



# Motorola

## wi4 WiMAX



### Definition

WiMAX (Worldwide Interoperability for Microwave Access) provides advanced wireless broadband access in fixed, portable, and mobile environments. Motorola's WiMAX solutions are based on the IEEE (Institute of Electrical and Electronic Engineers, Inc.) 802.16e-2005 standard adopted in 2005 for fixed and mobile applications. Focused on licensed bands, primarily 2.5GHz, 3.5GHz and 2.3GHz, WiMAX is a wireless alternative to wired broadband access with greater range and bandwidth than WiFi and a roadmap to mobility. An industry consortium known as the WiMAX Forum™ manages the certification program for the WiMAX standard and is building an ecosystem to support an end-to-end solution.

### Building U.S. Coverage

Sprint Nextel has chosen Motorola to build out WiMAX infrastructures in various cities across the United States. It will provide select area coverage that complements Sprint Nextel's existing EV-DO network, eventually leading to a nationwide network with the expectation of covering 100 million people by the end of 2008. The WiMAX solution will allow customers to experience a data network that offers faster speeds, greater convenience and enhanced multimedia quality.

### Wait No Longer; WiMAX is Now

WiMAX is changing the way the telecommunications industry is looking at connecting people. It's placing the world on the threshold of a total transformation in communications. By untethering broadband, WiMAX makes broadband accessible in all regions of the world for fixed, portable and mobile users with the most cost-effective, fastest and easiest-to-deploy option in the market today. Emerging-to-mature markets are adopting this new technology including diverse operator profiles – telcos, cable, 2G, 3G and even new entrants. WiMAX is the next step in mobile broadband through an all-IP access technology.

### Motorola's wi4 WiMAX

Motorola, a global leader in mobile WiMAX, is involved in nearly 80 WiMAX engagements, with customers in more than 40 countries around the world and has contracts with 19 of them for commercial WiMAX systems. Motorola provides a full end-to-end WiMAX solution that extends beyond just the infrastructure to the IP core, operations and management, full services portfolio, chipsets, customer premises equipment (CPE) and mobile devices.

Motorola's WiMAX solution makes the world one big, never-ending hot spot where service providers can provide high-speed communications to customers whether they are at home, in the office, or on the move. Motorola's wi4 WiMAX solutions enable service providers to blend their traditional lines of business and position themselves to deliver full suites of voice, video and data wirelessly to fixed, portable and mobile users.

Motorola's WiMAX solutions promise to –

- Deliver the “wireless broadband pipe,” enabling rich-media, bandwidth-intensive applications including voice, data and video for fixed, portable and mobile users.
- Interoperate with a vast ecosystem of WiMAX networks, applications, devices and consumer electronics to deliver pervasive coverage and a true “personal broadband” experience.
- Give service providers the opportunity to extend coverage and capabilities with a high-performing, standards-based wireless broadband access portfolio to meet the needs of residential, enterprise and government.
- Be cost-effective and go where teledensity has historically been low.

### Key Benefits

- Industry acceptance by a growing population of more than 520 companies that are members of the WiMAX Forum™ - as of November 2007
- Infrastructure, deployment and CPE cost less than competing broadband technology
- Advanced telecommunications technologies line-up: S-OFDMA (Scalable - Orthogonal Frequency Division Multiple Access) – more bits per hertz and improved mobility performance; all-IP architecture – cost effective; MIMO (Multiple Input Multiple Output) and Smart Antennas – better coverage.

### Typical Users (License Holders/Service Providers)

**Wireline Operators** – compete in new geographies and add mobility to their existing subscriber base

**Wireless Cellular Providers** – operate in new geographies and add data-play (2G operators) or complement data-play (3G operators)

**Wireless Internet Service Providers** – become a network operator and provide mobility as an option to customers

**Cable Operators** – reach business customers with data-play and add mobility

### Typical Users (Customers)

**Enterprises & Municipalities** – keep workers and facilities connected to access company networks and applications

**Residential** – offer Internet connectivity and Voice over IP (VoIP)

### World's Largest WiMAX Deployment

Motorola is rolling out the largest current WiMAX deployment in the world in Pakistan for Wateen Telecom. The WiMAX network is a crucial part of Wateen Telecom's vision to create a world-class communications network in Pakistan as it provides a cost-effective and fast-to-deploy broadband solution. Deployed in 17 major cities within nine months of the contract award, it employs Motorola's WiMAX access network and subscriber units, allowing Wateen to offer residential and commercial services, including Internet access, data services, voice, VPN and public hotspots. "Having Motorola design, supply and deploy our WiMAX network has given us a world-class network in minimal time," said Tariq Malik, chief executive officer, Wateen Telecom.

### Chile Goes High-Speed

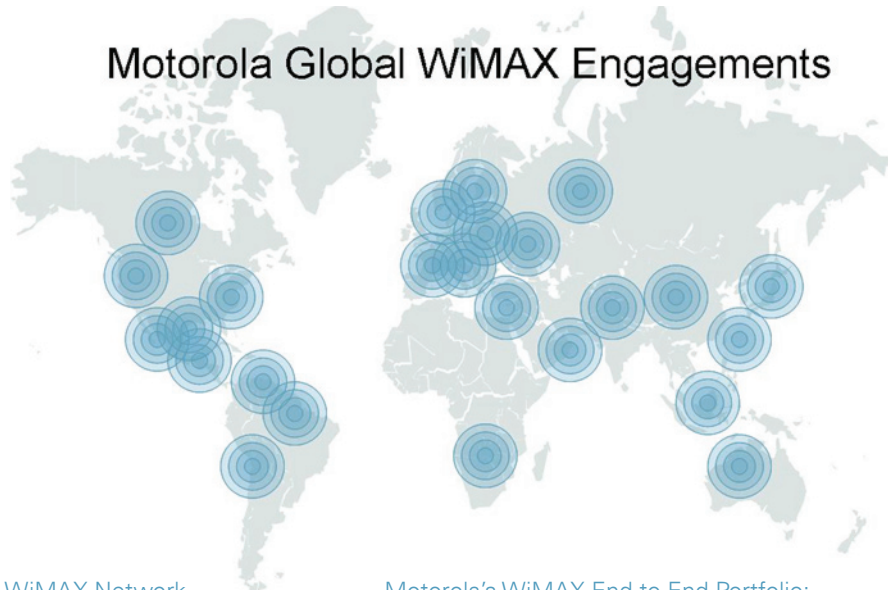
VTR, Chile's largest multi-channel television and residential high-speed Internet access provider, has selected Motorola's WiMAX solution to provide telecommunication services in those places where it currently does not have service. The WiMAX solution will allow VTR to potentially reach 3.4 million homes, or 80 percent coverage throughout the country. WiMAX solutions are key to providing high-speed wireless broadband so existing operators like VTR can provide wireless high-speed data that will be able to support rich applications using voice and data, among other dedicated services.

## Anticipated Growth of WiMAX

2008 promises to be another exciting year for WiMAX and the entire 4G landscape. We expect that in 2008 several large scale national WiMAX deployments will be announced in Asia and Europe. Currently our conservative forecasts are calling for 37 million WiMAX globally subscribers by 2011.

-Yankee Group , December 2007

## Motorola Global WiMAX Engagements



### Motorola WiMAX Network Deployments\*

- Wateen (Pakistan)
- Sprint Nextel (USA)
- Clearwire (USA)
- VTR (Chile)
- Agni Systems (Bangladesh)
- NeckarCom (Germany)
- Mena Telecom (Bahrain)
- Warid Telecom Uganda
- Taiwan Far EasTone Telecom
- Mobilink (Pakistan)
- Atheeb (Saudi Arabia)

### Motorola WiMAX Trials\*

- Maxis (Malaysia)
- SOFTBank (Japan)
- Sprint Nextel (USA)
- TVA (Brazil)
- Vietnam Posts and Telecommunications Group (VNPT - Vietnam)
- Primus Canada and Mipps
- Bolloré Télécom (France)
- United Information Highway (Thailand)

(\*) Publicly announced engagements as of March 2008.

### Motorola's WiMAX End-to-End Portfolio:

- Broad portfolio of infrastructure including ground-based and tower-top (zero footprint) equipment
- World-class WiMAX mobile devices; fast hand-offs between devices and base stations
- Services and security
- Efficient, flat IP-based network architecture
- Advanced antenna technologies such as MIMO and dynamic beam-forming for better capacity, coverage and throughput
- WiMAX chipsets for mobile devices
- Flexible hardware and software defined radios
- Next-generation IP core solutions, empowered by the Motorola IP Multimedia Subsystem (IMS)

### Empowering the Personal Broadband Revolution

Wi4 WiMAX is part of Motorola's MOTOwi4™ comprehensive portfolio of wireless broadband solutions and services that deliver and extend coverage. With this unique portfolio comes an innovative end-to-end solution. Delivering IP coverage to virtually all spaces, MOTOwi4 also includes wi4 Fixed, wi4 Mesh, and wi4 Indoor solutions for private and public networks. All of the MOTOwi4 solutions complement each other and can be deployed to meet the specific requirements for public and private networks.

For more information on MOTOwi4 solutions, visit [www.motorola.com/motowi4](http://www.motorola.com/motowi4)



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