » IEEE 802.16
- » Point-to-Multipoint, Point-to-Point
- » OFDMA, Time Division Duplexing (TDD), Half Duplex FDD
- » PUSC
- » Single Input Single Output (SISO) or Multiple In Multiple Out (MIMO)
- » 5 MHz & 10 MHz Channels Standard
- » Up to 20 Mb/s Data Rates
- » Mobile and Fixed Application Support
- » 40 dBm TX power
- » All Aluminum Enclosure
- » DC Input Range 42 to 60 VDC

FullMAX Radio Specifications



PHY Layer	Description
IEEE Standard	WiMAX compliant air interface protocol.
Multicarrier Waveform	OFDMA. 512 @ 5 MHz channel/1024 FFT @ 10 MHz channel.
Frequency Range	100 MHz to 6 GHz
Channel Size	5 MHz or 10 MHz
Duplex Method	TDD , Half Duplex FDD
TX Power	Up to 40 dBm
Sub-Channelization	Partial Use of Sub-Carriers (PUSC) in both downlink and uplink
Adaptive Modulation & Coding	Downlink: QPSK1/2 to 64QAM 5/6 with CTC encoding Uplink: QPSK1/2 to 16 QAM3/4 with CTC encoding
End User Data Throughput Per channel size	Up to 11 Mb/s combined downlink and uplink @ 5 MHz wide channel.
TDD Frame Synchronization for multi-sector /multi base station operation	Base Station GPS synchronization provided by an external GPS synchronized clock source
Rx Sensitivity (dBm)	- 97 dBm @ 5 MHz wide channel - 94 dBm @ 10 MHz wide channel
Minimum CINR (dB) for each Modulation	QPSK 1/2 > 6 dB QPSK 3/4 > 9 dB 16QAM 1/2 > 12 dB 16QAM 3/4 > 15 dB 64QAM 2/3 > 20 dB 64QAM 3/4 > 21 dB 64QAM 5/6 > 23 dB
Frame Structure Configuration	Frame duration: 5 ms Downlink to uplink ratio: 26:21, 29:18, 32:15, 35:12 Programmable TTG & RTG
MIMO	Hardware ready for MIMO. MRC under development.

MAC Layer	Description
Scheduling Modes	Best Effort (BE), Real time polling service (rtPS), Unsolicited Grant Service (UGS)
Classification	Traffic is classified in the uplink and in the downlink direction into multiple service flows. Classification is based on layer 2 and layer 3 header fields.
Uplink & Downlink Quality of Service	Each Class of Service is an integrated configuration of a set of QoS parameters (e.g., scheduling type, traffic priority, etc.). A QoS profile ("Class of Service") is configured for each uplink and downlink service flow
Traffic Priority	Each service flow can take a priority level 1 to 7
Minimum and Maximum Sustained Rates	Each service flow can be configured with a minimum and maximum sustained rate
Packet Header Suppression (PHS)	The header of the packet can be compressed on an individual service flow basis.
Unicast and Multicast Service	Each service flow can be unicast (i.e., intended for a specific remote) or multicast (i.e., intended for all remotes).
Security	Authentication EAP, AES-128 Encryption
Mechanical / Electrical / Environmental	Description
User Interfaces	(2) 10/100 Base T, RS232, Console All RJ45
RF Interfaces	GPS – SMA Connector RF – N Type 50 Ohm
Voltage	42 VDC to 60 VDC
Dimensions (inches) Weight (lbs)	8.5" x 4.75" x 2.75" 4 lb Aluminum Enclosure
Temperature	-40°C to +70°C