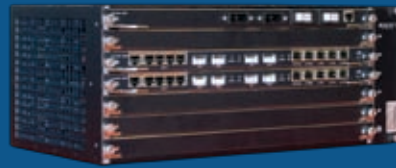


## STARMAX 6000 SERIES

### STARMAX 6000 SERIES WIMAX BASE STATION FOR FIXED AND MOBILE WIMAX

EION Wireless' StarMAX 6000 Series WiMAX base stations provide the flexibility, scalability and performance necessary to deliver highly competitive and innovative fixed, nomadic and mobile broadband triple-play services.



StarMAX 6400 Base Station

The 6000 Series reduces both capital expense and operating expense costs and increases your revenue for a faster return on investment. The 6000 Series architecture is designed for Mobile WiMAX—and is flexible enough to fully support future wireless, MIMO and beamforming technologies.

#### POWERFUL, MODULAR BLADE ARCHITECTURE

The StarMAX 6400 Series IDU supports up to four 6022 WiMAX blades plus one switch blade and one synchronization blade (6080 GPS Synchronization Module). A single, compact 6400 can support up to eight sectors that can be configured for immediate deployments with the flexibility of accommodating future requirements.

10/100/1000 BaseT connectivity options give an operator the advantage of using the backhaul that is available at each site. Each 6022 WiMAX blade is software upgradable with a fail-back option.

#### COMPACT HIGH DENSITY DESIGN MODEL

The StarMAX 6100 Series IDU has been designed to keep both modularity and tight space constraints of a typical deployment site in mind. It is offered in a 1U 19-inch rack-mountable form factor. Each 1U chassis is capable of supporting up to two sectors.

#### KEY FEATURES

- 2.3 GHz, 2.5 GHz, 3.3GHz, 3.5 GHz and 3.6 to 3.8 GHz TDD Solutions
- WiMAX 802.16e-2005 compliant with MIMO (Matrix A/B), PUSC, Hybrid ARQ
- Maximum coverage and capacity through high transmit powers, multiple antenna system support and superior robustness through advanced interference mitigation techniques
- Enables corporate, residential and personal services

#### FLEXIBILITY AND EASE OF DEPLOYMENT

- Scalable high-density solution (available in 1-8 sector or 1-2 sector models)
- GE and Fast Ethernet uplinks
- Multiple clocking configurations with 8 and 24 hour holdover
- In-band or out-band management
- CLI, SNMPv2 for management

## ADVANCED NETWORKING FEATURES

The IDU blade implements several enhanced modes of WiMAX for performance differentiation. These include:

- Increased IP payload throughput through Payload Header Suppression (PHS)
- Advanced Layer 6 support including double VLAN tagging

## CARRIER CLASS RELIABILITY

The IDU features a rugged design with hot-swappable blades and a removable cooling fan tray to ensure reliability and high performance in adverse conditions and short maintenance cycles. High reliability configurations can be built by adding redundant blades to the system. The equipment is built to meet ETSI form factor requirements for 300mm rack depth and back-to-back mounting.

### 6022 WIMAX BLADE

The 6022 can be fitted with one or two 16e PMP daughter boards, each serving one sector with MIMO. Up to four of these blades can be placed into the 6400 chassis, enabling operation of up to eight sectors—with or without MIMO. IDU/ODU connection is realized through an optical interface.



**6022: Mobile WiMAX IDU serving 2 sectors MIMO A/B Matrix**

The chassis also supports a special synchronization blade, the StarMAX 6080. It can use different synchronization sources (GPS, 1PPS, 10MHz). A single StarMAX 6080 synchronization blade can feed four WiMAX blades (on backplane or in front) with adequate synchronization signal of high stability and availability, including 8 hour and 24 hour holdover.

### 8200—ODU RADIO UNIT

The 8200 ODU unit serves as the high TX power radio for each sector. Each 8200 has two transceivers in the same housing to support 2x2 MIMO with a single ODU unit. For maximum radio performance two separate cables are used: one optical for IDU/ODU interconnection and one copper power supply cable for powering the ODU. Using an optical cable for IDU/ODU interconnection eliminates all of the attenuation, signal loss and performance reduction that happens with systems using coax connections. Both cables have weather-proof connectors.



**StarMAX 6100 Base Station**

**FULL-FLEDGED NETWORK MANAGEMENT**

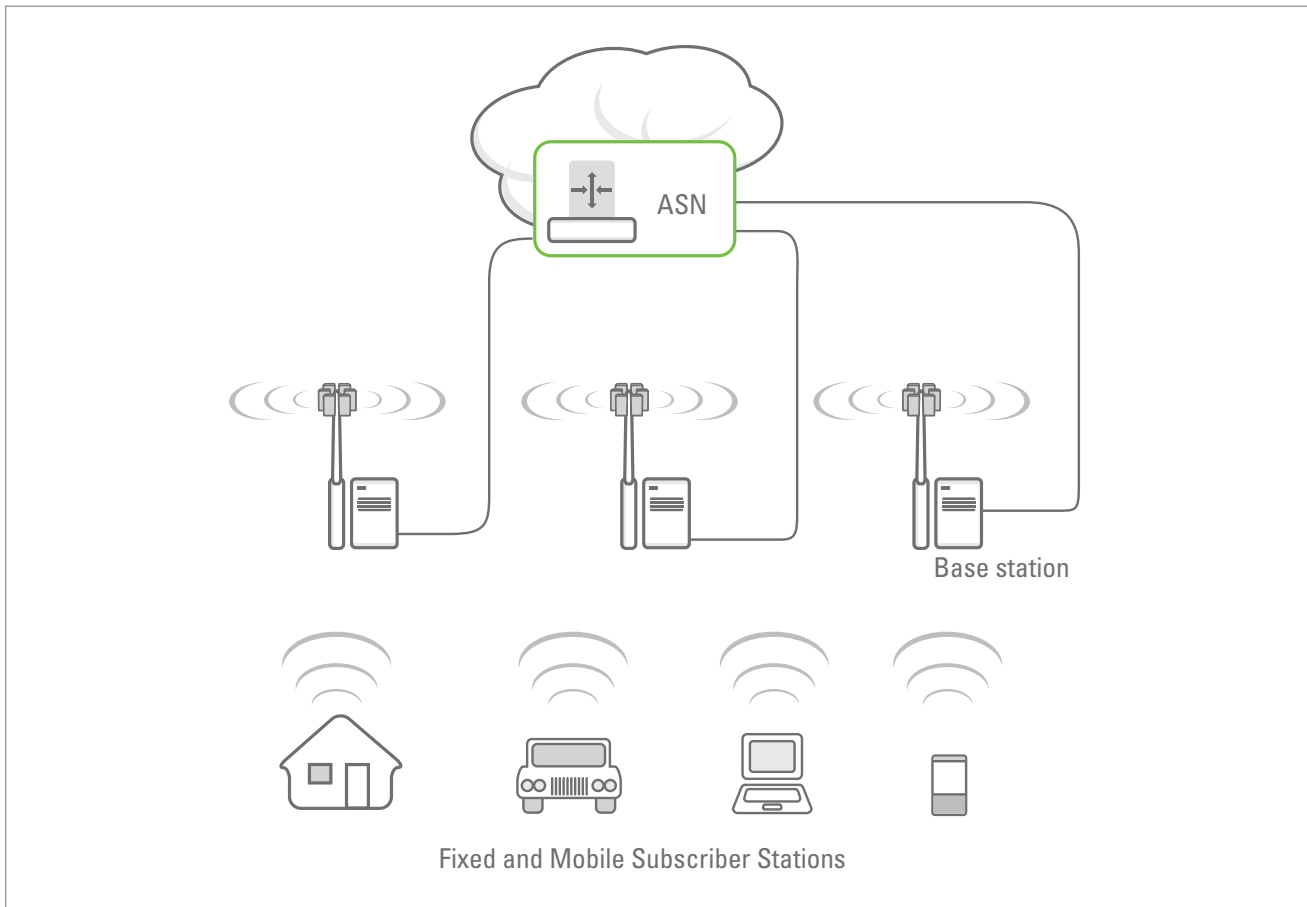
StarMAX 6000 operators can implement full Fault Configuration Accounting Performance Security (FCAPS) functionality on a client-server architecture based on SNMPv2. This provides complete monitoring and control of all parts of the WiMAX network including provisioning, performance, Ethernet bandwidth reporting, and inventory management.

**MOBILE WIMAX ACCESS SERVICE NETWORK (ASN)**

ASN specifications of Mobile WiMAX define the interoperability among end-user devices, Base Stations and the CSN infrastructure including authentication, control of user services and mobility management. The 6000 Series integrates seamlessly with the EION industry award-winning Wireless Services Gateway (WSG) for full featured service provider networks and the lightweight ASN Express and EION AAA Express for enterprise applicaitons.



**8200: Mobile WiMAX ODU with integrated 2TX and 2RX**



**DATASHEET**  
**STARMAX 6000 SERIES**

<b>GENERAL</b>	<b>6400 WITH 6022 AND 8200</b>	<b>6100 WITH 6022 AND 8200</b>
RF PHY	S-OFDMA	
Frequency Bands	2.3 – 2.4 GHz, 2.50 – 2.69 GHz, 3.30 – 3.40 GHz, 3.4 – 3.6 GHz, 3.6 – 3.8 GHz	
Channel BW	3.5, 5, 7, 10MHz	
Duplex Method	TDD	
BS Synchronization	GPS or dedicated blade 6080	
IDU-ODU Interconnection	Optical (MM)	
Backhaul Options	Gig Eth, 10/100 Eth	
Scalability	1-8 Sectors	1-2 Sectors
<b>WIMAX</b>		
WiMAX Specification	IEEE 802.16e-2005, Wave 2	
Dynamic Modulation Supported	64QAM, 16QAM, QPSK	
TX Power Maximum	+40dBm (+36dBm or +40dBm depending on frequency)	
RX Sensitivity (QPSK,5MHz)	-97dBm	
Cyclic Prefix	1/8	
Diversity	MIMO (A/B)	
Air Link Optimization	Hybrid ARQ, PUSC, Payload Header Suppression (PHS)	
<b>ANTENNAS</b>		
Antenna Supported	Any (from omni to 60/90/120 deg.)	
<b>SERVICES</b>		
Service Flows per Subscriber	16	
Service Flows per Sector	2048	
QoS WiMAX	BE, nrt-PS, ert-PS, rt-PS, UGS	
Packet Priority	802.1Q VLAN, Diffserv	
Security	X.509 cert. PKMv2	
Encryption	AES	
<b>MANAGEMENT</b>		
Protocol	SNMP, CLI	
SW Upgrade	Fail-save SW upgr. ; configuration file up-/ download	
Network Management	CLI, ProVision EMS	
GUI	Craft Tool, Provision EMS	
<b>ARCHITECTURE</b>		
Blade System	4 slots for WIMAX, 1 for sync	1 slot for WIMAX
<b>MECHANICAL / ELECTRICAL</b>		
Interfaces per WiMAX Blade		
WAN interface	1 GBE and 10/100 Base-T on RJ-45 Electrical	
Management Interface	10/100 Base-T and serial on RJ-45	
Clock Interface	1PPS or GPS on BNC	
Clock Holdover (with 6080 Synchronization Module)	8/ 24 hours	
PWR interface	dual -48V DC	
IDU/ODU	optical (LC)	
Voltage	-48V DC to -60V DC (-15%, +20%)	
Power Consumption	250W (single sector) to 2000W (8 sectors)	
IDU Dimensions (height-width-depth)	4U = 176mm (6.9 in) x 430mm (16.9 in) x 275mm (10.8 in)	1U = 44mm (1.7 in) x 444mm (17.5in) x 230mm (9.1 in)
ODU Dimensions (height-width-depth)	510mm (20.1 in) x 340mm (13.4 in) x 165mm (6.5 in)	
Weight IDU	4U = 10 kg (22.0 lb)	1U = 5 kg (11.0 lb)
Weight ODU	<15 kg (<33.1 lb)	
Rack-pole Requirements	IDU = 19" and 23", ODU = up to 120 mm pole	
Environmental IDU	Temperature: 0°C to 50°C (+32°F to +122°F) Humidity: 5% to 95% noncondensing	
Environmental ODU	Temperature: -45°C to 55°C (-49°F to +131°F) Humidity: 0% to 100%	
Regulatory Compliances	ETSI, CE, FCC, UL, RoHS/WEEE	

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