WiMedia Quick FAQ

How does WiMedia UWB Compare to Wi-Fi, Bluetooth?

As Wi-Fi and Bluetooth are two well entrenched wireless technologies, it is natural to ask why we need another technology. The answer requires an understanding of the intent of the existing technologies as well as their performance capabilities and limitations.

Bluetooth

Originally developed primarily as a wireless connection between a mobile phone and a headset, Bluetooth has acquired a reputation as a low power technology. Although usage has expanded to connect a variety of devices and peripherals the main limitation is slow speed. Even Bluetooth 2.0 with EDR tops out at 3 Mbps. However, compared to Wi-Fi it is usually a more user-friendly technology for setting up connections between devices.

Wi-Fi

Developed primarily to provide wireless access to the internet from PCs and laptops, current implementations offer data rates up to 54Mbps and basically "whole house" coverage. Although ideal for its intended purpose, implementers have discovered that it is less than ideal for multimedia streaming due to both lack of bandwidth and lack of quality of service (QoS) provisions. Wi-Fi is also geared primarily towards the infrastruucture wireless access point model and ad hoc peer to peer networking can be difficult to set up.

WiMedia UWB

WiMedia's UWB technology was developed from the outset to be the ideal technology for implementing Wireless Personal Area Networks (WPANs). With data rates of up to 480Mbps and with QoS provisioning "built-in" the technology is ideal for multimedia applications. Furthermore, the regulartory limits on output power work to its benefit by limiting range to "room sized" areas, thereby reducing interference potential with neighboring networks. At the same time this results in a very energy efficient technology – even better than Bluetooth for example. The discovery and association mechanisms which form part of the WiMedia specifications makes interoperability between devices seamless to the user.

	WiMedia UWB	Bluetooth (2.0 + EDR)	Wi-Fi (802.11g)
Data Rate	480Mbps	3Mbps	54Mbps
Range	10m	10m	30m
Energy for 1GB transfer*	5.4mWh	136mWh	56.6mWh
Time for 1GB transfer*	82s	8192s	409s
Operating Frequency	3.1 – 10.7GHz	2.4GHz	2.4GHz

Wireless Technologies Comparison Table

Which technology to choose?

As described previously, each technology has its own strengths and weaknesses. With the advent of WiMedia UWB, the implementer can know choose the best technology for the desired characteristics of his application. For WPAN applications, we believe WiMedia UWB is the ideal choice, offering a unique combination of high speed, low power and ease of use. For this reason, WiMedia UWB has been chosen by the USB Implementers Forum as the technology behind its Wireless USB implementations. The Bluetooth SIG has also selected WiMedia UWB to be the foundation of future high-speed implementations of their specifications.

* "Power consumption considerations for WPANs" – Electronic Products, December 2008
http://www2.electronicproducts.com/Power_consumption_considerations_for_WPANs-article-papo_WiMedia_dec2008-html.aspx