Industry's most complete WiMAX product family in the widest selection of frequency bands

WiMAX Solutions

Airspan

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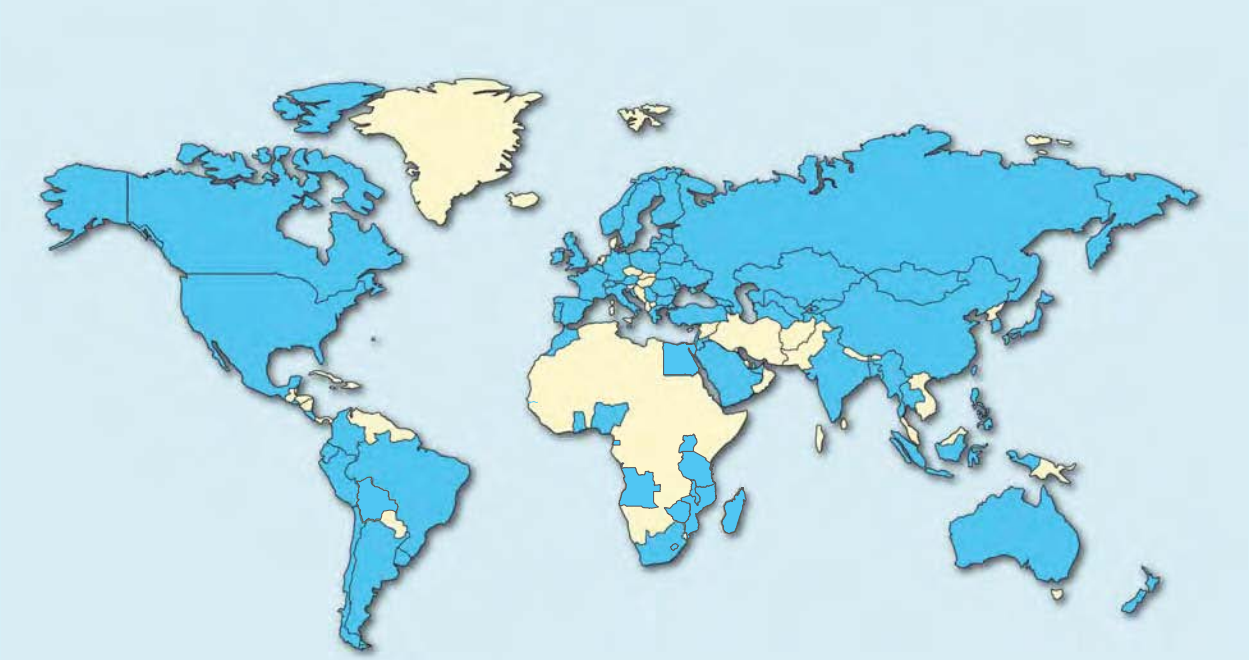
Airspan's WiMAX Deployments Around the World



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Introducing WiMAX

- Over 500 customers in more than 100 countries
  - Maximize your CAPEX and OPEX returns
- The widest range of WiMAX products
  - Base stations
  - End User devices
  - ASN Gateways
  - AAA Servers
  - VoIP Admission Control servers
  - Network management
- The widest selection of frequency bands
  - From 700MHz to 5.9GHz
- The most advanced technologies
  - Software Defined Radio
  - MIMO Matrix A and B
  - Multi Carrier (dual MAC/PHY) solutions
  - All-in-one all-outdoor architecture
  - Multi Receiver solutions
  - OBSAI
  - ATCA
- Professional services
  - Radio planning
  - Network design
  - Post-sales technical support

Airspan - The Recognized Leader in WiMAX

- The widest range of WiMAX products
- The widest range of frequency bands
- The most advanced technologies and features

Airspan is a worldwide leader in broadband wireless with over 500 customers in more than 100 countries.

As a founding member of the WiMAX Forum™, Airspan has led the way in WiMAX, being among the first wave of companies to achieve certification for its base station and end user premises equipment.

Airspan has a wide variety of Fixed and Mobile WiMAX solutions. Incorporating advance technologies, MicroMAXd addresses the basic fixed needs, HiperMAX can be used for high-demand fixed WiMAX needs and is software upgradeable to Mobile, while the MacroMAXe product houses a powerful Mobile solution in a compact, easy to install package.

The IEEE 802.16e-2005 compliant, quad-band MiMAX USB device, announced in 2006, was the first Wave2 compatible Mobile WiMAX device for laptops.

Airspan has always taken the lead to bring real-world solutions to WiMAX networks. Two examples of particular note are the seamless integration of WiMAX and Wi-Fi technologies and the introduction of VoiceMAX.

Airspan's EasyST and ProST CPEs are available with Wi-Fi Access Point functionality. This capability enables them to simultaneously offer both WiMAX and Wi-Fi, thus enabling the service provider to address a variety of markets with a unique hybrid device that operates on the WiMAX platform while enbaling Wi-Fi device connectivity.

The challenges associated with delivering time critical services such as voice and video over a shared medium such as wireless access are well known. Airspan's VoiceMAX gives operators the ability to deliver carrier-grade VoIP through a software suite that provides admission control and manages network congestion to deliver the best user experience for VoIP calls across a WiMAX network operating fixed, nomadic and mobile profiles simultaneously.

We in Airspan believe that now is the right time to build your WiMAX network. The advanced technologies we have embedded into our products ensure that whether you plan to start with Fixed WiMAX and migrate to Mobile WiMAX in the future or go for Mobile WiMAX from the outset, your investment is safe and your network is ready for tomorrow's opportunities.

Its industry leading technologies and solutions coupled with years of experience of building and supporting large BWA networks make Airspan the ideal partner for Mobile and Fixed WiMAX deployments.

Mobile WiMAX – A Technical Overview

Mobile WiMAX is the next generation evolution in wireless technology and enables high-speed connectivity to meet the increasing demand for broadband Internet at home, in the office, or while on the go.

The IEEE 802.16e-2005 Mobile standard for portable devices enables a new era of high throughput and high delivered bandwidth together with exceptional spectral efficiency when compared to mobile wireless technologies such as HSPA and EV-DO.

Mobile WiMAX introduces scalable OFDMA and several other key features summarized below:

- Tolerance to multipath and self interference
- Scalable channel size up to 20MHz
- TDD operation to support asymmetric traffic
- Network optimized hard handover
- Hybrid ARQ based error control
- Power management (sleep, idle modes)
- Security and QoS
- MIMO technology
- Fractional frequency reuse

Mobile WiMAX Release Air Interface Profile

Early in 2006 the WiMAX Forum™ selected the candidate certification profiles to cover many of the worldwide spectrum allocations suitable for Mobile WiMAX.

Airspan mobile products meet these standards and others, offering coverage for:

- Bands - 2.3-2.4GHz, 2.5-2.69GHz 3.3-3.4GHz, 3.4-3.8GHz
  - Duplex method - TDD
  - Channel Bandwidth - 3.5/5/7/8.75/10/20MHz
  - FFT size - 512 (5MHz channel), 1024 (10MHz channel) and 2048 (20MHz channel)

A New Era in Wireless Communications

Main Features

- Carefully chosen set of technologies to provide superior performance
- Mobile WiMAX peak data rates and spectral efficiency are better than 3G and 3G+ technologies
- MIMO (Matrix A & Matrix B) are essential advanced antenna technologies to deliver the promise of Mobile WiMAX
- High speed connectivity at home, in the office or on the go

4G technology

Mobile WiMAX Performance

Using a commonly accepted evaluation methodology for 3G systems, Mobile WiMAX has been simulated against the 3G enhancements. These simulations have shown that:

- Mobile WiMAX peak data rates are better than 3G and 3G+ technologies and
- Mobile WiMAX spectral efficiency is better than any 3G and 3G+ technology

Thanks to technologies such as OFDMA and MIMO, Mobile WiMAX can meet the demanding performance needed for the delivery of broadband services in a challenging mobile environment. Performance simulations show that Mobile WiMAX provides superior throughput and spectral efficiency compared to 3G CDMA-based enhancements, EVDO and HSPA. These advantages provide operators with added network capacity for the support of value-added services with fewer base stations than alternative approaches, thus resulting in lower network capital and operating costs.

Mobile WiMAX Network Reference Model (NRM)

Mobile WiMAX end-to-end network architecture model follows the Network Reference Model (NRM) shown below.

Access Service Network (ASN) consists of the WiMAX Base Stations and the ASN Gateway. The main functions of the ASN gateway are to aggregate the traffic from the base stations and to manage handover between them. Airspan's ASN Gateway solution is called ControlMAX.

Connectivity Service Network (CSN) is the core of the network. It controls and manages the ASNs and the subscribers with a variety of services including AAA, Home Agent functions, DHCP server, etc. CSN is also responsible for connecting to other networks and enables inter-operator and inter-technology roaming. Airspan's VoiceMAX solution resides in the CSN.

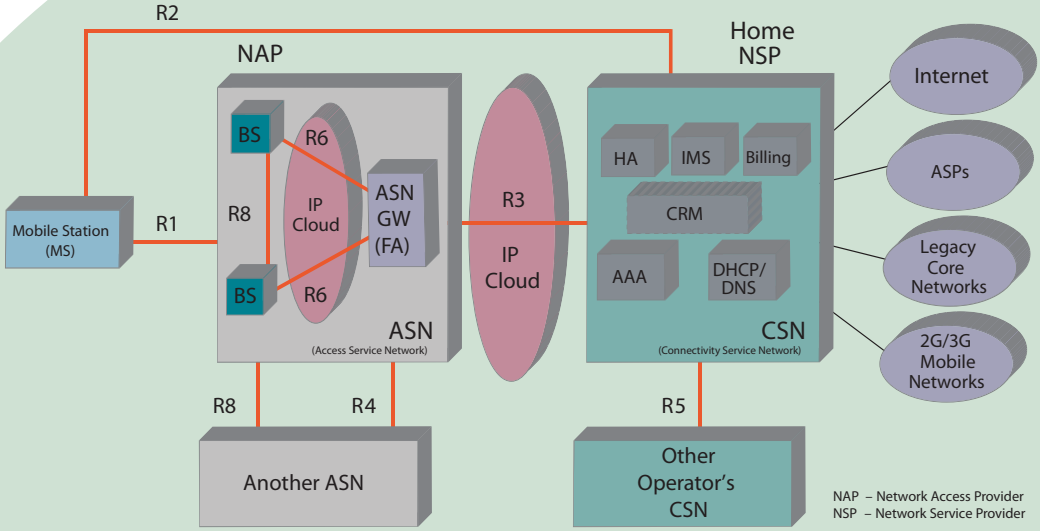
Airspan's Mobile Station (MS) devices, MiMAX USB, MiMAX Easy and MiMAX Pro are Wave 2 compliant from the outset and support MIMO.

Mobile WiMAX Technology

To deliver superior performance, Mobile WiMAX relies on advanced technologies such as scalable OFDMA and MIMO.

MIMO stands for Multiple Input Multiple Output. It is an antenna technology that uses multiple antennas at both the transmit end and the receive end. MIMO utilizes multi-path to advantage, combining reflected signals into a single stream in order to improve throughput, reach and spectral efficiency.

Network Reference Model (NRM)



A World of Mobile and Fixed WiMAX Applications

Application Summary

- Wireless Broadband Anytime, Anywhere
  - Broadband @ Home
  - Broadband @ the Office
  - Broadband on the Move
- Mobile, fixed, nomadic and portable operation
- Indoor and outdoor coverage
- Mobile WiMAX enabled through USB, PC card and handsets
- WiMAX provides wide area Hot Zones
- Backhaul and bridging applications

WiMAX Applications

WiMAX has already revolutionized the broadband wireless market by standardizing the fragmented Broadband Wireless Access (BWA) market, by opening up new service opportunities and by creating the environment for ubiquitous broadband services everywhere.

WiMAX bridges the fixed wireline broadband and the mobile cellular divide. By deploying WiMAX technology, service providers can offer not just fixed broadband wireless services to homes and businesses; they can also offer anytime, anywhere 4G mobile access to IP services at much higher speeds than is possible with voice-centric 3G networks.

Let's now consider some of the IEEE 802.16e-2005 WiMAX applications below.

Broadband on the Move

4G Mobile WiMAX enables service providers to offer 'anytime-anywhere' broadband services over a wide coverage area. Mobile WiMAX expands the Wi-Fi hotspot concept into Hotzones, enabling service providers to offer consistent and reliable wide-area broadband coverage over the metropolitan areas, thus encouraging customer commitment and loyalty.

Mobile WiMAX takes broadband outside the confines of the home or the workplace. Thanks to 'anytime-anywhere' true broadband experience offered by WiMAX, new and exciting services become a reality in all walks of life, covering social networking, education, emergency services and the business world to name a few.

Mobile broadband opens up a whole new high-speed data experience, which cannot be matched by the other mobile technologies available today. Imagine you decide to go for a walk to the nearby park during your lunch break to enjoy the sunny weather. You receive a VoIP call from one of your customers asking you to confirm product availability immediately so that they can place the order. You start a data session on your WiMAX enabled device, log on to the server at work and check the latest stock position. You then proceed to send an e-mail to your customer confirming that the product is in stock and you receive the order before you have returned to your desk.

Airspan has grasped this vision and has set out to develop a range of products to fully exploit the potential of Mobile WiMAX. To this end we have developed the MacroMAXe and HiperMAX base stations using SDR technology to ensure soft upgrade to support the latest version of the Mobile WiMAX standards and services without requiring hardware changes.

Airspan has also recognized that Mobile WiMAX requires diverse and plentiful WiMAX-enabled end user devices and has developed the world's first quad-band MiMAX USB device for laptop computers. In addition Airspan has validated various ODM CPEs and optimized their operation with the Airspan Base Stations.

Fixed Broadband

WiMAX appeals to a wide cross section of service providers, new entrants, mobile service providers and traditional wireline operators alike. WiMAX is appealing to new entrants and mobile service providers that want to also provide high-speed broadband services to the home and the office. WiMAX is also being embraced by the wireline operators as a cost-effective way to expand their broadband service offerings to underserved areas. Using WiMAX, wireline operators can cover rural and less dense environments where the cost of expanding DSL and cable wiring is prohibitive, as well as dense urban areas where it may be difficult to add wired connections to existing large buildings such as apartment blocks and office buildings.

Airspan offers a range of base stations that provide the optimum CAPEX and OPEX solutions in both dense urban and less dense sub-urban and rural deployment scenarios. Furthermore, Airspan has been the first WiMAX vendor to offer a complete range of indoor and outdoor integrated WiMAX and Wi-Fi end user devices. These products benefit both the service provider and the consumer. The service providers can rapidly deploy indoor and outdoor Wi-Fi hotspots with built-in WiMAX backhaul, whereas the consumers enjoy the benefit of accessing the WiMAX broadband connection anywhere within their dwelling. Another market for integrated WiMAX and WiFi CPE with considerable potential is temporary deployments, such as trade shows, sports venues and emergency relief.

Campus Applications

Many government, enterprise and educational organizations have deployed Wi-Fi technology in buildings for their respective users. WiMAX allows a service provider to offer broadband connectivity beyond individual buildings to provide complete coverage of an entire campus for data, VoIP and multimedia applications. Furthermore, thanks to the advanced QoS and security features offered by WiMAX, it becomes possible to create a secure and reliable communications environment.

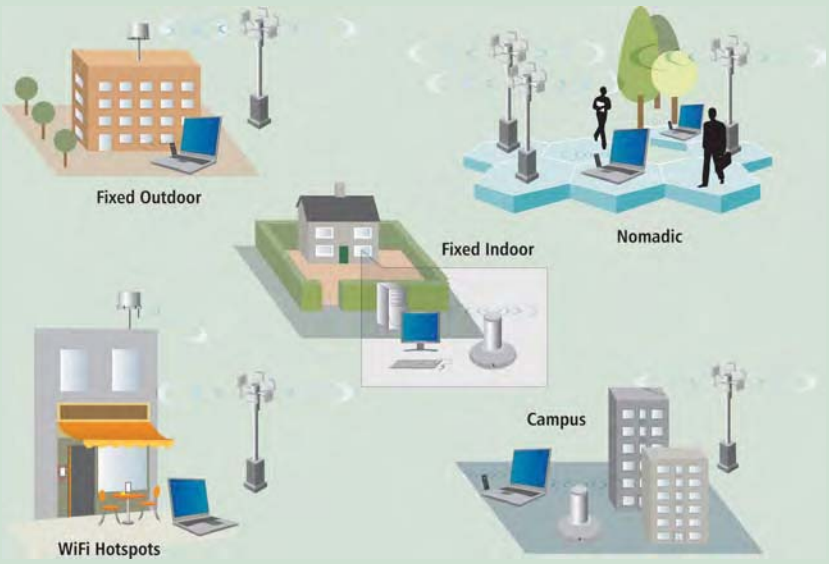
The integration of WiMAX and Wi-Fi in a single end user device enables users to connect to either in-building Wi-Fi or campus-wide WiMAX networks, allowing them to stay connected as they roam from location to location. This model also helps save OPEX expenses by minimizing the number of Wi-Fi access points required to achieve complete broadband coverage across the campus.

Backhaul applications

WiMAX products lend themselves to backhaul and bridging applications. We have already discussed how WiMAX can provide a cost effective and highly integrated backhaul environment for Wi-Fi hotspots. In some deployment situations it would be attractive to use WiMAX compliant links, operating in an unlicensed band such as 5.8GHz, to backhaul the base station traffic towards the core network. A third application could be LAN-LAN bridging solutions for campus networks or indeed for providing IP connectivity.

Airspan's MicroMAXd product is particularly suitable for backhaul applications providing high availability with native IP interfaces, in both licensed and unlicensed bands.

WiMAX Scenarios



The Ultimate WiMAX Product Family

Product Summary

- Base Stations
  - HiperMAX
  - MacroMAXe
  - MicroMAXd
- End User Devices
  - MiMAX USB
  - MiMAX Easy
  - MiMAX Pro
  - EasyST
  - EasyWiFi
  - EasyVoice
  - ProST
  - ProST-WiFi
  - MRT
- Network Products
  - ControlMAX
  - VoiceMAX
- Network Management
  - Netspan

Airspan's WiMAX Product Portfolio

- Delivering optimized CAPEX, minimized OPEX
- Complete range of interoperable products with class leading performance optimize CAPEX for all deployment scenarios
- Highly integrated, compact packaging and low power consumption minimize site OPEX costs

Airspan is proud to offer the industry's most complete range of WiMAX products consisting of macro and micro-cell base station solutions, a range of indoor, outdoor and mobile end user devices, network products and a comprehensive network management solution.

Airspan's WiMAX products benefit from a unique combination of features delivering the best economics and most attractive service propositions for mobile and fixed/nomadic/portable broadband:

- Wide selection of base stations for improved network economics.
- Modular and highly integrated products encourage scalable network deployment that improves CAPEX and OPEX performance.
- Open architecture enables interoperability with different ASN GWs, AAA servers and MS/SS units.
- Ethernet & IP services, including VLAN
- Multi Carrier solutions (Dual MAC/PHY)
- Multi Receiver solutions
- Carrier quality voice (using VoiceMAX)
- Standalone mode – 16e benefits with no need for ASN GW
- Class-leading spectral efficiency
- Wide range of Licensed & Unlicensed bands supported: 700 MHz, 1.4, 1.5, 1.9, 2.3, 2.5, 3.3-3.8 (TDD and FDD), 4.9-5.95 GHz
- High performance radios with extended link budget

Airspan's WiMAX technology has been carefully chosen to deliver IEEE 802.16e-2005 Mobile WiMAX. It also provides operators with a cost effective evolution path from Fixed to Mobile WiMAX profiles.

Airspan offers the ideal WiMAX platform on which to deploy an industry standard broadband solution. It provides all the benefits of multi-vendor interoperability, decreasing CPE costs, WiMAX enabled handheld device portability with roaming and indoor, self install CPE economics, thus heralding a new era of inexpensive, ubiquitous broadband wireless access anytime, everywhere.

Airspan's WiMAX Strategy

Airspan's WiMAX strategy is to offer a comprehensive end-to-end solution for Mobile and Fixed WiMAX deployments through standards compliant, interoperable, WiMAX Forum™ certified products; empower the end-user through personal broadband; provide real-world solutions to coexistence with other wireless systems; enable high end services for Fixed and Mobile WiMAX through the use of Software Defined Radio (SDR) and to offer unrivalled spectral efficiency through the use of advanced antenna techniques such as MIMO.

Deployment in urban Tokyo

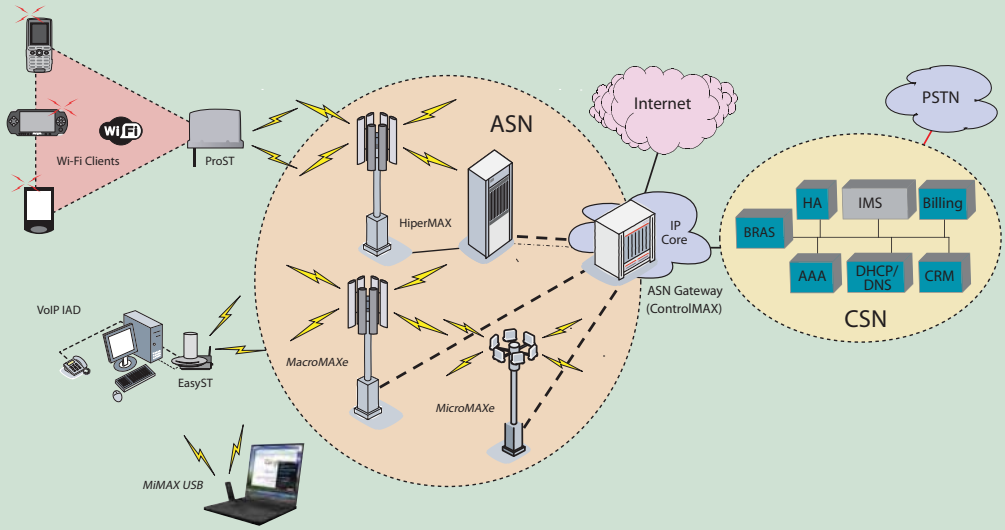
Technology Showcase

- Software Defined Radio (SDR) - essential technology for simultaneous support of both Fixed and Mobile WiMAX PHY/MAC
- Advanced RF features
  - Transmit and Receive Diversity to improve link budget
  - MIMO - Multiple antenna elements are employed to improve range and throughput
  - Multiple receiver solutions (4 receivers)
- MiMAX USB – World's first multi-band WiMAX USB device, turning every laptop into a WiMAX enabled personal broadband device, enabling mobility, roaming and interoperability
- All-in-one all-outdoor unique form factor for high end Base Station design and functionality
- Advanced TCA (ATCA) - Industry standard Indoor equipment practice for base stations
- Fiber Optic OBSAI interface - Supports distances of 300m to 3km between the indoor (baseband) and outdoor (radio) units, using different fiber optic modules.
- Sophisticated admission control and dynamic service flow provisioning technology to enable carrier-class VoIP services
- Open network architecture – essential for multi-vendor interoperability

WiMAX from Airspan - your best solution

- Most complete range of WiMAX products in the industry
  - Base stations that support for macro and micro deployment models
  - Comprehensive range of End User Devices for indoor, outdoor and mobile deployment
  - Total network solution including ASN Gateways and AAA servers as well as standalone solutions
  - Scalable solutions to maximize CAPEX and OPEX
- Open architecture enabling interoperability
- Widest range of frequency bands supported of any vendor
- Class-leading spectral efficiency thanks to our advanced RF implementations
- Carrier-class VoIP over WiMAX solutions
  - Sophisticated admission control solution – VoiceMAX
- Advanced and user-friendly network management solutions
- Comprehensive range of professional services to enable you to get the most out of your deployment
  - RF planning services
  - Network design services

Network Architecture



HiperMAX

The Ultimate Mobile WiMAX Base Station

Main Features

- HiperMAX supports:
  - Option of split indoor / outdoor or all outdoor configurations
  - Fully redundant architecture
  - Up to 6 channels per ATCA shelf with full redundancy or Up to 12 channels without redundancy
  - Optical, zero-loss connectivity between indoor and outdoor units
- Multi-frequency platform supporting 700MHz, 2.3GHz, 3.3GHz, 3.5GHz, 3.65GHz, 4.9GHz
- Up to 39dBm transmit power
- Supports FDD and TDD profiles
- Advanced antenna options, including diversity, MIMO and CSM
- Up to 5bps/Hz per radio (2x2 MIMO)
- HiperMAX uses PicoChip® based Software Defined Radio (SDR) array, rated at 4x600 billion instructions/s
- Hybrid MIMO enhancements allow multiple simultaneous transmissions to End User Devices
- Supports Fractional Frequency Reuse utilizing PUSC modes in OFDMA

HiperMAX Base Station

- Simultaneous support for both Mobile and Fixed WiMAX profiles
- Flexible packaging - indoor/outdoor or all outdoor
- Advanced RF features for maximized coverage and throughput
- Fully redundant architecture

HiperMAX is the ultimate Mobile WiMAX base station designed for high-density deployment situations. HiperMAX has been architected to provide a highly scalable, fully redundant base station product that will continue to deliver the optimum performance for years to come.

HiperMAX is fully compatible with the Mobile WiMAX Network Reference Model (NRM) as part of the Access Service Network (ASN). HiperMAX supports the reference point (R6) between the base station and the ASN Gateway as well as the reference point (R8) between base stations. HiperMAX interworks with Airspan's ASN Gateway called ControlMAX and with other third party ASN gateways.

HiperMAX represents the state of the art, next generation base station design and includes:

- Fully upgradeable, software defined, PHY and MAC layers enabling simultaneous support for both Mobile WiMAX (SOFDMA) and Fixed WiMAX (OFDM)
- Fully digital, OBSAI based, fiber optic interfaces between indoor baseband and outdoor radio equipment, which can operate at up to 3km.
- Transmit and receive diversity
- 2x2 MIMO configurations
- Support for FDD and TDD profiles

HiperMAX is designed to deliver the best link budget with the highest capacity and net throughput; all essential qualities for macro-cell deployments used in typical wireless roll out.

HiperMAX implements usefully configurable software define radio base band system which interfaces with remote radio heads via fiber optic connections.

HiperMAX base stations interface with a standard Connectivity Service Network (CSN) to deliver voice and other multimedia services to support VoIP applications, using a standard media gateway to the PSTN.

HiperMAX mast head units deployed in Vodafone Malta

HiperMAX Operation

The flexibility of the HiperMAX architecture allows many deployment configurations including those suited to both macro and micro cellular installations. It supports all outdoor as well as split indoor / outdoor configurations allowing the operator to select the deployment model best suited to operational expense considerations and site access constraints.

A HiperMAX Base station configured for traditional multi-sector macro-cell deployments consists of a baseband section, suitable for location within a protected environment, and an outdoor RF section. The indoor boards, referred to as blades within the ATCA standard, are housed in a 5 or 14 slot NEBS compliant ATCA chassis. The outdoor enclosure contains the RF subsystem components, which enables smart antenna functionality running on a Software Defined Radio (SDR). The connection between the baseband and RF sections is made through a fiber optic cable.

The antenna system of choice is connected to the outdoor RF unit and in turn to each baseband blade. HiperMAX can support up to 12 baseband blades per 14-slot shelf, with a single fiber optic cable to each RF unit. Baseband blades can be configured to support 6 active channels with full redundancy or 12 active channels without redundancy.

The ATCA shelf also houses the shelf controller and power supplies. In addition to the ATCA shelf, the HiperMAX rack houses the Ethernet switch and the GPS synchronization unit. The Ethernet switch aggregates the individual traffic streams onto a Gigabit Ethernet stream for backhaul purposes. For TDD and smart FDD reuse operation the multiple sectors are locked to a GPS timing source. The ATCA shelf manager provides a platform management layer that holds an inventory of field replaceable units in the system and monitors their status.

Fiber optic modules operating at speeds of up to 3.1GBit/s and are connected to fiber optic cables capable of carrying up to 10Gb/s for future expansion, if required.

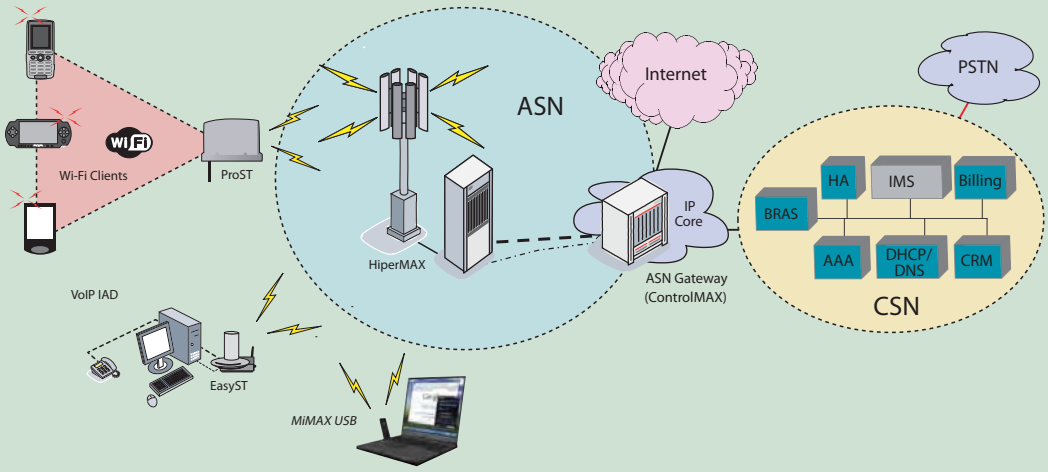
The all outdoor version of HiperMAX is known as HiperMAX-micro. This consists of split baseband and RF sections connected via a fiber interface, but with all components including the power supply and GPS functions housed within a single SDR-micro enclosure. This form factor is particularly well suited to low density micro-cell sites where access to a temperature controlled room is not possible or preferred, e.g. a building rooftop.

HiperMAX-micro

HiperMAX fully supports the extensive QoS characteristics of the IEEE 802.16e-2005 radio interface. In addition, it incorporates specific additional radio resource management features that allow applications such as VoIP to be robustly delivered by implementing Admission Control on a per call basis.

HiperMAX is managed by Netspan, the SNMP based central management platform.

Network Architecture



MacroMAX

MacroMAXe

Main Features

- Supports 802.16e-2005 SOFDMA
- All-in-one single outdoor unit minimizes site OPEX
- Dual 37 dBm radios in 3.3-3.8 GHz bands and dual 40dBm radios in 2.3 and in 2.5 GHz bands
  - 60dBm EiRP with front-mounted antennas
- Four (4) receivers for improved uplink link budget
- MIMO support
  - Matrix A & Matrix B
- Supports 3.5 MHz, 5MHz, 7MHz, 10MHz 2x7MHz and 2x10MHz channels
- Supports interoperable reference points defined by NRM
  - Supports interoperable R6 reference point
- Supports standalone mode for fixed application with no need for ASN GW
- Supports IP & Ethernet CS (including VLANs)
- Giga Ethernet interface for backhaul
  - Fiber and copper interfaces
- Compact and light form factor
- <20 litre, <17 kg all-outdoor package
- Very low power consumption
  - 200W typical for fully loaded sector
  - 1/3 power consumption of competing products per M/bits of capacity delivered
- Significant CAPEX and OPEX savings

MacroMAXe Base Station

- Fully integrated macro-cell Base Station
- Compact and light-weight form factor for optimum OPEX performance
- Eco friendly - low power consumption reduces carbon footprint
- Support for 2x10 MHz or 2x7 MHz and 10MHz Channels
- Advanced RF features for optimized coverage and throughput

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 transmitters, 4 receiver antennas and GPS receiver all in a highly integrated, physically small and light, all outdoor package.

MacroMAXe has been primarily developed for the 2.3, 2.5, 3.5 and 3.7 GHz Mobile WiMAX bands and is Wave 2 certified. The product has been designed to address future market needs by supporting the current and future air interfaces with 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. With the very efficient power amplifier technology employed in its RF implementation, MacroMAXe implements dual 40dBm (10W) radios and MIMO delivering up to 60dBm EiRP with the integrated antennas.

MacroMAXe supports 3.5 MHz, 5 MHz, 7 MHz and 10 MHz channel sizes. The product has been designed to support 2x7 MHz, 2x10 MHz (using dual PHY/MAC).

MacroMAXe has been conceived for deployment in 1 or 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. It also supports a standalone mode (with no ASN GW) for fixed application, as well as IP and Ethernet CS (including VLANs).

MacroMAXe is the most power efficient base station in its class. Each 2x10W base station sector draws just 200W of power, 1/3 of competing products per Mbps of capacity delivered thus significantly improving the operator's carbon footprint and OPEX.

MacroMAXe implements Fractional Frequency Reuse (FFR) in order to enable frequency reuse factor of 1 (N=1). FFR controls co-channel interference to support N=1 with minimal degradation in spectral efficiency. MacroMAXe can also be deployed using traditional frequency reuse plans.

MicroMAX

MicroMAXd Base Station

MicroMAXd is a single mode fixed (802.16d) highly integrated micro-cell base station with all-in-one outdoor packaging of RF and base-band components. Performance optimized variants for high density roof-top deployments and cost optimized variants for low density / rural deployments are available.

MicroMAXd is an outdoor solution for Fixed WiMAX applications with an indoor traffic aggregator.

- IEEE 802.16-2004 certified for FDD and TDD operation
- Widely deployed around the world
- Highly modular architecture
- Ideal for lower density deployments

MicroMAXd

Main Features

- Cost optimized for lower density applications
  - Modular and scalable architecture
  - All outdoor integrated baseband digital processing, radio and antenna
  - Up to 16 radios per mast
- Supports WiMAX Forum™ profiles in 700 MHz, 1.4 GHz, 1.5 GHz, , 1.9 GHz, 2.3 GHz, 2.5 GHz, 2.8 GHz, 3.3 GHz, 3.5 GHz, 3.7 GHz, 4.9 GHz, 5.1 GHz, 5.4 GHz, 5.8 GHz and in 5.9 GHz bands
- BPSK/QPSK/16QAM/64QAM adaptive modulation
- Full duplex FDD and TDD operation
- Advanced software features
  - Full IEEE 802.16 QoS service classes
  - Full 802.1d transparent bridging
  - IEEE 802.1q/p VLAN tagging/untagging
  - Bridging and routing functionality

MicroMAXd is a complete standalone base station, with a feature-rich and robust offering.

The MicroMAXd base station is highly modular in design and consists of two main components: the all-outdoor Base Station Radios (BSR) and the indoor aggregator Base Station Distribution Unit (BSDU), or the single channel Data Adaptor.

Each base station site can contain up to 16 BSRs, depending on the amount of available spectrum. Each BSR is connected to the BSDU via a 100BaseT interface operating over a Cat5e cable, which carries both data and power over a distance of 300m with Cat5e repeater. Each BSDU can support up to 8 BSRs.

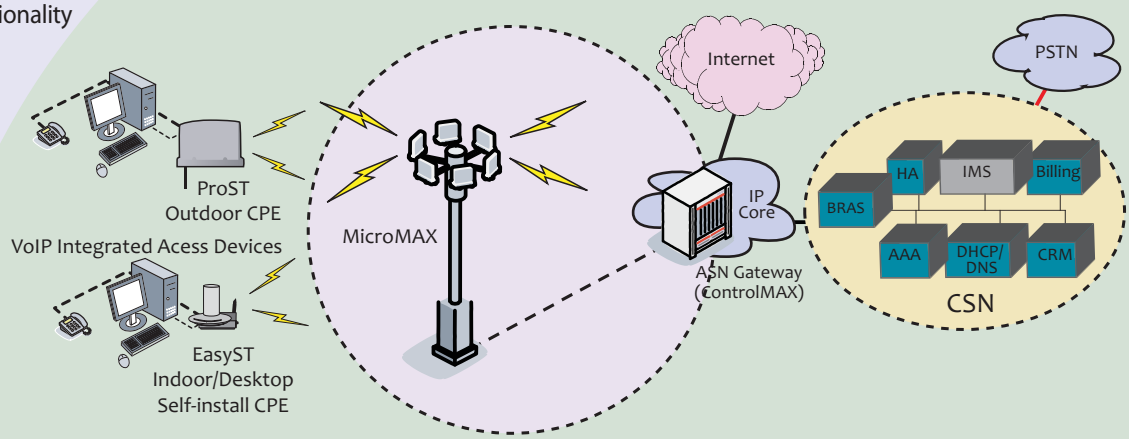
MicroMAXd is designed to support lower density, rural broadband access, enterprise applications and DSL in-fill scenarios in both licensed (700 MHz, 1.4, 1.5, 1.9, 2.3, 2.5, 2.8, 3.3-3.8 TDD and FDD, 4.9 and 5.9 GHz) and unlicensed (5.1, 5.4 and 5.8 GHz) bands.

One of the key features of the MicroMAXd BSR is that it requires less than 28W power, making it ideally suited for those rural deployments where power generation and supply may be a problem.

MicroMAXd operating in unlicensed bands can be used by Wireless ISPs to deploy WiMAX easily and cost effectively wherever the need is identified.

The MicroMAXd base stations is managed by Netspan, Airspan's SNMP based element management platform.

Network Architecture



MiMAX USB - Mobile WiMAX Device

Main Features

- Wave 2 MIMO Mobile WiMAX compliant USB device
- Allows integration with any device or desktop that supports USB 2.0
- Easy to use, pure "Plug-and-Play" operation
- STC, 2x2 Matrix A MIMO and 2x2 Matrix B MIMO downlink support, and CSM uplink support
- Peak Throughput: Up to 33Mbps
- True Multi-Band operation enables global Inter and Intra- country roaming
  - 2.3-2.4, 2.496-2.69 GHz, 3.3-3.4, 3.4-3.6, 3.6-3.8 GHz
- RF performance
  - SOFDMA
  - 5, 7, 8.75 and 10MHz TDD
  - Tx power: 22dBm
- Low power consumption (<2.4W)
- Small form factor, only 99x35x8 mm

MiMAX USB – Mobile WiMAX Wave 2 USB Device

- First Mobile WiMAX USB device on the market
- Small form factor
- Pure plug-and-play operation
- Multi-band for maximum roaming convenience
- Single band variants available

Success of Mobile WiMAX depends on the availability of reasonably priced end user devices. Airspan has taken the lead by announcing the world's first Multi-band, Wave 2 Mobile WiMAX, 2x2 MIMO enabled USB device called MiMAX USB (pronounced "My Max").

The MiMAX USB is the first product in the MiMAX family of MIMO Mobile WiMAX devices and add-ons.

In order to provide true global roaming, and Inter and Intra country roaming across multiple frequency bands, the MiMAX USB provides multi-band WiMAX operation in a small, power efficient package that sets the levels of size performance standards for the WiMAX industry.

The MiMAX USB packs a big RF performance despite its diminutive size delivering up to +22dBm into the antenna. It goes on to deliver an astonishing throughput of up to 33Mbps (in a 10 MHz TDD channel running Matrix B and CSM on uplink).

Self Install MiMAX Easy and EasyST

For Self Install Indoor Deployments

Main Features

- Mobile and Fixed WiMAX profiles
- Full indoor non-LOS (NLOS) deployment
- User unpacks, plugs in and surfs - Installation takes less than 1 minute!
- "Auto-Connect" and "Auto-Config" features
- Fully Nomadic Operation

MiMAX Easy - Self Install CPE for Mobile WiMAX

- IEEE 802.16e Mobile WiMAX Indoor "self-install" CPE
- Available in 2.3, 2.5, 3.3-3.8 GHz bands
- Typical fixed application on mobile WiMAX platform
- Self-install WiMAX CPE (indoor WiMAX modem)
- Full indoor Non-Line-Of-Sight (NLOS) deployment
- Fully nomadic operation - including support of a channel table to automatically connect to Base Station

MiMAX Easy is an all-indoor CPE designed for self-install by the end user whereas the MiMAX Pro is a part indoor part outdoor CPE which requires professional installation and provides superior link budget in difficult deployment conditions.

MiMAX Easy is a physically compact WiMAX CPE designed to operate on the Mobile WiMAX platform but to be deployed indoors alongside the end user's PC or network, typically on a desk.

MiMAX Easy is designed to be installed by the end user, using a simple-to-use but sophisticated user interface to enable optimum positioning without needing to switch-on the user's PC. This helps improve service availability and reliability whilst increasing service speed and reducing network load.

EasyST-2

- IEEE 802.16d Fixed WiMAX Indoor "self-install" CPE
- Small form factor and built-in antenna
- Available in various bands from 700 MHz to 5.95 GHz
- Full indoor Non-Line-Of-Sight (NLOS) deployment
- Optional IEEE 802.11 b/g Wi-Fi access point
- Optional VoIP base for 1 or 2 POTS lines
- Up to 8.5 dBi, 4x90º auto selecting antenna
- Full support for sub-channelization (OFDMA on uplink)

EasyST is an indoor, self-installable CPE which operates on the Fixed WiMAX platform. Much like the MiMAX Easy, the EasyST is compact, easy to install by an end-user and can be conveniently located on a desk. The EasyST also uses a sophisticated user interface for best positioning so optimum RF reception and transmission is achieved.

EasyST is designed for combined voice and data deployments.

EasyST is a versatile and feature filled CPE. The unit has two stackable extension base options - one for Wi-Fi and the other for VoIP and data.

EasyWiFi

The Wi-Fi expansion base provides full IEEE 802.11b/g Access Point functionality and turns each EasyST into an instant hot spot, with the WiMAX radio interface providing backhaul for IEEE 802.11b/g clients. Thanks to IEEE 802.16 QoS built into the EasyST, Wireless SIP phones can make high quality, managed VoIP calls.

EasyVoice

Voice and data are supported by the VoIP expansion base, with 2 voice lines and an Ethernet port. The unit serves standard RJ-11 telephone instruments. Battery backup can provided and uses simple AA rechargeable NiMH cells. The VoIP expansion base is managed by Airspan's base stations and VoiceMAX solution to ensure transparent, carrier-class voice service.

Outdoor CPE MiMAX Pro and ProST

Rapid and Simple External Deployment

Main Features

- Suitable for full outdoor Non-LOS deployment
- Available in a wide range of frequencies
- Environmentally hardened design
- Designed for outdoor deployment
- Compact, light and easy to install

Outdoor Installable CPEs

Outdoor subscriber terminals (or CPEs) available for Fixed or Mobile platforms. They are designed for rapid and simple external deployment, to be fitted by trained personnel in less than one hour. The operator would deploy the units when a specific service level needs to be guaranteed to the end customer. These units ensure high service availability at enhanced ranges, operating in both LOS and NLOS propagation environments.

Both the MiMAX Pro and ProST can be managed by Airspan's Web-based management system or Netspan element manager.

MiMAX Pro

- Outdoor CPE for IEEE 802.16e mobile WiMAX
- Available in 2.3 GHz, 2.5 GHz, 3.3-3.8 GHz bands
- Ensures high service availability over long distances
- Outdoor and indoor units connected via Power over Ethernet (PoE)

MiMAX Pro is a Mobile WiMAX customer premises equipment for outdoor deployment. The MiMAX Pro is designed for enhanced Internet connectivity.

The unit has class-leading capabilities and Interoperability while incorporating advanced antenna technology with directional dual polarization integrated antenna (MIMO). The unit has a built-in antenna with 27 dBm Tx power.

ProST and ProST-WiFi

- Outdoor fixed WiMAX (16d) CPE
- Integrated directional antenna or any external antenna
- Optional integrated Wi-Fi Access Point functions
- Available in wide range of frequencies from 700 MHz to 5.95 GHz
- Outdoor and indoor units connected using CAT5e cable
- Built-in antenna gain of 17dBi in most of the frequency bands
- Industrial strength Wi-Fi AP

ProST product family has two models:

- ProST - delivers WiMAX access
- ProST-WiFi - delivers WiMAX access with integrated Wi-Fi

ProST supports a two piece design comprising of the outdoor unit (ODU) which contains the radio, the antenna and the baseband processor in an environmentally robust enclosure, and a family of indoor adapters called Subscriber Data Adapter (SDA) designed to support the delivery of a range of end-user services, including:

- 1 to 4 Port Switch
- 4 port with VLAN Port Switching
- Integral 802.11b/g WiFi Access Point (SDA-WiFi)
- Integral VoIP IAD (SDA-MSG)

Users benefit from VoIP and indoor Wi-Fi with the SDA-MSG and SDA-WiFi units.

SDA-MSG comprises of the EasyVoice unit plus a Power Supply Adaptor (PSA). The SDA-WiFi consists of the EasyWiFi unit plus PSA.

ProST-WiFi, in addition to the WiMAX access also supports an outdoor integrated IEEE 802.11b/g Access Point inside of the same ProST ODU enclosure. This solution enables ProST-WiFi to provide outdoor Wi-Fi coverage with WiMAX backhaul thus ensuring the rapid rollout of Wi-Fi Hotzones. ProST-WiFi operates over the full ProST temperature range and includes industrial strength IEEE 802.11b/g technology that supports 16 SSIDs per CPE, antenna gain of 2dBi, Tx power of 16dBm, transparent layer 2 bridge and VLAN support.

SDA-MSG SDA-WiFi

Vehicle Mounted Mobile Radio Transmitter - MRT

MRT- Mobile Radio Transmitter Device

Main Features

- Vehicle mounted CPE
- WiMAX and Wi-Fi hybrid
- Rugged IP-66 rating
- Powered directly from vehicle or outside source
- BPSK, QPSK, 16QAM, 64QAM
- Operates on a wide variety of licensed and license-free frequency bands:
  - 700 MHz, 1.5, 1.9, 2.3, 2.5-2.9, 3.3-3.8, 4.9, 5.6, 5.8 and 5.9 GHz
- Wi-Fi Operation
  - Access Point or Bridge
  - Embedded DHCP Server for LAN
- Small and easy to install

MRT – A revolutionary ruggedized hybrid device for vehicular mounting and operation

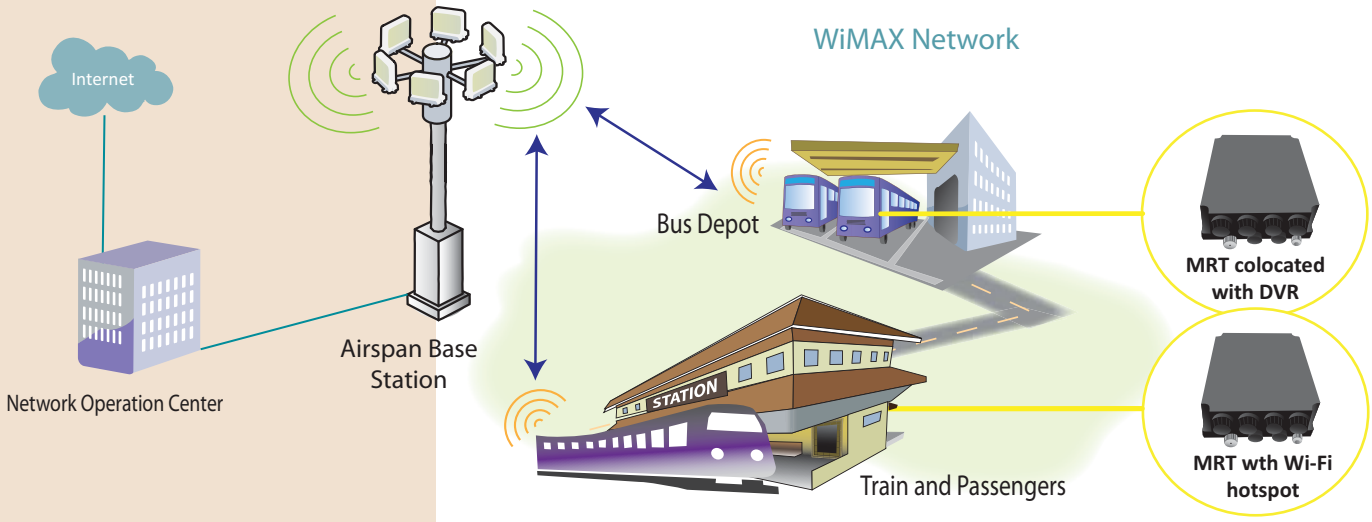
- Wide variety of frequencies from 700 MHz up to 5.9 GHz
- Powered from outside source or directly from vehicle
- Ideal for Public Safety, Transportation and Oil & Gas
- Highly ruggedized, meeting extreme environmental standards
- Optional Wi-Fi AP capabilities
- Local or remote management and software upgrades
- Supports Self Provisioning

Airspan has adapted their seasoned and mature technology to fit applications requiring vehicle connectivity within their network. A customized CPE was created which harnesses the best of existing units in order to offer a ruggedized, Wi-Fi enabled, vehicle mounted CPE. This unique unit, called MRT (mobile radio transmitter), allows for real-time information exchange, surveillance and vehicle tracking.

The vehicle mounted CPE communicates with stationary base stations deployed in areas such as bus depots, police lots or along roads and highways, and in the case of emergency situations, the unit can transmit to a nomadic base station.

The MRT is a ruggedized hybrid device integrating WiMAX CPE and Wi-Fi AP functionalities in a single package allowing WiMAX connectivity while simultaneously creating a Wi-Fi hot spot enabling passengers or vertical market employees to access Wi-Fi Internet or network connectivity from a variety of devices. The unit is ideal for nomadic and vehicular operation. When mounted in a vehicle, the unit can either be powered directly from the vehicle or from an outside source.

The MRT is ideal for any market needing communication to and from vehicles. These include, Oil and Gas, Public Safety, Transportation, Surveillance, etc., By opening up new service opportunities and by creating the environment for vehicular broadband services everywhere, Airspan is enabling entities worldwide to change their business models, increasing efficiency and cost effectiveness.



ControlMAX

AN-1

ST-40

AAA

ControlMAX Gateway

- Profile C ASN Gateway family
  - Traffic aggregation and routing
  - Supports wholesale & retail business models
  - MS admission control
  - Manage handover of MS between base stations
  - Policy enforcement
  - In-Line Services
  - Security management
  - Accounting
  - Connection management
- Seamless intertechnology roaming between WiMAX, CDMA, UMTS & WiFi networks
- Two platforms AN1 and ST40

AN-1
- Modular, cost effective solution (pay as you grow)
- Integrated Home Agent
- Utilizes high performance server as hardware platform

ST-40
- High availability
- Fully redundant architecture with no single point of failure
- Supports integrated Home Agent
- Centralized architecture
- Can manage up to 10,000 BS and 2 million active sessions

ControlMAX AAA

- WiMAX AAA Server
  - Simultaneous support for multiple EAP methods (including EAP-TLS, EAP-TTLS and EAP-AKA)
  - Full support for Mobile IP
  - Centralized encryption and key management for mobile WiMAX
  - Provides key subscriber data for lawful intercept solutions
  - Session & flow-based accounting
  - Wholesale & retail business models
- Multiprotocol (RADIUS/DIAMETER) support provides a future-proof solution
- Highly scalable architecture, built on Oracle database
- Supports multiple access technologies on single server

ControlMAX – Airspan's Mobile WiMAX Core Network Solution

- A family of core network products to suit all network needs
- Scalable – from entry level to high performance models
- Optimized CAPEX utilization

The IEEE 802.16e-2005 standard and the WiMAX Forum™ Network Reference Model (NRM) divide the WiMAX network into two main parts:

- Access Service Network (ASN)
- Connectivity Service Network (CSN)

The ASN consists of the WiMAX base stations and the ASN Gateway (ASN-GW). ASN-GW controls and aggregates traffic from a large number of WiMAX base stations. CSN is at the network core providing control and management functions like IMS, DHCP, FTP and AAA.

Airspan's ASN-GW & CSN product family is called ControlMAX. In collaboration with Starent Networks and Bridgewater Systems, Airspan provides the most proven, scalable and robust WiMAX core network solution of its kind.

AAA

The ControlMAX AAA includes AAA functionality built around a powerful policy and profile engine. ControlMAX AAA allows Service Providers to offer and control access to the WiMAX network, as well as other access technologies such as EV-DO, UMTS, Wi-Fi and DSL. ControlMAX AAA provides superior performance, delivering a carrier class solution to the WiMAX ecosystem.

The ControlMAX Gateway includes ASN-GW and Home Agent functionality on two platforms, the AN1 and ST40.

Both of these platforms support the Profile C R6 interface to the base station. ControlMAX Gateway offerings utilize common ASN-GW software, with different hardware architecture suited to particular deployment models as described below.

AN-1 Entry level ASN-GW

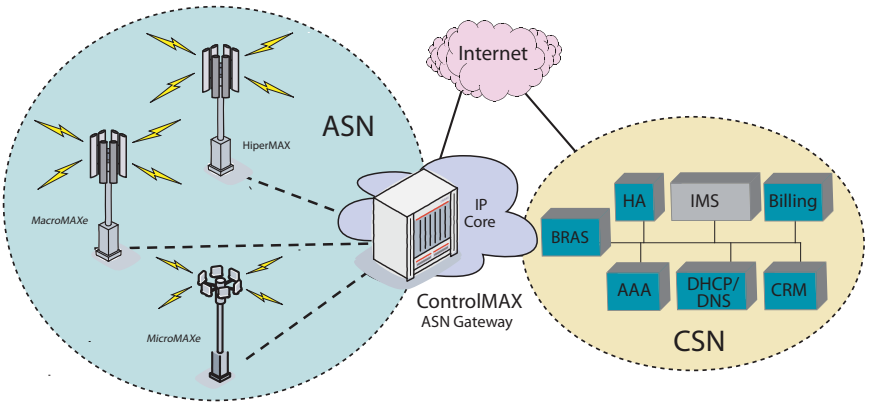
AN-1 is an entry level, low cost ASN-GW optimized for a distributed architecture with large deployments, as well as a centralized architecture for smaller deployments. AN1 operates on a high performance server, allowing additional servers to be added as the network grows.

ST-40 High availability, High Performance ASN-GW

ST40 is a centralized ASN-GW on a carrier class hardware platform with no single point of failure.

The ST40 is highly scalable and enables multiple functions such as ASN-GW, Home Agent, Session Control Manager, and Paging Controller on the same platform. ST40 features the unique ability to deploy services "in-line," - integrated into the bearer traffic plane at the edge of the packet core network. The ASN-GW steers traffic intelligently, leading to the most efficient and profitable transaction.

ST40 is ideal for providing a highly reliable centralized ASN-GW, with impressive advanced features for operating a Mobile WiMAX network, allowing interoperability with other access technologies.



VoiceMAX

The SIP based Admission Control Server

Main Features

- Enables carrier-class VoIP services with no need for client software in the end user devices
- VoiceMAX functions
  - Auto discovery of end users simplifies the registration process
  - Admission Control for managing network resources according to service provider policy
  - Emergency calls prioritization
  - Dynamic UGS management for effective bandwidth utilization
- VoiceMAX architecture
  - SIP based software product deployed on a standalone server in the core network
  - Rack mountable
- VoiceMAX management
  - Local console
  - Over the Internet

VoiceMAX

- Provides carrier-class voice quality over wireless IP
- SIP based protocol
- Supports end user devices from other vendors
- Service Provider defined policy management and enforcement

Carrier-class VoIP requires constant, uninterrupted data flow. In an ideal world packets would not arrive out of sequence or suffer from delays or packet lost. In a shared medium such as wireless access, the amount of carried traffic may fluctuate from one moment to the next causing delay and jitter. Therefore, carrier-class VoIP over wireless cannot be left to chance.

Airspan has deployed in-house expertise in both wireless and voice technology in order to bring a unique, SIP based solution to Voice over Wireless IP (VoWIP), we call VoiceMAX.

VoiceMAX is a standalone server which makes best use of the advanced admission control mechanisms and QoS features of the IEEE 802.16 standard.

VoiceMAX is deployed in the core network, in CSN. It communicates with the WiMAX base stations and with the Softswitch, using SIP protocol, in order to dynamically allocate WiMAX network resources to originating and terminating VoIP calls to ensure desired voice quality, at the same time minimizing waste of pre-assigned bandwidth.

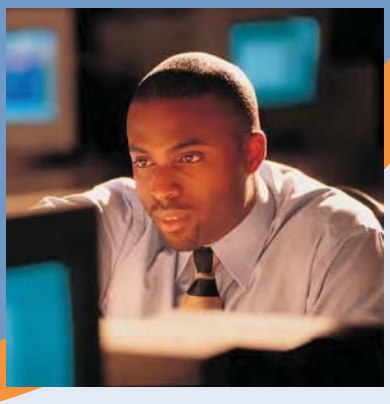
The standalone VoiceMAX server performs the following functions:

- Auto discovery of the end users - VoiceMAX acts as a standard SIP proxy intercepting all SIP massages. The registration packet triggers the "Auto Discovery" mechanism, which at the end of the process gives the VoiceMAX the ability to determine, to which BS a specific end user (SIP User Agent) belongs, thus simplifying the registration process.
- Admission control – VoiceMAX prevents over subscription of network resources in accordance with the policies of the service provider. Enables emergency numbers to be prioritized.
- Dynamic UGS - VoiceMAX provides the ability to dynamically create and tear down UGS sessions. Using this mechanism, it enables guaranteed bandwidth utilization in accordance with the negotiated codec selection.

VoiceMAX can be managed either from the local console or remotely over the Internet.

Netspan – Element Manager for WiMAX

- Element Manager for Airspan's base stations and end user devices
- Optimized for effective management of WiMAX networks
- Captures the real-world experience gained over many years in hundreds of networks deployed



Operations & Management Platform

Main Features

- EMS Manages Mobile WiMAX and Fixed WiMAX network elements
- Field proven management system, managing WiMAX networks worldwide
- Based on Microsoft .Net platform
- Flexible architecture, supporting distributed servers
- Full system configuration, operation and maintenance via standard web clients
- Standard API for integration with OSS/BSS
- Uses standard WiMAX MIB for all configuration and O&M activities

Airspan's WiMAX products incorporate all the features that are required for the initial installation and commissioning of the products as well as their day-to-day efficient running. To this end, all products include comprehensive management capabilities in terms of features designed into the products as well as the centralized Operations & Management (O&M) system, Netspan.

Netspan has been developed as a comprehensive element manager that supports Mobile and Fixed WiMAX deployments of Airspan's products.

Netspan provides the following functions:

- Fault management
- Configuration management
- Administration
- Performance management
- Security management

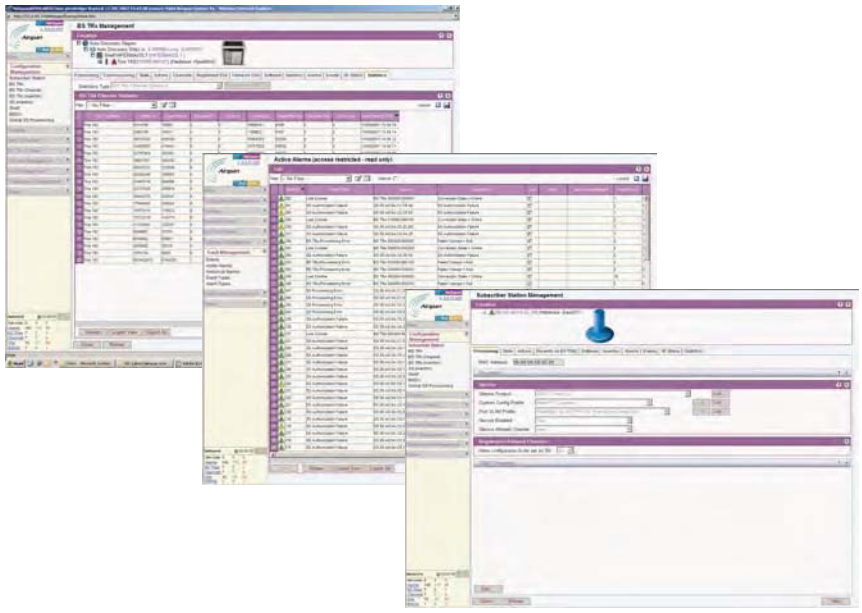
Netspan is designed around a client/server architecture. The Netspan server runs on a PC platform, making use of an SQL database to store the configuration, statistics and alarm history from the radio network. Access to the Netspan server is from web browser such as Internet Explorer, Mozilla Firefox or Google Chrome using the web service of the Netspan server.

The Netspan O&M has terminal mobility service support from day 1, enabling roaming and self-installation by customers using and of the Airspan CPE models.

Auto-CPE provisioning and Auto-Service Flow and Service Product allocation ensures that the network operator can take advantage of any compatible WiMAX Certified CPE that connects to his network. Network Authentication and provisioning may also be managed separately using Airspan's ControlMAX AAA solution.

Each Netspan operator is given configurable access rights, allowing each operator to be granted the rights appropriate to their function.

Netspan provides configuration and diagnostic access to every WiMAX network element, right down to each individual Subscriber Terminal.



Technical Datasheet - Base Stations

	HiperMAX	MacroMAXe	MicoMAXd
Mobile WiMAX	Yes	Yes	No
Fixed WiMAX	Yes	No	Yes
Standards Compliance	IEEE802.16e-2005 IEEE802.16-2004	IEEE802.16e-2005	IEEE802.16-2004
Form Factor	Split Indoor/Outdoor and all Outdoor	All Outdoor	Split Indoor / Outdoor
Frequency Bands	700 MHz, 2.3GHz, 2.5GHz, 3.3GHz, 3.5GHz, 3.7GHz, 4.9GHz	700MHz, 2.3GHz, 2.5GHz, 3.3-3.8GHz	700 MHz, 1.4, 1.5, 1.9, 2.3, 2.5, 2.7, 3.3-3.8 TDD/FDD, 4.9-5.95 GHz
Channel Size	10MHz, 7MHz, 5MHz, 3.5MHz, 1.75MHz	2x10MHz, 2x7MHz, 10MHz, 7MHz, 5MHz and 3.5 MHz	10MHz, 5MHz, 3.5MHz, 3MHz, 2.75MHz, 2.5MHz, 1.75MHz, 1.5MHz
FFT	1024, 512, 256	1024, 512	256
Duplex Method	TDD, FDD, H-FDD	TDD	TDD, FDD
Tx Power (Frequency band dependant)	Up to 24x +36dBm	2x +40 dBm in 2.3/2,5 GHz, 2x37 dBm in 3.3-3.8 GHz	+27dBm in most bands, +22dBm in 4.9-5.95 GHz
Maximum EiRP per sector		+60dBm	44dBm
GPS Synchronization	24hr holdover, Distributed	8hr holdover, Integrated	Distributed
STC	Yes	Yes	No
MRC	Yes	Yes	No
MIMO	2x2	2x4	N/A
MIMO Matrix Type	Matrix A, Matrix B	Matrix A, Matrix B	N/A
CSM	Yes	Yes	N/A
Uplink Sub-Channelization	Yes	Yes	Yes
PUSC	Yes	Yes	N/A
Fractional Frequency Reuse	Yes	Yes	N/A
Dynamic Frequency Selection (DFS)	No	N/A	Yes
Ethernet CS	Yes	Yes	Yes
IP CS	Yes	Yes	N/A
IP version support	IPv6, IPv4	IPv6, IPv4	IPv4
Network Interface	1000bT Ethernet / R6	1000bT Ethernet / R6	100bT Ethernet
End to End VLAN (802.1Q)	Yes	Yes	Yes
Network VLAN Traffic Segregation	Yes	Yes	Yes
ASN Profile	Profile C	Profile C (standalone w/o ASN available)	N/A
Supported Usage Scenarios	Mobile, Portable, Nomadic, Fixed	Mobile, Portable, Nomadic, Fixed	Nomadic, Fixed
Handover Supported	Yes	Yes	N/A
Encryption	DES, AES	AES	DES
Authentication	PKM, PKMv2, EAP-TLS, EAP-AKA, EAP-SIM	PKM, PKMv2, EAP-TLS, EAP-AKA, EAP-SIM	PKM
Environmental (outdoor elements)	ETS 300 019-1-4 Class 4.1E	ETS 300 019-1-4 Class 4.1E	ETS 300 019-1-4 Class 4.1E
Environmental (indoor elements)	ETS 300 019-1-3 Class 3.2	N/A	ETS 300 019-1-3 Class 3.2

Note: Specifications are subject to change without notice and are for information purposes only.

Technical Datasheet - End User Devices

	MiMAX USB	EasyST and ProST	MiMAX Easy and MiMAX Pro
Mobile WiMAX	Yes	No	Yes
Fixed WiMAX	No	Yes	No
Standards Compliance	IEEE802.16e-2005	IEEE802.16-2004	IEEE802.16e-2005
Form Factor	USB 2.0	EasyST - Indoor Self-Install ProST - Outdoor	MiMAX Easy - Indoor Self-Install MiMAX Pro - Outdoor
Frequency Bands	Multi-Band Device 2.3-2.4GHz, 2.496-2.69GHz, 3.3-3.8GHz Single band variants also available	700 MHz, 1.4 GHz 1.5GHz , 1.9GHz, 2.3, 2.5, 2.7 GHz, 3.3-3.8 GHz TDD/FDD variants, 4.9GHz-5.95 GHz variants	2.3 GHz, 2.5 GHz, 3.3-3.8 GHz
Channel Size	10MHz, 8.75MHz, 7MHz, 5MHz	10MHz, 5MHz, 3.5MHz, 3MHz, 2.75 MHz, 2.5 MHz 1.75MHz, 1.5 MHz	10MHz, 7MHz, 5MHz, 3.5MHz
FFT	512, 1024	256	1024, 512
Duplex Method	TDD	TDD, FDD	TDD
Tx Power (Frequency band dependant)	Up to 22dBm	Up to +24dBm in most bands	Up to 27dBm
Rx Sensitivity	-100dBm @5MHz (QPSK) compliant with MRCT 1.0	-103dBm	-101dBm
STC	Yes	Yes	Yes
MIMO	2x2	N/A	Yes
MIMO Matrix Type	Matrix A, Matrix B	N/A	Matrix A, Matrix B
CSM	Yes	N/A	Yes
Uplink Sub-Channelization	Yes	N/A	Yes
PUSC	Yes	N/A	Yes
Fractional Frequency Reuse	Yes	N/A	Yes
Ethernet CS	Yes	Yes	Yes
IP CS	Yes	N/A	Yes
IP version support	IPv6, IPv4	IPv4	IPv6, IPv4
User Interface	USB 2.0	10/100bT Ethernet, WiFi, POTS from an integrated RGW	10/100bT Ethernet
End to End VLAN (802.1q)	Yes	Yes	Yes
Supported Usage Scenarios	Mobile, Portable, Nomadic	Nomadic, Fixed	Mobile, Portable, Nomadic, Fixed
Handover Supported	Yes	N/A	Yes
Encryption	AES	DES, AES	AES
Authentication	EAP-TLS, EAP-TTLS	PKMv2	EAP-TLS, EAP-TTL

Note: Specifications are subject to change without notice and are for information purposes only.

	MRT
Standards Compliance	IEEE802.16d-2004
Form Factor	Ruggedized Vehicle Mounted
Frequency Bands	700 MHz, 1.5, 1.9, 2.3, 2.5-2.9, 3.3-3.8, 4.9, 5.6, 5.8 and 5.9 GHz
Duplex Method	FDD
Tx Power (Frequency band dependant)	Up to 26dBm
WI-FI Interface	
Wi-Fi Modes	Access Point or Bridge
WAN LAN Provisioning	DHCP or Static IP
DHCP Server	Embedded DHCP Server for LAN
Standards	IEEE 802.11b/G
FCC	FCC Part 15, Class A
EN	300 325 2.4 GHz
TELEC	STD-33/STD-66
Security	WEP, WPA TKIP, WPA2 AES
SSID Limit	16
Max TX Power	16dBm
Wired Interface	
Device Type	Transparent Layer 2 Switched Bridge
Standards	IEEE 802.3/Ethernet & 802.1Q VLAN using Ipv4
Device Type	4-Port Switch
Connector Type	RJ-45, Auto Switching
Data Rate	10/100 MB, Auto Sensing
Environmental EMC Safety	
Operating Temperature	-40° to 55°C / -40° to 131°F
Storage Temperature	-40° to 80°C / -40° to 131°F
Humidity	0 to 95% @ 40°C / 104°F, non-condensing
IP Rating	IP66
Shock	30G (Per SAE-J1455, MIL-STD-202G, 213-1, Condition J)
Vibration (random)	02PSD (Per SAE-J1455, MIL-STD-202G, Table 214-I, Condition A)
Shock	ETS EN 301 489-4, FCC Class A
Vibration (random)	IEC60950-1, EN60950-1, TUV

Note: Specifications are subject to change without notice and are for information purposes only.

	AN-1	ST-40
ASN-GW	•	•
Home Agent	•	•
Enterprise Access Gateway		•
WiMAX	•	•
WiFi		•
Open R6 Interface	•	•
Distributed Profile C ASN Support	•	
Centralized Profile C ASN Support	•	•
User Authentication	•	•
Device Authentication	•	•
Paging Controller	•	•
Location Register	•	•
Simple IP (IPv4)	•	•
Proxy Mobile IP (IPv4)	•	•
Intra-ASN (Micro) Mobility	•	•
Inter-ASN (Macro) Mobility (R4)	•	•
CSN Anchored Mobility	•	•
AAA assigned IP addresses	•	•
Local IP address pools (static & dynamic)	•	•
Overlapping private IP address pools	•	•
DHCP Proxy Server	•	•
Enhanced Charging Service	•	•
Intelligent Traffic Control	•	•
Stateful Firewall	•	•
Content Filtering / Parental Control		•
Peer-to-peer Detection & Control		•
Session Recovery		•
Geographic Redundancy		•
L2TP LAC		•
IPSEC		•
GRE Tunneling	•	•
IEEE 802.1q VLANs	•	•
RIP	•	•
OSPFv2	•	•
Prepaid Accounting	•	•
Post Paid accounting	•	•
Hotlining	•	•
Destination Based accounting		•
Lawful Intercept	•	•
CORBA Web Element Management System (FCAPS)		•

Note: Specifications are subject to change without notice and are for information purposes only.

Communications & Networking	• Simple Object Access Protocol (SOAP) Northbound Interface for alarms and provisioning • Physical Connectivity: Ethernet • Client-Server: HTML over HTTP • Equipment Management: SNMP • Database: SQL
Fault Management	• Events and Traps from 802.16f MIB and Private MIB • Active Alarm Monitoring • Alarm Hierarchic Aggregation • Alarm Acknowledgement & Clear • Historical Storage / Logging of Alarms • Alarm and Event Filtering • Alarm Tracking • Status Monitoring
Configuration Management	• Inventory Management • Topology Hierarchy • Base Station Commissioning • Service Provisioning • State Tracking of all network elements • Network wide status reports • Network Software Upgrade Management • Profile Import / Export
Performance Management	• Periodic & On Demand Measurements • Display of key performance indicators • Traffic & Radio Statistics • Statistics Archiving • Export of statistics data • Graphical Analysis
Security Management	• Password and Security Policy Management • Encrypted Password Storage • Multi-level Security Policies • Form & Role based authentication • Policy based content filtering • User activity logging • Multi-user support
OSS Integration	• Standards based SOAP Northbound Interface • Access control security • Extensive API support
Database Management	• Management of Fault and Event Storage • Management of Statistics Storage • Database Integrity Checks • Integrated Database Administration
GUI	• AJAX Technology for enhanced client experience • Platform independent web clients • User defined screen layouts • Context sensitive local help system • Advanced Filters and Search capabilities for rapid troubleshooting • Administration tools
Failure Protection	• Server clustering • Scheduled backup • Full SQL redundancy with SQL mirroring • Distributed Architecture for service redundancy • Supports RAID Controller for disk redundancy

Product Summary

Base Station Products

MacroMAXe	Highly integrated macro-cell base station with all-in-one outdoor packaging of RF and baseband components. Includes dual RF transceivers for 2Tx 4Rx support; Supports MIMO Matrix A and B
HiperMAX	Split architecture base station which incorporates MIMO, beamforming and high availability. Designed to deliver optimum capacity and net throughput for Fixed and Mobile WiMAX applications in both FDD and TDD.
MicroMAXd	Cost effective, highly modular base station designed for lower density deployments and micro-cell/pico-cell applications in both FDD and TDD.

End User Devices

MiMAX USB	A revolutionary multi-band USB device that turns any laptop into a Mobile WiMAX client thus enabling user mobility and roaming. Single band variants are also available
MiMAX Easy	Self-install Subscriber Station for mobile WiMAX offering MIMO Matrix A and B benefits.
MiMAX Pro	Outdoor Subscriber Station for mobile WiMAX offering MIMO Matrix A and B benefits.
EasyST	A revolutionary indoor, self-install WiMAX Subscriber Station with optional IEEE 802.11b/g Wi-Fi and Voice over IP (VoIP) add-ons.
EasyWiFi	An IEEE 802.11b/g Wi-Fi Access Point, which tightly integrates with the EasyST to create a combined WiMAX-WiFi unit for residential use.
EasyVoice	A residential gateway unit with 2 VoIP ports and 1 Ethernet port that integrates with the EasyST to create a combined voice and data WiMAX Subscriber Station with VoIP and Ethernet ports.
ProST	An environmentally hardened outdoor Subscriber Station developed to provide superior link budget performance in difficult deployment conditions. Requires professional installation. Delivers VoIP services when used with SDA-MSG (Multi-Services Gateway).
ProST-WiFi	A ProST with a Wi-Fi Access Point integrated into the same outdoor enclosure. Enables integrated WiMAX and Wi-Fi applications in outdoor public spaces.

Network Products

ControlMAX	Airspan's Core Network product family, consisting of the ControlMAX Gateway and ControlMAX AAA
ControlMAX Gateway	Airspan's Access Services Network (ASN) gateway product family which includes the ST-40 and the AN-1 products. An essential component of any Mobile WiMAX network.
ControlMAX AAA	Airspan's AAA and policy product family. An essential component of any Mobile WiMAX CSN.
VoiceMAX	Enables WiMAX networks to deliver robust SIP based services such as VoIP and video, with integrated Admission Control for ensuring carrier-class voice quality.

Network Management Products

Netspan	A comprehensive element management solution that manages Airspan's WiMAX network elements.

Glossary

ASN	Access Service Network
ATCA	Advanced Telecommunications Computing Architecture
BWA	Broadband Wireless Access
CPE	Customer Premises Equipment
CSN	Connectivity Service Network
FDD	Frequency Division Duplex
IMS	IP Multimedia Subsystem
LNA	Low Noise Amplifier
MAC	Media Access Control Layer
MIMO	Multiple Input Multiple Output
MRC	Maximal Ratio Combining
NLOS	Non Line of Sight
OBSAI	Open Base Station Standard Initiative
OFDM	Orthogonal Frequency Division Multiplexing
OFDMA	Orthogonal Frequency Division Multiplexing (Multiple Access)
PHY	PHYsical Layer
SAS	Smart Antenna System
SDMA	Spatial Division Multiple Access
SDR	Software Defined Radio
SIP	Session Initiation Protocol
SOFDMA	Scalable OFDMA
STC	Space-Time Coding
TDD	Time Division Duplex
VoIP	Voice over IP

Find out
more about Airspan's
products and solutions

Airspan has sales offices in the following countries:

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