

The Relationship Between WiBro and Mobile WiMAX



The Situation

With the recent ratification of the Mobile WiMAX IEEE 802.16e-2005 standard in December 2005, many fixed, mobile and wireless operators around the world are looking seriously to Mobile WiMAX as a key element of their future network plans.

System and certification profiles, test specifications and test equipment all under development are among the certification activities also encouraging operators to migrate to Mobile WiMAX. In addition, a number of official Mobile WiMAX certification laboratories have also been chosen to undertake future product certification, giving a clear indication that Mobile WiMAX equipment and service is on the road to widespread commercial rollout worldwide. The progress on the standards and certification side is also complemented by successful small and large scale Mobile WiMAX field trials being undertaken around the world by operators including Sprint (North America), Telecom Italia (Italy), Wateen Telecom (Pakistan), Omnivision (Venezuela) and TVA Sistema de Televisao (Brazil).

As a result of this significant progress, Mobile WiMAX is poised to take off, and is attracting a significant level of attention from operators as a real choice for their future network plans. Despite the considerable momentum building around Mobile WiMAX, there is still confusion on the relationship between WiBro and Mobile WiMAX, and the role each plays in the evolving WiMAX world.

The Facts

The initial uncertainties surrounding WiBro and its relationship with Mobile WiMAX were driven by early standard initiatives in Korea through the Telecommunication Technology Association (TTA), however, the WiBro requirements released by MIC in July 2004 harmonized WiBro under the Mobile WiMAX baseline standard, (i.e. IEEE 802.16e-2005).

WiBro is the service name for Mobile WiMAX in Korea and uses the same standards, system and certification profiles and certification processes as Mobile WiMAX. In attempting to address the uncertainties that exist regarding WiBro's positioning relative to Mobile WiMAX, WiBro is a Korean Mobile WiMAX service that:

- Is based on the same IEEE 802.16e-2005 standard as Mobile WiMAX.
- Has functionality defined by the Mobile WiMAX system profile, with identical PHY, MAC and Power Classes to Mobile WiMAX.
- Uses equipment to be certified under one of the Mobile WiMAX certification profiles that designate frequency, duplexing and bandwidth requirements.
- Will be certified using the Mobile WiMAX certification processes and laboratories, one of which is TTA in Korea.
- Demonstrates a leading Mobile WiMAX service that operators around the world are actively looking towards as a model that will ensure the commercial success of Mobile WiMAX technology.

The Standards

On 29 July 2004, the MIC made a public announcement that clarified the positioning of WiBro in relation to WiMAX: **WiBro is the service name for Mobile WiMAX in Korea.** WiBro uses the Mobile WiMAX System Profile. The system profile contains a comprehensive list of features that the equipment is required or allowed to support, and, as a result, WiBro offers the same capabilities and features of Mobile WiMAX.

The MIC issued the following requirements for WiBro, clearly showing that WiBro was a member of the Mobile WiMAX family:

- Baseline Standards: IEEE 802.16e-2005
- Frequency Band : 2.3GHz
- Channel Spacing : 9MHz (Effective bandwidth : 8.75MHz)
- TDD Duplexing scheme.

Since this announcement, the WiBro community has made significant efforts towards actively participating in the development of the IEEE 802.16e standard. More than fifty members of the WiBro community played a major role in the eventual ratification of the standard in December 2005. In adopting the Mobile WiMAX IEEE 802.16e standard, MIC and TTA succeeded in harmonizing Korea's standardization efforts with that of the global community, and ensured that the WiBro community's experience in Korea could be applied on a global level.

Within the Mobile WiMAX system profile, multiple certification profiles have been designated by the WiMAX Forum to ensure equipment conforms in terms of frequency band, channel bandwidth and duplexing mode. Utilizing TDD and occupying 8.75MHz of spectrum in the 2.3GHz frequency band, WiBro meets all the requirements of one of the designated Mobile WiMAX certification profiles. WiBro products are effectively Mobile WiMAX products tailored to a specific bandwidth within Mobile WiMAX's allocated frequency range.

The Future of WiBro and Mobile WiMAX

Further highlighting WiBro's position within the Mobile WiMAX family, the entire ecosystem of the WiBro service – including service providers, equipment vendors, TTA and the Korean Government – have all agreed that WiBro products will all be certified under the Mobile WiMAX certification program when it becomes available. This decision guarantees global interoperability, ensures operators that WiBro will benefit from the economies of scale Mobile WiMAX will provide, and also enables global roaming for users of the WiBro service. In addition, where regulatory frameworks permit, equipment certified under the certification profile that supports WiBro may be adopted in other countries around the world outside Korea.

Korea is also playing a leading role in the Mobile WiMAX certification process, with TTA Lab being announced as an official Mobile WiMAX certification laboratory at the February 2006 Paris WiMAX Forum, making it the second official Mobile WiMAX certification laboratory after CETECOM (Centro de Tecnología de las Comunicaciones) Spain.

Both TTA Lab and CETECOM are working aggressively with the WiMAX Forum CWG (Certification Working Group) and TWG (Technical Working Group) to meet the current target dates of 1Q2007 for Mobile WiMAX certification Release 1 Wave 1 and 3Q2007 for Release 1 Wave 2.

The WiBro community has been and will continue to be a driving force in Mobile WiMAX standards and certification development and a key contributor to the WiMAX Forum. The Korean WiBro community has provided over sixty members, from service providers to equipment vendors and many other areas of industry in Korea, to assist in a wide range of working groups within the WiMAX Forum. WiBro member companies also have served on the Board of Directors.

For more information on Mobile WiMAX and WiBro, visit www.wimaxforum.org.