

IEEE 802.16s for Utility Field Area Networks

FullMAX Base Station BS1000

FullMAX Base Station BS2000



Base Station BS1000
19" Server



Base Station BS2000
Outdoor Enclosure

Product Highlights

- » IEEE 802.16s
- » Point-to-Multipoint, Point-to-Point
- » OFDMA, Time Division Duplexing (TDD)
- » PUSC / AMC Frequency Reuse
- » Configurable Channel Sizes From 40 kHz to 5 MHz
- » Broadband Data Rates
- » Up to 2,000 Remote Radios Per Sector
- » FCC Authorization Upper 700 MHz A Block, AMTS, IVDS, NPCS
- » Mobile and Fixed Application Support
- » Frequencies from 30 MHz to 958 MHz, TX Power up to 20 Watts

FullMAX Base Station Specifications



PHY Layer	Description
IEEE Standard	802.16s
Multicarrier Waveform	OFDMA, 128 FFT implementation of 802.16e (Mobile WiMAX), with modifications to support VHF/UHF frequencies and adaptable channel sizes.
Frequency Range	50 MHz to 1 GHz
Channel Size	Programmable from 50 kHz to 5 MHz
Duplex Method	TDD
BS TX Power	Up to 20 Watts (40 dBm) with internal PAs
Sub-Channelization	Supports both Partial Use of Sub-Channels (PUSC) and Band-AMC
Adaptive Modulation & Coding	QPSK 1/2 to 64QAM 3/4
End User Data Throughput Per channel size	Up to 3 bits per second per hertz e.g. 1 MHz Channel = Up to 3 Mbps
Adaptive Repetitions	1 or 2 code word repetitions
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)	As low as -116 dBm
CINR (dB)	QPSK 1/2 > 4 dB QPSK 3/4 > 7 dB 16QAM 1/2 > 11 dB 16QAM 3/4 > 15 dB 64QAM 1/2 > 15 dB 64QAM 2/3 > 18 dB 64QAM 3/4 > 21 dB
Frame Structure Configuration	<ul style="list-style-type: none"> - Configurable number of downlink and uplink symbols - Configurable duration of TDD frame gaps - PUSC offers up to 3 downlink sub-channels and 4 uplink sub-channels - Band-AMC offers up to 6 downlink sub-channels and 6 uplink sub-channels

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 QoS	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
ARQ	Retransmission can be configured per Service Class
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).
Layer 2 Loopback	Layer 2 broadcast traffic transmitted from behind a remote can be looped back at the Base Station and transmitted in multicast mode to all remotes.
Security	Authentication EAP, AES-128 Encryption
Mechanical / Electrical / Environmental	Description
User Interfaces	10/100 Base T, RS232
Voltage	110-230V AC, 9-36V DC
Dimensions (inches / cm) Weight (lbs / kgs) (including connectors)	Outdoor: 24.5" x 12.0" x 5.0" (35 lbs) 62cm x 30.5cm x 13cm (16 kg) Rack mount: 19.0 x 17.0 x 1.75 (10 lbs) 48cm x 43cm x 4.5cm (4.5 kg)
Temperature	-30°C to +70°C