

## Carrier-class All Outdoor Broadband Wireless Access Platform

# BreezeMAX<sup>®</sup> Macro Outdoor

**BreezeMAX Macro Outdoor is an all outdoor, carrier-class WiMAX™ 802.16e certified platform for wireless access and an integral part of the 4Motion® solution. Leveraging years of experience and industry leadership, BreezeMAX Macro Outdoor incorporates Alvarion's SentieM technologies for optimized air link coverage and capacity providing best value for operators.**



### BreezeMAX Macro Outdoor System Components

BreezeMAX Macro Outdoor is a modular, scalable and reliable all outdoor base station which features flexible installation capabilities. BreezeMAX Macro Outdoor is comprised of the following building blocks:

**BreezeMAX Macro Outdoor NAU (Network Access Unit)** which includes AU and NPU cards.

**BreezeMAX Macro Outdoor DAU (Dual Access Unit)** which includes two AU cards.

**BreezeMAX Macro Outdoor SAU (Single Access Unit)** which includes one AU card.

**ODU** outdoor access unit.

Based on the BreezeMAX Macro Indoor base station, BreezeMAX Macro Outdoor consists of the following modules:

**AU (Access Unit):** a programmable, cutting-edge WiMAX modem card, which ensures maximum resource utilization for both personal and primary broadband access. The AU implements four transmit/receive channels, is designed to support beamforming and MIMO Matrix A and B technologies, and is connected directly to remote radio outdoor units (ODUs).

**NPU (Network Processing Unit):** a central processing unit managing the base station components and all

connected subscriber units. The NPU can operate in either of the following two modes:

**ASN-GW mode:** includes the following functions:

- Traffic classification and connection establishment initiation
- Policy-based data switching
- Service level agreement management
- Overall base station, operation control and alarm management
- Distributed or centralized architecture

**Transparent mode:** includes traffic aggregation of all access units to and from the backbone via 100/1000 Mbps network interface.

**ODU (Outdoor Access Unit):** a high power remote radio unit that connects to an external antenna, and provides high system gain and interference robustness by utilizing high transmit power and low noise figure. Supporting up to 20 MHz bandwidth, the ODU is scalable for future options such as increased capacity through carrier multiplexing or wider frequency bandwidths. The BreezeMAX Macro Outdoor base station offers a range of ODUs featuring diverse configurations and streamlining 2<sup>nd</sup> and 4<sup>th</sup> order diversity.

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## Specifications

### Radio & Modem

Frequency  
2.0 GHz band  
2.3 GHz band  
2.5 GHz band  
3.3 GHz band  
3.5 GHz band  
3.6 GHz band

#### Access Method

SOFDMA

#### Channel bandwidth

5 MHz	10 MHz	7 MHz
512	1024	1024
5.6 MHz	11.2 MHz	8 MHz
10.9375 KHz	10.9375 KHz	7.8125 KHz
102.8571429 µs	102.8571429 µs	144 µs
91.42857143 µs	91.42857143 µs	128 µs
11.42857143 µs	11.42857143 µs	16 µs

Flexible DL/UL ratio for all channel bandwidths

3:1, 2:1, 1:1, 1:2\*, 1:3\*

\* future

### Data Connections

#### Parameter

Speed

Data Interface	100/1000 Mbps, Full Duplex with Auto Negotiation
Management Interface	10/100 Mbps, Half/Full Duplex with Auto Negotiation
Cascade Interface	100/1000 Mbps, Full Duplex with Auto Negotiation
Power	48VDC

### Mechanical

Parameter	Dimensions (cm)	Weight (kg)
NAU / DAU	42 x 34 x 28	15
SAU	42 x 34 x 14	7.5
ODU 1 Tx + 1 Rx	33 x 16 x 17	6.1
ODU 2 Tx + 4 Rx	42 x 34 x 28	15

### Mechanical

Operating temperature  
-40°C to 55°C  
Operating humidity  
5% -95%

### Power Consumption

#### Power Requirements:

DC:

48VDC

### AU to ODU Communication

Item	Description
IF frequency	Tx: 240 MHz Rx: 140 MHz
Reference synchronization frequency	64 MHz
Bidirectional control frequency	14 MHz
IF cable impedance	50 ohm

### Standards Compliance

Type	Standard
EMC	ETSI EN 301 489-1
Safety	EN 60950-1 (CE) IEC 60 950-1 US/C (TUV)
Environmental	ETSI 300 019: Part 2-1 T 1.2 & part 2-2 T 2.3 for indoor & outdoor Part 2-3 T 3.2 for indoor Part 2-4 T 4.1E for outdoor
Radio	ETSI EN 302 326 FCC part 15, part 25, part 27, part 90

### About Alvarion

Alvarion (NASDAQ: ALVR) is the largest WiMAX pure-player with the most extensive WiMAX customer base and over 250 commercial deployments around the globe. Committed to growing the WiMAX market, the company offers solutions for a wide range of frequency bands supporting a variety of business cases. Through its OPEN WiMAX strategy, superior IP and OFDMA know-how, and ability to deploy end-to-end turnkey WiMAX projects, Alvarion is shaping the new wireless broadband experience.