



PacketMAX® 5000 Base Station

Carrier-Grade WiMAX Base Station

Built for performance, reliability and scale, Aperto's PacketMAX® 5000 is the world's first base station certified by the WiMAX Forum®.

Product Specification

PacketMAX 5000

With PacketMAX 5000, Aperto delivers the industry's highest density, highest capacity, and highest performing base station. Designed for modular growth and service evolution, the PacketMAX 5000 sets a new standard for carrier-grade WiMAX base stations.

The WiMAX Forum® Certified PacketMAX 5000 base station series operates in licensed and license-exempt bands. It supports deployment in the 3.3GHz, 3.5GHz, 5.1GHz, 5.4GHz and 5.8GHz frequency bands. Designed to accommodate up to 12 wireless sectors, the ATCA carrier-grade chassis for PacketMAX 5000 system requires just 5U of rack space. This space-saving solution allows operators to offer a broad range of voice, data, and multimedia services in dense urban areas, while driving down the operational and capital outlays required to scale the network.

The PacketMAX 5000 modular design accommodates a large number of deployment options like redundant 6-sector base stations and redundant 4-sector base stations. Carrier-grade design elements in the PacketMAX 5000 include redundant sub-systems for power and main system controller.

The service intelligent PacketMAX system can handle thousands of subscribers, whether they're spread out in suburban neighborhoods or located in densely populated urban areas. As bandwidth and subscriber needs increase, network operators can easily add channels or new sectors within the cell. Multiple PacketMAX 5000 base stations can be stacked to provide additional bandwidth using multiple channels per sector. And additional cells can be deployed to extend the service capacity and coverage footprint.

PacketMAX 5000 is fully remote managed by Aperto Wavecenter EMS Pro, including subscriber provisioning and over-the-air fail-safe software upgrades. The SNMP-compliant network management software can be used for configuration, fault, performance, and security management.

Typical Applications

- Last mile, carrier deployments supporting small initial rollouts, growing to support thousands of subscribers in a single 5U platform
- Ideal for including multi-user, and multi-service business and consumer
- Scalable VoIP service with per-subscriber QoS and dynamic link adjustment
- Licensed or unlicensed WiMAX backhaul for municipal (mesh) network or cellular network (remote site traffic)
- Bandwidth-hungry video and data applications requiring low latency and predictable performance



PacketMAX 5000

KEY FEATURES

- WiMAX Forum Certified
- Highest capacity, highest density WiMAX base station
- IEEE 802.16-2004 and 802.16-2005 sector in a single chassis
- Comprehensive system redundancy for carrier-grade resilience
- Suitable for fixed, and nomadic applications
- Compatible with all PacketMAX outdoor radios
- Full remote-management capability with Aperto's WaveCenter EMS Pro®

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Wireless to the MAX

PacketMAX 5000 System Specifications

Radio and System Specification

Compliance	: WiMAX Forum Certified™, IEEE 802.16-2004, ETSI HiperMAN,
Duplex Mode, PHY	: TDD, OFDM 256 FFT
Frequency	: 3.3 - 3.4 GHz; 3.4-3.6; 3.65GHz; 5.15 – 5.35 GHz, 5.475 – 5.725 GHz, 5.725-5.925 GHz
Channel Bandwidth	: 3.5 MHz, 5.0 MHz, 7.0 MHz
Step Size	: 250 KHz, (3 GHz); 500 KHz (5 GHz)
Radio Output Power	: 20 dBm (3 GHz) and 17 dBm (5 GHz)
Receiver Sensitivity	: -96 dBm
Modulation	: QPSK, 16QAM, 64QAM
Forward Error Correction	: Convolution coding 1/2, 2/3, 3/4
Cyclic Prefix	: 1/16

IP Networking Features/Options

IP Version	: IPV4 (RFC 791)
Bridging Mode	: IEEE 802.1d
Routing	: Static
VLANs	: IEEE 802.1 P/Q

Security/ Encryption

Authentication	: X.509 Based Authentication
Encryption	: DES for Data Encryption; 3DES Key Encryption

Multi-Service/Multi-User Support

Traffic Classifier	: Layer 2, Layer 3, Layer 4 parameters
Scheduling/QoS	: UGS, nrtPS, BE
Max # of Sectors	: Up to 12
Active Connected Subscriber Units	: Up to 6144 (512 per Sector)
Uni-directional Service Flows	: Up to 7168 Managed per Sector

Carrier Grade Features

Chassis	: 5U Advanced TCA; 19" telco rack mountable
Power Options	: -48 VDC; AC
Modularity	: Individually deployable wireless sectors, fan unit, main system controller units
Redundancy	: Main system controllers: 1:1, power distribution: 1:1 for load sharing

Physical Interfaces

External Backhaul	: 1 x 100 BT, 1 x 1000 BT (RJ45)
Management	: 10/100 BT; RS-232 (RJ45): 10 BT (RJ45) for shelf manager; RS-232
External Clock, Synchronization	: 1 PPS Sync (BNC)/10 MHz Clock (BNC)
Antenna Port	: Type-N
Radio Interface	: IF Port (Type-F)

Management

Remote Management, Provisioning, and Monitoring	: Centralized using WaveCenter EMS Pro
SNMP Support	: MIB II (RFC 1213), WiMAX (IEEE 802.16f) MIB, Aperto Enterprise MIB; SNMP V2

Mechanical

Indoor Unit Dimensions (W*D*H)	: 19 x 17 x 8.6 (inches), 48.2 x 43.1 x 21.8 (cm)
Indoor Unit Weight	: 27lbs / 12.2kg (chassis only); 37lbs / 16.8 kg (4 sector, 1 MSC, 1 Fan Unit, DC)
Outdoor Unit Dimensions (L*H*W)	: 11.75 x 11.75 x 2.75 (inches), 29.8 x 29.8 x 7 (cm)
Outdoor Unit Weight	: 10 lbs / 4.5kg
IDU-ODU Distance	: Up to 250 m

Electrical

Input DC Voltage	: -42 to -58 volts (recommended), -36 to -72 volts (maximum)
Input AC Voltage	: 85 to 264 VAC, 47 to 63 Hz
Max Power Consumption	: 910W DC & 930W AC

Environmental

	Indoor	Outdoor
Weather Protection	: NA	: IP65/NEMA-4
Operating Temperature (Outdoor Unit)	: 0 - 40 Degree Celsius	: - 35 - 60 Degree Celsius
Humidity (Outdoor Unit)	: 90%, non-condensing	: 95%, non-condensing
RoHS Compliance	: Yes	: Yes

About Aperto Networks

Aperto Networks helps leading service providers deliver affordable wireless voice and broadband profitably by building the world's most advanced WiMAX base stations and subscriber units. Aperto fundamentally changes the economics of delivering voice and broadband services through IP-rich, point-to-point and point-to-multipoint networks, allowing carriers to offer a wider variety of services to more customers using less equipment. Its carrier-class WiMAX technology offers industry-leading subscriber density, quality of service, ease of use and reliability. Aperto is a founding board member of the WiMAX Forum as well as a founder and lead contributor to IEEE 802.16 and the ETSI-BRAN standards. Serving more than 400 customers in over 90 countries, Aperto Networks is based in Milpitas, California. For more information on Aperto Networks, go to www.apertonet.com.