

What type of Performance can you achieve with Wireless USB?

Wireless USB is a cable-free replacement for wired USB implementations, offering the user the same ease of use but without the clutter of wires. 99.5% of all USB cables shipped today are less than one meter in length, which makes the Wireless USB an ideal wireless replacement for the Wired USB. However, it is important to set the user expectations correctly for the various types of Wireless USB implementations, primarily concerning the observed rate and range performance.

Rate

The maximum data rate of the physical layer interface (PHY) of Wireless USB matches the PHY rate of wired USB at up to 480 Mbps at close range. However, with any protocol the achievable data throughput is always less than the PHY rate. For example, wired USB 2.0 achieves an actual data throughput of around 270Mbps.

Note: For comparison, the popular 8012.11g standard uses a PHY rate of 54Mbps, but the actual throughput nets out at only around 19Mbps.

Early Wireless USB solutions targeted products that adapt Wireless USB to legacy wired products. Dongles for legacy PC host (HWA) and Wireless USB hubs for legacy devices (DWA) brings Wireless USB to the existing wired USB 2.0 host and devices. While this application has proved to be beneficial and delivers solid performance, these implementations have to convert from the wired USB 2.0 protocol to the Wireless USB protocol on both the host and peripheral side. The fact that this conversion happens in these legacy systems does not allow optimal performance of Wireless USB to be achieved. These types of solutions will achieve a data throughput capability of approximately 50-70 Mbps.

Other implementation are now entering the market that are termed native solutions. Native solutions provide data throughputs up to 200 Mbps and beyond. These speeds are achieved as the Wireless USB solution is integrated directly into system bus structures and not via the wired USB structure. This eliminates the number of protocol layers needed to traverse a wireless USB connection, and provides the ability to achieve the optimal speeds of Wireless USB.

WiMedia Quick FAQ



Range

All wireless technologies offer a tradeoff between data rate and range. The Wi-Fi 802.11g standard for example offers a throughput of 19Mbps and a maximum range of about 35m, but users only achieve maximum throughput right next to the access point. Wireless USB also obeys these same laws of physics: The closer devices are to each other, the higher the potential throughput. Ranges of up to 10m are possible.

Usage Vision

Wi-Fi technology has become very common in the market place. While quantity is an important part of connectivity, so is overall performance including data-rate/range and power consumption. Wireless USB has the technology features that enables it to deliver excellent performance and power consumption. This is critical for today's consumer and communication equipment that are increasingly more mobile and with larger memory capacities. Wireless USB is a builds upon the strength and consumer awareness of knowing what USB does. With Wireless USB, the consumer will receive not only similar performance as wired USB 2.0, but with the aesthetics of no unsightly cables, the ease of use of no plugging and unplugging, and with the improved convenience and mobility as there is no need to "pack and carry cables".