

# **Motorola's OFDM Can Support 300 Mbps Mobile Broadband Data Rates in The Next Generation of Heterogeneous Wireless Networ**

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[Motorola Inc.](#) (NYSE:MOT), by combining results from field experiments and research conducted by Motorola Labs, has proven existing Orthogonal Frequency Division Multiplexing (OFDM) technology can support high-speed mobile networks with a peak downlink speed of up to 300 Mbps. This research demonstrates that future all-IP mobile networks using OFDM technology have the capability to provide a broadband user experience that was previously thought to be unattainable.

"Motorola Labs, through extensive research and field tests over the past four years has established OFDM as a key technology in the next generation of heterogeneous wireless networks," said Padmasree Warrior, chief technology officer, Motorola. "The promise of affordable, available mobile broadband is driving Motorola's vision of seamless mobility."

Motorola Labs recently completed a series of mobile wide area broadband wireless field experiments using OFDM on a 20 MHz bandwidth channel with multiple antenna handheld devices. Applying data from the field experiments in laboratory tests, Motorola Labs validated that a 20 MHz mobile OFDM channel can support peak uncoded channel data rates of up to 300 Mbps.

The field tests of Motorola Labs' mobile OFDM system were conducted in the greater Chicago area in both urban and suburban environments. In the field tests Motorola Labs attained data throughputs exceeding 20 Mbps with a latency of just 25 milliseconds while simultaneously demonstrating real-time applications including videoconferencing, multi-Mbps streaming video, and voice over IP and traveling at typical highway speeds (in excess of 100 kilometers per hour or 62 mph).

The promise of faster wireless networks that can meet the demand for mobile broadband that supports multi-media applications has great appeal to operators.

“As the telecomm industry becomes more complex and competitive, operators need to get the most efficiency and speed from their networks while delivering a superior end user experience at a greatly reduced cost per bit,” said Adrian Nemcek, president and chief executive officer of Motorola's Global Telecom Solutions Sector. “Several leading telecom operators from around the world have witnessed our continuing OFDM field trials in Chicago and have been favorably impressed with the performance. “

Motorola will be sharing its OFDM research experience in cooperation with IEEE, ITU, ETSI, 3GPP and 3GPP2, and will be an active contributor in introducing OFDM to the standards bodies. Motorola also recently joined the WiMAX Forum as a principal member. The WiMAX Forum promotes and certifies compatibility of wireless broadband products based on the IEEE 802.16 standards.

In addition to its research and development of OFDM solutions, Motorola's wireless broadband access portfolio includes market-ready solutions for:

- CDMA2000 1x EV-DO
- High Speed Downlink Packet Access (HSDPA)

- WiFi
- Canopy™ broadband wireless portfolio

### **Editor's Note**

OFDM is a radio technology that combines time and frequency multiplexing to implement extremely high data rate wireless systems efficiently. It is currently being adopted for fixed and nomadic broadband wireless applications such as WiFi and WiMAX, and is being studied for use in the next generation of cellular equipment.

The combination of OFDM with other technologies is seen as a key enabler of the next generation of wide area broadband wireless systems. Some of those other technologies include adaptive modulation and coding (AMC), fast automatic repeat request (hybrid ARQ), multiple antenna techniques, advanced error control coding techniques (turbo and LDPC coding) and a unified approach to system development.

Motorola Labs also is conducting research into physical layer, data link layer, medium access control, network and system designs for future broadband cellular, public and private wide-area wireless systems. These systems, broadly characterized as the next generation wireless service after 3G, have additional applications into public and private systems. These systems are expected to have sustained data rates beyond 20 Mbps, and peak data rates upwards of 100 Mbps. Motorola has published reports and papers on its research in OFDM and these topics at several IEEE conferences and in journal publications. A reference list is available.

For more information about Motorola Labs please visit:  
[www.motorola.com/content/0,,258-841,00.html](http://www.motorola.com/content/0,,258-841,00.html)

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