MacroMAXe is a class-leading 2nd generation Mobile WiMAX base station which employs the software defined radio (SDR) technology first developed for HiperMAX, together with dual radio transceivers, antennas and GPS receiver all in a highly integrated, physically small and light, all outdoor package.

MacroMAXe has been primarily developed for the 2.3GHz and 2.5GHz Mobile WiMAX bands and will be Wave 2 certified in these bands. The product has been designed to address the markets needs thru to 2011 and beyond by supporting the current and future air interfaces thanks to its SDR technology.

MacroMAXe is a remarkable base station product bringing together state-of-the-art technologies in a compact all outdoor package. Thanks to its small footprint MacroMAXe minimizes site OPEX expenditure. MacroMAXe is small in size but big in performance. Thanks to the efficient power amplifier technology employed in its RF implementation, MacroMAXe implements dual 40dBm (10W) radios for 2x2MIMO delivering up to 60dBm EiRP with the integrated antennas.

MacroMAXe initially supports 5MHz and 10MHz channel sizes. However, the product is capable of supporting 20MHz channels (Mobile WiMAX profile Rel. 1.5) as well. MacroMAXe has been designed to support either 2x10MHz (using dual PHY/MAC) or 1x20MHz channel.

MacroMAXe has been conceived for deployment in 3-sector configuration, which is the optimum configuration for Mobile WiMAX deployments. MacroMAXe design also incorporates an Ethernet switch which enables the traffic from 3 sectors to be aggregated for backhaul and network interfacing. MacroMAXe fully supports the interoperable R6 reference point for interworking with ASN Gateways either in a distributed or centralized network configuration.

In licensed band deployments available spectrum is a scarce and valuable resource. Therefore it must be used efficiently. In order to achieve frequency reuse factor of one (N=1) the best balance between spectral efficiency and interference mitigation must be achieved. This is realized through Fractional Frequency Reuse for which MacroMAXe has been optimized. Fractional Frequency Reuse controls co-channel interference to support frequency reuse of one with minimal degradation in spectral efficiency. MacroMAXe can also be deployed using traditional frequency reuse plans.

**Main Features**

- Supports 802.16e-2005 SOFDMA
- Supports 2.3GHz and 2.5GHz bands
- All-in-one single outdoor unit minimizes site OPEX
- Dual 40dBm radios
  - 60dBm EiRP with integrated antennas
- STC and MIMO support
  - Matrix A
  - Matrix B
- Supports 5/10/20MHz channel size
  - 2x5MHz
  - 2x10MHz
  - 1x20MHz
- Supports interoperable reference points defined by NRM
  - Supports interoperable R6 reference point
- Supports 512, 1024, 2048 FFT SOFDMA
- Compact and light form factor

**Network Architecture**

![Network Architecture Diagram](image-url)
<table>
<thead>
<tr>
<th>Feature</th>
<th>MacroMAXe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile WiMAX</td>
<td>Yes</td>
</tr>
<tr>
<td>Fixed WiMAX</td>
<td>No</td>
</tr>
<tr>
<td>Standards Compliance</td>
<td>IEEE802.16e-2005</td>
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<tr>
<td>Form Factor</td>
<td>All Outdoor</td>
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<tr>
<td>Frequency Bands</td>
<td>2.3GHz, 2.5GHz (700MHz - Future)</td>
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<tr>
<td>Channel Size</td>
<td>20MHz, 2x10MHz, 10MHz, 5MHz</td>
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<tr>
<td>FFT</td>
<td>2048, 1024, 512</td>
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<td>Duplex Method</td>
<td>TDD (FDD - Future)</td>
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<td>Tx Power (Frequency band dependant)</td>
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<td>Maximum EIRP per sector</td>
<td>+60dBm</td>
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<td>GPS Synchronization</td>
<td>8hr holdover, Integrated</td>
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<tr>
<td>STC</td>
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<td>MRC</td>
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<td>MIMO Matrix Type</td>
<td>Matrix A, Matrix B</td>
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<td>CSM</td>
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<td>Beamforming</td>
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<td>Uplink Sub-Channelization</td>
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<td>PUSC</td>
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<td>Fractional Frequency Reuse</td>
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<tr>
<td>Dynamic Frequency Selection (DFS)</td>
<td>No</td>
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<tr>
<td>Ethernet CS</td>
<td>Yes (Future)</td>
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<td>IP CS</td>
<td>Yes</td>
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<td>IP version support</td>
<td>IPv6, IPv4</td>
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<td>Network Interface</td>
<td>1000bT Ethernet / R6</td>
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<td>End to End VLAN (802.1Q)</td>
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<td>Network VLAN Traffic Segregation</td>
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<td>ASN Profile</td>
<td>Profile C</td>
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<td>Supported Usage Scenarios</td>
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<td>Handover Supported</td>
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<td>Encryption</td>
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<td>Authentication</td>
<td>PKM, PKMv2, EAP-TLS, EAP-AKA, EAP-SIM</td>
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<td>Environmental (outdoor elements)</td>
<td>ETS 300 019-1-4 Class 4.1E</td>
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<td>Environmental (indoor elements)</td>
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Note: Specifications are subject to change without notice and are for information purposes only.