



Unlicensed WiMAX – A Profitable Business Case Often Overlooked

WiMAX Today

The WiMAX equipment market is a robust market growing at strong triple-digit growth quarter-over-quarter and year-over-year. According to Sky Light Research, in 2007 the market grew north of 150 percent over the previous year – which translates to strong, consecutive double-digit growth quarter-over-quarter. A growing selection of unlicensed WiMAX radios adds a unique element to the market that was not available previously. Historically, most WiMAX equipment only was offered in licensed frequencies, however, unlicensed WiMAX offers a more standardized technology for those service providers who:

- do not have the deep pockets to purchase costly spectrum,
- were not in on the early spectrum auctions, or
- want to augment their current network to reach additional customers with enhanced services.

Although WiMAX is a fairly new market (certified gear officially shipped in 2006), the predecessor to WiMAX, proprietary wireless broadband access (WBA) technology, has been around for over a decade and continues to thrive, especially in unlicensed spectrum. The unlicensed technology caters to a variety of service providers worldwide, such as ISPs and rural telcos, who deploy broadband and/or voice services to residential and enterprise customers. Over the last couple of years, 5 GHz has become the unlicensed frequency of choice for wireless access, generating approximately 75 percent of all unlicensed wireless broadband shipments in 2007. The spectrum is ideal because it is less congested than 2.4 GHz and has a stronger global presence than 900 MHz. Most regions in the world have 5 GHz spectrum, either licensed or unlicensed, which is one reason why the market is seeing an increasing demand for WiMAX in the 5 GHz frequency.

5 GHz WiMAX allows service providers to offer a standardized carrier class service and compete head-on with the larger voice and broadband operators in their regions. Unlicensed WiMAX provides many of the same carrier class features as licensed WiMAX: QoS, higher spectral efficiency, and better ROI due to leveraging standardized WiMAX components. It also eliminates some of the risk involved in investing in a wireless network that is 100 percent dependent on one vendor source.

While it is true that only one frequency in WiMAX is certified and certified equipment is really the only way to ensure that equipment meets WiMAX specifications and is interoperable; it is also true, that in frequencies higher than 3.8 GHz mobility become a moot point and the need for interoperability to execute hand-offs between different vendors' WiMAX gear just isn't necessary. Higher frequencies cannot support mobility and therefore the requirement for a more complex WiMAX architecture is not essential. Until the Forum offers Certification, equipment vendors should conform their radios to the WiMAX specification as much as possible. In order for certification to take place, the WiMAX Forum needs to make lab space available for testing and create a 5 GHz profile.



In addition, at least three vendors need to submit products according to the Forum's profile. The first two have yet to occur; however, as more vendors start to ship unlicensed WiMAX gear, pressure on the Forum to certify 5 GHz WiMAX may increase.

Aperto's WiMAX Offering

Out of the handful of vendors with unlicensed WiMAX offerings, one vendor, Aperto, recently announced their License Exempt PacketMAX WiMAX family of products for the 5.x GHz spectrum. The products span the 5.15 – 5.925 GHz frequencies and include two subscriber units – a residential CPE and an enterprise CPE. The radios' integrated QoS provides classification on L2, L3, L4 for rich IP networking. The radios also include tunable ARQ, which enables higher throughput and improved voice quality, allowing service providers to generate higher-revenue from value-added services. This is especially important if the service provider is already providing voice or broadband services through cable, T1/E1's, or other wired or wireless technologies.

Many times providers will use unlicensed WiMAX to augment current broadband and voice networks by providing additional coverage to regions where access to wired lines is not available or practical. For example, some carriers have installed unlicensed WiMAX to serve rural areas, outside of the scope of their wired or licensed wireless urban network. This is an economic and efficient method to serve many customers who are geographically dispersed.

Wight Cable, on the Isle of Wight, in the UK, is an example that is using WiMAX in the 5 GHz band for a competitive advantage. With WiMAX, Wight Cable is competing head-on with the regional ILEC, British Telecom. Wight Cable is able to offer its enterprise customers broadband service with more rapid installation by avoiding the set-up and red-tape of installed wired lines. Residential customers benefit from WiMAX by being able to bundle their cable television service with their broadband and voice services offered over WiMAX. Standard packages include two phone lines, line rental (which is key in the UK), unlimited downloads, and broadband service ranging from 1 Mbps to 8 Mbps. While service prices are constantly changing, as of March 2008, Wight Cable prices were very competitive compared to BT's prices.

Wight Cable has a strategic mix of services that should benefit not only the customer but also bottom line. When service providers offer enterprise and/or voice services, they are able to charge a higher premium. Furthermore, voice drives higher customer retention due to the hassle associated with changing your telephone number. Given Wight Cable's service mix, and assuming an average take rate in customers, they should see an ROI with Aperto's License Exempt WiMAX equipment within two years.

Additional operators are following Wight's example and are deploying Aperto's License Exempt WiMAX globally. Operators in Columbia, India, Poland, and the United States have deployed or plan to deploy WiMAX to achieve similar benefits as Wight Cable. Aperto's larger family of 5 GHz products has been used in Russia, Ukraine, Lithuania, Spain, Portugal, Italy, Brazil, Mexico, Canada, and Iraq.



In Summary

The excitement of WiMAX tends to focus on the large Tier1 deployments in licensed bands, however, often gets overlooked, is the substantial business opportunity brewing that caters to smaller service providers across the globe. Many of these providers do not have access to licensed spectrum, which gives way for unlicensed WiMAX to accommodate their business plans economically. Anytime the network can be expanded or increase its capacity with a relatively minimal capital outlay, the results will be skewed more favorably. In a nutshell, the benefits of unlicensed WiMAX are many:

1. Unlicensed WiMAX in the 5 GHz frequencies offers many of the same benefits as licensed WiMAX without the cost of owning the spectrum out right. Although, this means sharing the airwave with other users and technologies (versus your own frequency in a licensed scenario), there are technical advances that can mitigate interference such as interference rejection and standard Dynamic Frequency Selection.
2. Unlicensed WiMAX offers a more standardized carrier class technology that provides enhanced multi-path functionality and link budget through an OFDM 256 FFT PHY.
3. Unlicensed WiMAX offers carrier class QoS that supports business-grade SLAs and differentiated services and tiered pricing that allows service providers to cater to different target markets with the same equipment.
4. For those service providers who favor the idea of WiMAX but were not fortunate enough to acquire a piece of the lucrative licensed spectrum, unlicensed WiMAX provides an opportunity to compete head-on with other carriers in the region.
5. Unlicensed WiMAX offers an expedited installation process of business and residential services for those customers who need access fast. Wireless services are typically much faster to deploy than wired services.

About Sky Light Research

Sky Light Research, a third party research firm located in Scottsdale, Arizona, U.S., is known worldwide as a leading resource for credible and detailed market intelligence in the microwave point to point and wireless broadband/WiMAX equipment industries. SLR works with equipment vendors, operators, and the investment community to establish detailed, accurate and reliable forecasts and market share reports that are published every 90 days. For more information, contact Sky Light Research at +1.480.563.2251, email information@SkyLightResearch.com or visit www.SkyLightResearch.com.