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# NEW IEEE 802.11ac™ SPECIFICATION DRIVEN BY EVOLVING MARKET NEED FOR HIGHER MULTI-USER THROUGHPUT IN WIRELESS LANS

*New amendment to IEEE 802.11 WLAN standard enables multi-gigabit data throughput in 5 GHz band*

**PISCATAWAY, N.J., USA, 7 January 2013** – IEEE, the world's largest professional organization advancing technology for humanity, today announced approval of IEEE 802.11acTM-2013[[1]](#footnote-1), which is intended to achieve higher multi-user throughput in wireless local area networks (WLANs). The new amendment is intended to improve wireless local area network (WLAN) user experience by providing data rates up to 7 Gbps in the 5 GHz band, more than 10 times the maximum speed that was previously standardized.

“As wireless networks become more widely deployed, users are able to transition applications from fixed links to the convenience, freedom and versatility of wireless links,” said Bruce Kraemer, chair of the IEEE 802.11 working group. “These transitions create an evolutionary demand to enhance the capacity of wireless networks in order to support the increasing number of users, as well as new classes of applications with higher bandwidth requirements. Moreover, as WLAN usage of shared spectrum grows, the wireless access mechanisms need to be improved to achieve higher multi-user throughput. IEEE 802.11ac is intended to meet these evolving needs for higher data rates and to help enable new generations of data-intensive wireless applications.”

The IEEE 802.11ac specification adds channel bandwidths of 80 MHz and 160 MHz with both contiguous and non-contiguous 160 MHz channels for flexible channel assignment. It adds higher order modulation in the form of 256 quadrature amplitude modulation (QAM), providing an additional 33-percent improvement in data rate. A further doubling of the data rate is achieved by increasing the maximum number of spatial streams to eight.

The IEEE 802.11ac amendment introduces a revolutionary new technology to support multiple concurrent downlink transmissions, referred to as “multi-user multiple-input, multiple-output” (MU MIMO). By using smart antenna technology, MU MIMO enables more efficient spectrum use, higher system capacity and reduced latency by supporting up to four simultaneous user transmissions. This is particularly useful for client devices with a limited number of antennas, such as smartphones and tablets.

The IEEE 802.11ac amendment streamlines the existing transmit beamforming mechanisms and is increasing the adoption of the technology across devices. Transmit beamforming is a valuable technology that significantly improves coverage, reliability and performance.

More than 300 individuals from equipment and silicon suppliers, service providers, systems integrators, consultant organizations and academic institutions from more than 20 countries participated in IEEE 802.11ac’s development.

IEEE 802.11ac standards document is available for purchase at the [IEEE Standards Store](http://www.techstreet.com/ieee/cgi-bin/detail?vendor_id=4359).

IEEE 802.11[[2]](#footnote-2) defines the technology for the world’s premier wireless LAN (WLAN) products. IEEE 802.11-based products are often branded as “Wi-Fi®” in the market. IEEE 802.11 standards underpin wireless networking applications around the world, such as wireless access to the Internet from offices, homes, airports, hotels, restaurants, trains and aircraft. IEEE 802.11’s relevance continues to expand with the emergence of new applications, such as the smart grid, wireless docking, and the “Internet of Things.” For more information about the IEEE 802.11 working group, visit <http://standards.ieee.org/develop/wg/WG802.11.html>.

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1. IEEE 802.11ac™-2013 “Standard for IT - Telecommunications and Information Exchange Between Systems - LAN/MAN - Specific Requirements - Part 11: Wireless LAN Medium Access Control and Physical Layer Specifications - Amd 4: Enhancements for Very High Throughput for operation in bands below 6GHz” [↑](#footnote-ref-1)
2. IEEE 802.11™-2012 “Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications” [↑](#footnote-ref-2)