Experts in MIMO Channel Emulation Share Knowledge and Experience for Testing Beamforming Applications in TDD Networks

Azimuth Systems, Inc. recently announced that the company will be presenting a series of beamforming seminars to select companies in Asia, North America and Europe. These seminars will explain beamforming, how it works, and the critical requirements that need to be met for accurate lab-based testing, as well as provide examples of typical test cases and results.

Beamforming is a key component of the time division duplex (TDD) versions of 3GPP LTE (TD-LTE) and WiMAX 802.16e specifications. Forward-looking versions of these specifications that include beamforming have been submitted to the International Telecommunication Union (ITU) for approval as 4G IMT-Advanced radio interface standards.

Beamforming has already been deployed in select WiMAX networks around the world and China Mobile Communications Co. Ltd. is trialing TD-LTE and beamforming this year.

Beamforming is an adaptive antenna technique commonly used in TDD transmission to enhance system performance. Beamforming systems perform channel estimations and then attempt to maximize signal to noise by changing the directionality of the antenna array. When transmitting, a beamformer controls the phase and relative amplitude of the signal at each transmitter, in order to create a pattern of constructive and destructive interference.

When receiving, antenna sensitivity can be increased for a better signal to noise ratio, especially when receiving weak signals. Beamforming requirements have been specified in both LTE and WiMAX standards.

“We are eager to share our beamforming test expertise and are excited to be presenting such a timely seminar to companies around the globe as they promote the delivery of TD-LTE and WiMAX systems,” said George Reed, vice president of marketing and product management at Azimuth Systems. “Azimuth’s award-winning ACE™ wireless channel emulators have been successfully utilized in Multiple-Input, Multiple-Output (MIMO) beamforming tests during the past few years and the ACE MX wireless channel emulator easily and readily supports the necessary MIMO configurations such as 4x4 or 8x2 required for beamforming testing for TD-LTE and WiMAX.”

The ACE MX wireless channel emulator is architected to meet the demanding needs of MIMO and orthogonal frequency-division multiplexing (OFDM)-based systems. The ACE MX MIMO channel emulator provides the advanced channel emulation features required for testing WiMAX, LTE and other advanced wireless infrastructure

equipment and devices, and includes all of the backwards-compatible channel emulation features to test 2G/3G cellular products.

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