Networks to next generation technology. Few other solutions provide a similar path to mobility.

BreezeMAX, a WiMAX Certified™ and 802.16e-based system, is an optimal solution to build out residential, business, MDU/MTU, hotspots, backhauls,

Addressing multiple markets

- uses space time coding (STC) and maximum ratio
- robust signaling processing for enhancing air link
- scalable base station configurations
- high power radios with 2nd or 3rd generation base station configuration, ideal for a wide range of deployment scenarios

Low cost of ownership - supports simple installation and demand based, "you pay as you grow" build-out enabling operators to penetrate new market segments rapidly, while maximizing OPEX

Carrier class services - meets the most demanding requirements of large service providers with high throughput and availability, component redundancy, and a flexible network management system (NMS)

High capacity and throughput - highly efficient and robust B2G and B2I, B2e based on protocol provides high broadband rates per subscriber of more than 10 Mbps net

Multi coverage - advanced orthogonal frequency division multiplexing (OFDM) enhances performance in non-line-of-sight (NLOS) conditions to ensure immunity to interference and multi-path impacts typical of deployments in densely populated, urban areas

End-to-end QoS - advanced QoS capabilities in the high-bandwidth B2I, B2G and DSIP classification and prioritization functions ensure true end-to-end QoS and support high quality data, voice and multimedia services

Adaptive modulation technology - maintains the bandwidth throughout the system over large distances by automatically adjusting modulation to respond to various signal qualities

Alvarion™ management system - a carrier-class network management system that simplifies network deployment and enables rapid expansion of a service provider’s customer base with effective fault management for quick resolution

Wireless technology a powerful consumer commodity for the home delivers instant broadband and makes self-installed CPEs using either a friendly application and support high quality data, voice and video services typical of deployments in densely populated, urban areas

High capacity and throughput - advanced QoS capabilities in the high-bandwidth B2I, B2G and DSIP classification and prioritization functions ensure true end-to-end QoS and support high quality data, voice and multimedia services

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Alvarion™ management system - a carrier-class network management system that simplifies network deployment and enables rapid expansion of a service provider’s customer base with effective fault management for quick resolution.
BreezeMax: Taking WiMAX to the MAX

BreezeMAX is a future-proof solution that offers operators with compelling economics, while migrating to a variety of existing WiMAX modems and services. BreezeMAX: Taking WiMAX to the MAX

BreezeMAX delivers broadband access services to a wide range of customers, including residential, multi-tenant, SOHO, SME, and large enterprise customers. BreezeMAX represents the sum total of Alcatel’s advanced technology capabilities and long-term field experience.

BreezeMAX features:
- High power for high performance
- Advanced QoS for handling multiple voice flows
- Low power consumption
- High efficiency

BreezeMAX is a high density, modular, self-install CPE that provides integrated voice and data networking services for both home and small business users. It features an advanced, integrated broadband router with comprehensive QoS, security, and management capabilities.

BreezeMAX PRO-S: Customized for WiMAX

The BreezeMAX PRO-S CPE is designed to provide operators with the flexibility to serve a variety of businesses and residential customers cost effectively with self-install flexibility. BreezeMAX PRO-S CPEs are all powered by Intel’s WiMAX chip.

BreezeMAX PRO-S CPEs offer a range of features:
- Advanced self-install capabilities
- Integrated voice and data services
- High performance

BreezeMAX PRO-S CPEs support a variety of business and residential environments, from small businesses to large enterprise customers. BreezeMAX PRO-S CPEs are designed to be easy to install and use, providing operators with a competitive advantage in the WiMAX market.

Networking Gateway CPE

The BreezeMAX networking gateway is a high performance, high density unit that connects to the antenna port and much more. The networking gateway presents operators with a powerful networking solution.

Networking Gateway CPE offers a high-speed, wireless broadband connectivity to

BreezeMAX PRO-S CPEs:
- Advanced self-install capabilities
- Integrated voice and data services
- High performance

BreezeMAX PRO-S CPEs support a variety of business and residential environments, from small businesses to large enterprise customers. BreezeMAX PRO-S CPEs are designed to be easy to install and use, providing operators with a competitive advantage in the WiMAX market.

Networking Gateway CPE offers a powerful networking solution for both home and small business users. It features an advanced, integrated broadband router with comprehensive QoS, security, and management capabilities.
BreezeMAX: Taking WiMAX to the MAX

BreezeMAX is a high-performance WiMAX solution aimed at optimizing reliability, flexibility and cost effectiveness, while offering advanced features to meet the needs of service providers, enterprise networks, and large enterprise campuses. BreezeMAX provides a robust, scalable platform for deploying wireless broadband networks that are reliable, flexible, and cost-effective.

Key Features:
- **Hot Swappable and High Availability:** All BreezeMAX components are designed to be hot-swappable, allowing for quick replacement without downtime.
- **Feeding Modules:** All the modules are designed to work together seamlessly, ensuring high availability.
- **Power Supply:** Each module is equipped with a redundant power supply, providing redundant power to ensure reliability.

The BreezeMAX product family includes:
- **BreezeMAX 2300 for the 2.3 GHz band**
- **BreezeMAX 3300 for the 3.3 GHz band**
- **BreezeMAX 5200 for the 5.2 GHz band**

**Base Station Equipment Components**

- **Base Station BMAX-BST-AU-ODU**
- **Modular BMAX-BST-SH**
- **Product Description:** BreezeMAX base station, with features such as VLAN tagging, traffic prioritization by IP DiffServ, fast switching, best base station selection, high output power, and ODU. Central provisioning is enabled through an AAA radius server ensuring full nomadic support. The BreezeMAX Si includes an installation software utility allowing simple and quick deployment.

**Base Station Equipment Components**

- **Equipment radio unit with integrated vertical antenna**
- **Feeding and Backup in One Unit**
- **Indoor Base Station BMAX-BST-BST**
- **Modular BMAX-BST-SH**
- **Product Description:** BreezeMAX base station, with features such as VLAN tagging, traffic prioritization by IP DiffServ, fast switching, best base station selection, high output power, and ODU. Central provisioning is enabled through an AAA radius server ensuring full nomadic support. The BreezeMAX Si includes an installation software utility allowing simple and quick deployment.

**Network Processing Unit (NPX):**
- **Network Processing Unit (NPX):** The NPX is the heart of the base station and serves as the central processing unit, managing the base station components and all sub-systems. It includes the following functions:
  - Traffic management: supports all the base station components that operate in TD mode.
  - Traffic aggregation of all access units to/from the data network.
  - Traffic classification and connection establishment/release.
  - Service level agreements (SLA) management.
  - Base station overall management, operation control and alarms management.

**Base Station Equipment Components IDU Broadband Data & Voice - Gateway, Data Network:**

- **Broadband Data & Voice - Gateway, Data Network**
- **Base Station Equipment Components IDU Broadband Data & Voice - Gateway, Data Network**
- **Product Type:** 802.11b/g wireless access point.
- **Product Description:** The networking gateway CPE has four 10/100 BaseT ports and an 802.11b/g wireless access point. It provides integrated voice and data, with features such as static & dynamic routing, QoS, comprehensive IP-sharing and firewalling, LAN functionality. With features such as an Ethernet switch, router, firewall, and DHCP server, the networking gateway presents operators with a competitive, high-quality home networking solution.
BreezeMAX: Taking WiMAX to the MAX

BreezeMAX is a future-proof solution that offers operators reliability, flexibility and compelling economics, while migrating their networks to a standard WiMAX 802.16e architecture. BreezeMAX is designed to be a scalable, network-efficient platform that features high speed, reliability, and interference robustness, utilizing high transmit power and low noise figure. Its main functions include:

- Reliability: Combining functionality and radio link redundancy.
- Flexibility: Offering self-install capabilities that improve CPE economics and low deployment and training costs.
- Economics: Providing operators with competitive WiMAX CPE pricing, accelerating the WiMAX market launch and for the bandwidth management.

The BreezeMAX platform provides operators with simple CEFRP coverage to serve a variety of business and residential customers cost-effectively with self-install flexibility. BreezeMAX CPEs are all powered by Intel’s WiMAX chip.

BreezeMAX PRO-S Customer Premise Equipment (CPE)

The BreezeMAX PRO-S CPE is comprised of an indoor unit (IDU) and a subscriber outdoor unit (ODU). It combines the modem, radio, data processing and management components, and it also contains an integral high gain flat antenna for NLOS deployments. An ODU with a connector to an external antenna is also available.

The PRO-S ODU is available in multiple network configurations that optimize latency for a variety of residential and SOHO users. A single PRO-S ODU can support up to 8 simultaneous connections directly to the ODU in a category 5 Ethernet cable that carries the data traffic; power and control signals between the ODU and ODU.

BreezeMAX PRO-S Indoor BMAX-CPE-IDU-4D1V BreezeMAX PRO-S indoor CPE unit
BreezeMAX PRO-S Outdoor BMAX-CPE-ODU-PRO-SE BreezeMAX PRO-S outdoor CPE unit

BreezeMAX Si (Self-Install) CPE

BreezeMAX Si is Alvarion’s self-installable, nomadic WiMAX subscriber unit, which provides broadband connectivity to residential and SOHO users. It is a complete indoor solution, without the need for an ODU. Central provisioning is enabled through an AAA radius server ensuring full nomadic support. The BreezeMAX Si includes an installation software utility enabling self-install and automatic service activation.

The broad band voice gateway CPE has four 10/100 BaseT or USB 1.1/2.0 Ethernet network interfaces. The powerful networking solution not only enables competitive high-speed connectivity sharing for multiple users, but also brings the flexibility of high-speed, wireless broadband connectivity to farms, business centers, and nomadic applications.

The networking gateway CPE includes a self-installable, nomadic indoor CPE and an outdoor ODU. It offers full nomadic support for both home and small business users. It features an advanced integrated broadband router with comprehensive IP sharing and security capabilities.

BreezeMAX PRO-S Indoor BMAX-CPE-IDU-4D1V BreezeMAX PRO-S indoor CPE unit
BreezeMAX PRO-S Outdoor BMAX-CPE-ODU-PRO-SE BreezeMAX PRO-S outdoor CPE unit

Networking Gateway CPE

The BreezeMAX networking gateway solution is a complete wireless networking gateway for both home and small business users. Its features an advanced integrated broadband router with comprehensive IP sharing and security capabilities.

The networking gateway CPE has four 10/100 BaseT or USB 1.1/2.0 Ethernet network interfaces. The powerful networking solution not only enables competitive high-speed connectivity sharing for multiple users, but also brings the flexibility of high-speed, wireless broadband connectivity to farms, business centers, and nomadic applications.
Product Highlights & Advantages

BreezeMAX, a WiMAX Certified™ and 802.16e-based system, is an optimal solution to build out networks to next generation technology. Two other solutions provide a similar path to mobility.

- **WiMAX architecture** - based on the WiMAX Forum’s standard implementation of the IEEE 802.16 and ETSI HIPERLAN industry specifications for wireless access in metropolitan area networks (MANs)
- **Next generation technology** - delivering fixed and nomadic services today and mobile in the future
- **Multiple frequencies** - BreezeMAX operates in the 2.3, 2.5, and 3.5 GHz frequency ranges
- **Scalable station configuration** - high-density macro base station configuration, ideal for a wide range of deployment applications
- **High power multiple diversity radio system** - the base station features high power radios with 2nd or 3rd order diversity that enhance the link budget, allowing coverage for self-install CPEs
- **Character class services** - meets the most demanding requirements of large service providers with high throughput and availability, component redundancy, and a flexible network management system (NMS)
- **High capacity and throughput** - high-efficient and robust B2G and B2I-based on protocol provides high broadband rates per subscriber of more than 10 Mbps net
- **Multi coverage** - advanced orthogonally frequency division multiplexing (OFDM) enhances performance in non-line-of-sight (NLOS) conditions to ensure immunity to interference and multi-path conflicts typical of deployments in densely populated, urban areas
- **End-to-End QoS** - advanced QoS capabilities in the B2I-to-BG, B2I-JPM and JPM classification and prioritization functions ensure true end-to-end QoS and support high-quality, data services
- **Adaptive modulation technology** - maintains the bandwidth throughout the system over large distances by automatically adjusting modulation to respond to various signal conditions
- **AlvarITM management system** - a carrier-class network management system that simplifies network deployment and enables rapid expansion of a service provider’s customer base with effective network management for quick resolution

Specifications

- **Air Interface** - IEEE 802.16e-2004 / IEEE 802.16-2005
- **Data** - IEEE 802.3 CSMA/CD
- **Modulation** - OFDM, BPSK, QPSK, 16QAM, 64QAM
- **Channel bandwidth** - 3.5 MHz, 5 MHz, 7 MHz, 10 MHz (SW selectable)
- **Central frequency resolution** - 160 kHz
- **TDMA TDD** - 1.67 ms frame size, soft handoff, higher multiplexing ratio, advanced frequency planning with band hopping
- **TDMA FDD** - 1.25 or 2.5 ms frame size, dedicated control and data channels
- **Air interface capacity** - 16QAM, 64QAM
- **Range Coverage** - indoor - approx. 35-100m (114-328 ft)
- **Power Consumption (max)** - Outdoor CPE: 25 W, 1420 Watt
- **Power Source** - 100-240 VAC, 50-60 Hz, -36 to -72 VDC
- **Parameter** - Subscriber Unit
- **Modular Base Station**

**Documentation**

- **Radio FCC part 27, ETSI EN 301 021 V1.4.1, ETSI EN 301 753 V1.1.1**
- **Environmental ETS 300 019 (part 2-1 T 1.2 & part 2-2 T 2.3 for indoor & outdoor)**
- **EMC ETSI EN 301 489-1**

**Parameter**

- **Value**

**Specifications**

### Air Interface

- **2.3 GHz Band**
  - Frequency Range: 2.305 - 2.360 MHz
- **2.5 GHz Band**
  - Frequency Range: 2.570 - 2.635 MHz
- **3.5 GHz Band**
  - Frequency Range: 3.500 - 3.600 MHz

### Data

- **802.16 Standard**
- **QoS**
- **Traffic Classification**
- **Layer 2**
- **IEEE 802.1p, IP DiffServ Code Points (DSCP)**

### Air Interface

- **Modulation**
- **16QAM, 64QAM**
- **TDMA TDD**

### TDMA FDD

- **1.25 or 2.5 ms frame size**
- **Dedicated control and data channels**

### TDMA TDD

- **1.67 ms frame size**
- **Soft handoff**
- **Advanced frequency planning with band hopping**

### Operating Temperature

- **-40°C to 55°C (-40 - 131°F)**

### Power Consumption (max)

- **Outdoor CPE: 25 W, 1420 Watt**
- **Self Install CPE: 12.5 W**

### Power Source

- **100-240 VAC, 50-60 Hz, -36 to -72 VDC**

### Frequency Bands

- **2.3 GHz Band: 2,305 - 2,360 MHz**
- **2.5 GHz Band: 2,570 - 2,635 MHz**
- **3.5 GHz Band: 3,500 - 3,600 MHz**

### Modulation

- **BPSK, QPSK, 16QAM, 64QAM**

### Channel Bandwidth

- **3.5 MHz, 5 MHz, 7 MHz, 10 MHz (SW selectable)**

### Central Frequency Resolution

- **160 kHz**

### Key Features

- **Advanced QoS capabilities**
- **End-to-end QoS**
- **Adaptive modulation technology**
- **Scalable station configuration**
- **High power multiple diversity radio system**

**Let the Industry’s Most Mature and Future Proof Platform Take You Mobile**

Alvarion is answering carrier’s need for a complete end-to-end WiMAX solution for personal broadband services by leveraging its advanced base station, networking, and management technology, as well as a wide range of end devices to create its WiMAX™ solution. With the most recent version using 802.16e, BreezeMAX addresses carrier’s current challenge in deploying fixed, nomadic, and ultimately mobile broadband services to their customers. BreezeMAX™ is a carrier-class network management system that simplifies network deployment and enables rapid expansion of a service provider’s customer base with effective network management for quick resolution.

- **BreezeMAX™ 2300/2500/3500**

For more information, visit [Alvarion's website](http://www.alvarion.com).
BreezeMAX, a WiMAX™ Certified™ and 802.16e-based system, is an optimal solution to build out networks to next generation technology. Two other solutions provide a similar path to mobility.

Product Highlights & Advantages

- **WiMAX® architecture** - based on the WiMAX Forum’s standard implementation of the IEEE 802.16-2004 and ETSI HIPERMAN industry specifications for wireless access in metropolitan area networks (MAN)
- **One infrastructure** - delivering fixed and nomadic services today and mobile in the future
- **Multiple frequencies** - BreezeMAX operates in the 2.3, 2.5, and 3.5 GHz frequency ranges
- **Nomadic ‘plug and play’ solution** - easy and simple, self-installed CPEs using either a friendly application (OA) or a smartphone to enable automatic provisioning for the home delivers instant broadband and makes wireless technology a powerful consumer commodity
- **Scalable base station configurations** - high density macro base station configuration, ideal for a wide range of deployment scenarios
- **High power multi diversity radio system** - the base station features high power radios with 27” or 46” diversity that enhance the link budget to allow coverage for self-install CPEs
- **Robust signaling processing** for enhancing air link and full-time coding (FEC) and maximum (OA) combining (MRC) to leverage a multi diversity radio system for maximization of the link budget
- **Addressing multiple markets** - with a wide range of VLAN suitable for managing tiered services for residential, business, HFC/RF, hotspots, backhauls, and wireless home networking applications
- **Low cost of ownership** - supports simple installation and demand-based, ‘you use, you pay’ build-outs enabling operators to penetrate new market segments rapidly, while maximizing OPEX
- **Carrier class services** - meets the most demanding requirements of large service providers with high throughput and availability, component redundancy, and a flexible network management system (NMS)
- **High capacity and throughput** - highly efficient and robust B2G and L2G, L2e-based protocol provides high broadband rates per subscriber of more than 10 Mbps net
- **Muli coverage** - advanced orthogonal frequency division multiplexing (OFDM) enhances performance in non-line-of-sight (NLOS) conditions to ensure NLOS coverage
- **10 Mbps net** - delivers fixed and nomadic access (BWA) systems. The TDD-based platform is ideal for operators located in rural, suburban, and urban areas.

BreezeMAX addresses all the parameters in the operators industry wish list for carrier-grade, cost-effective, next generation broadband wireless access (WiMAX) systems. The TDD-based platform is ideal for operations requiring high bandwidth and RF efficiency and services and who are planning to move to provide personal broadband services in the future.

Alvarion is answering carriers’ need for a complete end-to-end WiMAX solution for personal broadband services by leveraging its advanced base station architecture, while incorporating scalability, low components and a wide range of end devices to create its WiMAX™ solution.

With the most recent version using 802.16e, BreezeMAX addresses carriers’ current challenge in deploying fixed, broadband, and ultimately portable and mobile services to both residential and business users located in rural, suburban, and urban areas.

Operating in 2.3, 2.5, and 3.5 GHz and licensed frequency bands, BreezeMAX addresses all the parameters in the operation industry with list for carrier-grade, cost-effective, next generation broadband wireless access (WiMAX) systems. The TDD-based platform is ideal for operations requiring high bandwidth and systems, and end devices and who are planning to move to provide personal broadband services in the future.