Broadband Wireless News: 3G, 4G, WiMAX and More

From July 2009 *High Frequency Electronics*

WiMAX Interoperability Trials

At its second annual Global Congress 2009 in Amsterdam, the WiMAX Forum (www.wimaxforum.org) announced that 14 ecosystem leaders are participating in the first ever commercial WiMAX interoperability and roaming trials. These operators, device manufacturers, equipment vendors, and clearing houses include Aicent, Alvarion, Bridgewater Systems, Cisco, Clearwire, Comfone, DigitalBridge Communications, Intel, iPass, Juniper Networks, MACH, Motorola, Syniverse and Transaction Network Services.

"This trial represents an end-to-end test of roaming over live WiMAX networks and will provide a baseline for establishing roaming services and agreements for WiMAX worldwide." said Ron Resnick, president and chairman of the WiMAX Forum. "Roaming with interoperability is important in order to expand the availability of WiMAX services by enabling users to automatically access networks when traveling outside the geographical coverage area of their home network."

WiMAX Femtocell Cooperation

The Femto Forum (www.femtoforum.org) and the WiMAX Forum (www.wimaxforum.org) have agreed to collaborate on the development of WiMAX Femtocell Access Point (WFAP) specifications that will address topics such as end-to-end QoS, provisioning, network entry and authentication, power optimization, and mobility management. The specifications will also support for emergency services, lawful intercept, and location-based services.

Considering the growing demand for broadband wireless access inside homes and offices while enabling mobility and roaming across wide area networks, WiMAX operators and vendors have identified the need for femtocell solutions to increase the aggregate cell throughput per unit area and accordingly to improve the related quality of intra-cell links, particularly in indoor environments.

LTE Femtocell and Picocell Reference Design

Continuous Computing® (www.ccpu.com) and picoChip (www.picochip.com) announced that they will collaborate to produce a comprehensive LTE femtocell and picocell reference implementation. The results of the joint work will enable Network Equipment Providers (NEPs) to quickly get to market with a variety of small form factor LTE products, including femtocell and picocell base stations. Smaller eNodeB products, such as those based on the MicroTCA form factor, are expected to be important for LTE deployments worldwide.

Specifically, Continuous Computing will integrate its Trillium LTE-Uu, S1AP, and X2AP protocol stacks with picoChip's PC8608 and PC8609 PHY software reference designs running on the picoChip PC7608 hardware platform. The resulting reference implementation will offer 10 MHz channel bandwidth with global application—supporting both time-division duplex (TDD) and frequency-division duplex (FDD) modes of operation—and aggregate throughout performance of up to 86 Mbps, a more than 4x improvement over today's top data rates of 21 Mbps with enhanced High Speed Packet Access (HSPA+).

LTE Network Certification Platform

Aeroflex (www.aeroflex.com.) and w2bi (Wireless to Business Integration, www.w2bi.com) announced that they have entered into an agreement to pool their test expertise and technology for the joint development of a network certification platform for LTE mobile devices. The combination of Aeroflex's 7100 LTE test system integrated with w2bi's Q-GENERIC automated test solution will create a versatile LTE handset certification platform for network operators, device manufacturers and test labs worldwide. Complementing w2bi's existing certification platforms for 2G and 3G networks, it will bundle all the elements needed for effective LTE network certification test to enable network operators to deliver the expected quality of customer experience and bring LTE handsets to market faster. Providing a complete turnkey solution, it will automate testing based on industry standards (3GPP and 3GPP2) as well as operator-specific LTE network implementations.

Gallium Nitride (GaN) Foundry Services Offered

RF Micro Devices, Inc. (www.rfmd.com) recently announced the Company has formed a gallium nitride (GaN) Foundry Services business unit to supply high-reliability, high-performance and price-competitive GaN semiconductor technology into multiple RF power markets. The RFMD GaN Foundry Services business unit will leverage the Company's industry leadership in gallium arsenide (GaAs) manufacturing capacity and cycle times to drive shorter time-to-market and minimize time between initial wafer order and final delivery. RFMD GaN is a next-generation compound semiconductor technology that delivers much higher power density and breakdown voltage than competing technologies. Typical operating characteristics of RFMD GaN include operating voltages of 48 (or 65) volts, power density of 6 to 8 watts/mm, F_T of 11 GHz, F_{max} of 18 GHz and MTTF greater than 108 hours at 150°C T channel operation.

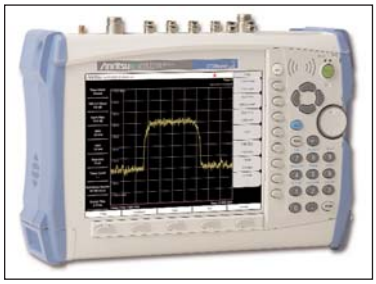
Over-the-Air (OTA) Performance Testing

EB (www.elektrobit.com), a developer of embedded technology solutions for wireless and automotive industries, announced that LG Electronics (LG) has selected EB as the company to deliver the a multi-antenna Over-the-Air (OTA) performance testing solution for its mobile devices. LG will now be able to test full mobile device functionality and performance in realistic radio channel environments without any compromises to the performance verification.

EB's multi-antenna OTA testing application is built around the EB Propsim F8 radio channel emulator and related channel modeling software, allowing LG to test final mobile phone designs with embedded antennas and cover in place. EB's OTA testing application enables repeatable testing in various radio channel conditions which shortens the mobile phone development cycle and enables early market introduction of new mobile devices.

Handheld Base Station Analyzer

Anritsu Company (www.us.anritsu.com) has introduced the BTS Master MT8221B, a high-performance handheld base station analyzer that has been specifically developed to support emerging 4G standards as well as installed 2G/3G networks. The MT8221B provides a 20 MHz demodulation capability to measure technologies such as LTE and WiMAX, and a 30-MHz Zero-Span IF Output for external demodulation of virtually any other wideband signal. In addition, a Vector Signal Generator option with the flexibility to generate two modulated signals plus noise is available for comprehensive receiver testing.



Vector Signal Analyzer

Keithley Instruments, Inc. (www.keithley.com) has upgraded its RF Vector Signal Analyzer line with new capabilities to reduce signal acquisition and measurement times. The new Model 2820A RF Vector Signal Analyzer, which provides a 40 MHz signal acquisition bandwidth with a frequency range of either 400 MHz-4 GHz or 400 MHz-6 GHz, builds on the capabilities of Keithley's Series 2800 signal analyzer line. Three major advances allow the Model 2820A to provide substantially higher testing speed:

Fast frequency switching: The Model 2820A can tune to a new frequency in just 250 µs, which significantly reduces total transmitter test time when testing a device that operates over a wide frequency band or multiple frequency bands.

High speed data transfers: A new technique allows transferring large amounts of demodulated I-Q data from the instrument to a PC for analysis via the USB bus at speeds better than 100 megabits per second.

Fast sequence testing: The Model 2820A employs a single-command, multi-operation technique to minimize transmitter calibration and performance test times. With a single setup, a wide range of measurements can be made on transmissions at multiple frequencies, multiple power levels, and using multiple standards. Both power measurements and modulation quality measurements, such as EVM and I-Q offset, are all included in a single data capture operation.

Interference Analyzer Option

Agilent Technologies Inc. (www.agilent.com) has introduced an interference analyzer option for its popular FieldFox RF Analyzer. The company also introduced new spectrum analyzer features. Agilent's new FieldFox interference analyzer option includes quick, easy detection and monitoring of intermittent interference signals in the field using the spectrogram and waterfall display. New FieldFox spectrum analyzer features include:

· RF handheld spectrum analysis for uplink and downlink TDD signals (e.g., LTE and WiMAX) and TD-SCDMA;

· Convenient one-button measurements offering an LTE suite of power measurements, including channel power, ACPR and OBW.

· Tthe ability to easily play AM/FM audio via speaker or headset, which is especially useful in identifying and demodulating unknown or interfering signals.

MIMO Emulator Enhancements

Azimuth Systems, Inc. (www.azimuthsystems.com) has announced several new features to enhance the company's ACE™ MX Universal MIMO channel emulator, including an industry-unique configuration that enables users to add a non-fading, reverse path internal to the ACE MX. This "Uni+" configuration enables ACE MX users to avoid the cost, inconvenience and error-potential of external circulators, attenuators, isolators and cables when establishing the commonly-required return path from a device-under-test to the signal source.

A purpose-built, enhanced testing solution, the ACE MX channel emulator is architected to meet the needs of MIMO and OFDM-based systems. The ACE MX provides the advanced channel emulation features required for testing 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.