

3.3 - 3.6 GHz / 5.8 GHz WiMAX Network Solutions

Our WiMAX Micro / Pico Base Stations, MBS/PBS, fully-redundant and scalable WiMAX base stations that are ideally suited for larger scale deployments. MBS/PBS enable carriers to simultaneously deliver a full range of revenue-generating WiMAX services -including VoIP, high-speed Internet, VPN, WiFi, streaming multimedia and online gaming - to millions of subscribers.

Fully-scalable with sectors, the MBS/PBS offer unique radio diversity capabilities for maximum coverage, capacity and throughput. MBS/PBS can simultaneously support both fixed and mobile WiMAX airborne technologies with optimized UDP/TCP/IP performance on tunable 3.3-3.6 GHz and 5.8 GHz of WiMAX spectrum.

The MBS/PBS are fully redundant 802.16-2004 WiMAX-certified base stations that offer carriers industry-leading spectral efficiency and Non-Line-of-Sight (NLoS) range all of the basic and advanced WiMAX features, including Space-Time Coding (STC), sub-channeling, real-time QoS, ARQ, and antenna diversity. Their base station components, including the MBS/PBS, are software upgradeable which allow carriers to adapt their systems to evolving standards while ensuring maximum system gain, ease of deployment, and cost savings.

With its fast packet processing and advanced, QoS scheduler, the MBS/PBS provide carriers the ability to maximize revenues by delivering differentiated services that are guaranteed to meet SLA commitments—even during heavy traffic. And it is compatible with WiBorne's powerful network management system (NMS) supports a full-range of Operations, Administration, Maintenance, and Provisioning functions, so carriers can efficiently manage an unlimited number of base stations and subscribers.

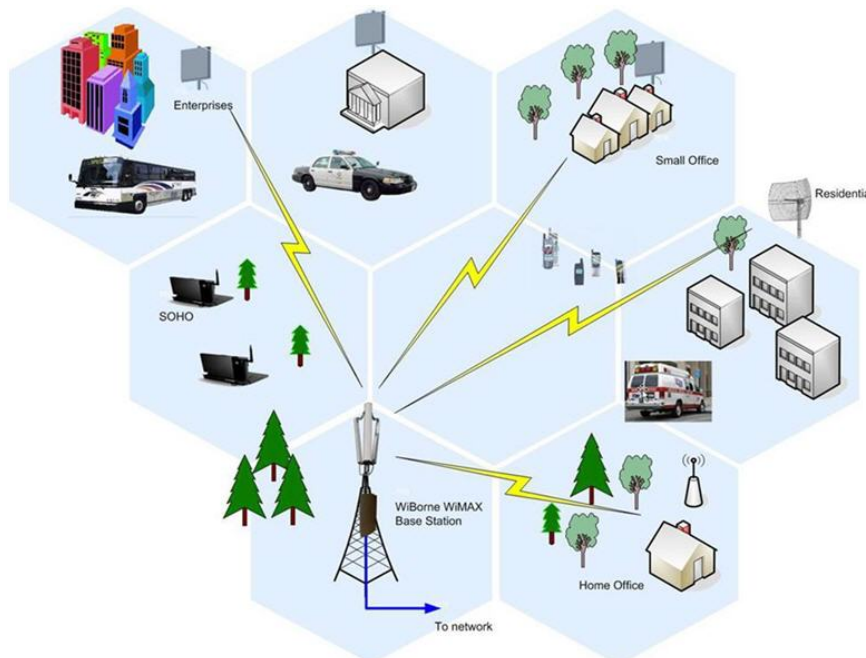
In addition to above standard MBS/PBS, we also offer models with OBSAI / Ethernet interface and adjustable power options, single/dual radio mode operation, and support of MIMO antenna design, with Mean time between failures (MTBF) exceeds 20 years.

❖ Features

- ❖ IEEE 802.16-2004
- ❖ All outdoor single sector units with multi-sectors for single base cell
- ❖ Light-weight and compact
- ❖ Licensed and unlicensed frequency bands
- ❖ 3.3-3.6 GHz, 5.8 GHz
- ❖ Quality of Service for various applications
- ❖ BPSK/QPSK/16QAM/64QAM modulation
- ❖ TDD operation
- ❖ Full IEEE 802.16 QoS/Service Classes
- ❖ Full IEEE 802.1d Transparent Bridging
- ❖ Cost-effective solutions

Targeted for various users:

- ❖ Corporates and Enterprises
- ❖ Small Offices
- ❖ Home Offices
- ❖ Residential Subscribers



3.3 - 3.6 GHz / 5.8 GHz WiMAX Base Stations



Micro Base Station

Micro Base Stations (MBS) for WiMAX

Our Micro Base Stations are based on WiMAX OFDM / IEEE 802.16-2004 standards. They transmit at 30dBm to the antenna. These units are ideal for far range and large subscriber network deployments. They are all-outdoor, weatherproof, sealed units for easy installation. **WiBorne MBS-3300** and **WiBorne MBS-3500** operate in 3.3-3.6 GHz while **WiBorne MBS-5800** operates in 5.8 GHz spectrum. They can be installed on towers, roof tops, walls, etc. Any external antenna can be attached to these units through an N type female connector. An Ethernet connection provides the connectivity to the network and also provides the Power over Ethernet capability through a power injector.

These units are deployed for Enterprise Data Access in urban environments, Voice over IP (VoIP), Cellular Backhaul and for residential internet and telephony access.



Pico Base Station

Pico Base Stations (PBS) for WiMAX

Our Pico Base Stations are based on WiMAX OFDM / IEEE 802.16-2004 standards. They transmit at 21dBm to the antenna. These units are ideal for near range and dense subscriber network deployments. They are all-outdoor, weatherproof, sealed units for easy installation. **WiBorne PBS-3300** and **WiBorne PBS-3500** operate in 3.3-3.6 GHz while **WiBorne PBS-5800** operates in 5.8 GHz spectrum. They can be installed on towers, roof tops, walls, etc. Any external antenna can be attached to these units through an N type female connector. An Ethernet connection provides the connectivity to the network and also provides the Power over Ethernet capability through a power injector.

These units are deployed for Enterprise Data Access in urban environments, Voice over IP (VoIP), Cellular Backhaul and for residential internet and telephony access.

AAA and NMS Servers for WiMAX

WiBorne network management system (NMS) provides complete TMN functionalities (Fault, Configuration, Accounting, Performance and Security). And WiBorne Authentication Authorization and Accounting (AAA) servers provide complete Subscriber management system. The implementation is based on SNMP v2 protocol. The plug-and-play capability developed by WiBorne makes network installation and commissioning simple and easy. WiBorne's open architecture allows easy integration into any existing network management and billing systems of operators and service providers. These software can be easily installed onto any PC or Server and highly scalable and robust making it easier for a service provider to manage and operate a network.

Parameter Name	Min	Max	Default Value	Value
T1 Ranging Response Processing Time	10	2000	20	20
T1 CSAC/CSGD Response Timeout	20	1000	1000	1000
T1 CSAC/CSGD Acknowledge Timeout	30	300	300	300
T1 Registration (REG-RSP to SBC-REQ) Timeout	200	1000	200	200
T10 CSAC/CSGD Transaction End Timeout	1000	3000	3000	3000
T13 (S) RES-RSP to SS TTP-CPL Timeout	600	1800	600	600
T15 (S) CA-RSP Timeout	20	1000	30	30
T17 (Time allowed for SS to complete Authentication and key)	200	1000	200	200
T22 (R)G-Reset Timeout	20	500	500	500
T27 (S) Active Timer (Maximum time between successful grants to SS)	20	50000	20000	20000

3.3-3.6 / 5.8 GHz WiMAX Base Stations: MBS/PBS

System Specifications	3.3-3.6 GHz	5.8 GHz
Models	Micro Base Station: MBS-3300, MBS-3500 Pico Base Station: PBS-3300, PBS-3500 (1 Sector Outdoor Units)	Micro Base Station: MBS-5800 Pico Base Station: PBS-5800 (1 Sector Outdoor Units)
Standard	IEEE 802.16-2004	IEEE 802.16-2004
Frequency	3.3-3.4 GHz, 3.4-3.5 GHz, 3.5-3.6 GHz	5.7-5.9 GHz
Modulation	OFDM - 64QAM 3/4, 64QAM 2/3, 16QAM 3/4, 16QAM 1/2, QPSK 3/4, QPSK 1/2, BPSK 1/2	OFDM - 64QAM 3/4, 64QAM 2/3, 16QAM 3/4, 16QAM 1/2, QPSK 3/4, QPSK 1/2, BPSK 1/2
Duplex Method	TDD, HFDD	TDD, HFDD
Channel bandwidth	3.5 MHz, 7 MHz (Software Configurable)	3.5 MHz, 7 MHz, 10 MHz
Configurable Cyclic Prefix	1/4, 1/8, 1/16, 1/32	1/4, 1/8, 1/16, 1/32
Maximum Rated Output Power	+21 dBm at Antenna Port (Pico Base Station) +30 dBm at Antenna Port (Micro Base Station)	+15 dBm at Antenna Port (Pico Base Station) +24 dBm at Antenna Port (Micro Base Station)
Networking		
Protocols	IPv4, VLAN	IPv4, VLAN
Bridging/Routing	Yes	Yes
Services & Provisioning		
QoS	UGS, rt-PS, nrt-PS, BE	UGS, rt-PS, nrt-PS, BE
Access Control Lists	Minimum Data Rate, Data Rate Limiting	Minimum Data Rate, Data Rate Limiting
Security	3DES	3DES
Interfaces		
Backhaul	10/100 BaseT; PoE (Power over Ethernet)	10/100 BaseT; PoE (Power over Ethernet)
Antenna	N-type (Any Antenna - Omni, 60/90/120, etc)	N-type (Any Antenna - Omni, 60/90/120, etc)
Management		
Management Protocol	SNMP V2	SNMP V2
Remote upgrade & Remote Management	Yes	Yes
Mechanical		
Operating Temperature	-45° C to +55° C	-45° C to +55° C
Dimensions	11" X 9" X 4" (maximum) - Pico Base Station 17" X 10" X 3" (maximum) - Micro Base Station	11" X 9" X 4" (maximum) - Pico Base Station 17" X 10" X 3" (maximum) - Micro Base Station
Mounting	Pole Mount (1.5" to 2" diameter pole)	Pole Mount (1.5" to 2" diameter pole)

Note: Production appearance and specification are subject to change without prior notice