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CDMA base-station test toolkit taps software-defined radio

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To provide code-division, multiple-access (CDMA) base-station manufacturers and network operators a tool for testing and tuning networks for optimal performance, Vancouver, Canada-based startup Dyaptive Systems has launched a simulation tool that can cost-effectively perform deterministic, repeatable tests and re-create problems detected in the field. In essence, it can tune infrastructure for optimal performance even in the most challenging periods of network activity, according to the developer.

The DMTS8000 provides density and flexibility in loading a CDMA network with traffic at any layer of the protocol from RF to application layer. By introducing virtual mobile terminal (VMT), a software equivalent of a test handset, complex wiring is eliminated. As a result, it eliminates RF interference, cabling and other issues common with load boxes.

It can be easily upgraded via software to support new features and air interfaces, and traffic. Plus, channel impairments normally emulated by RF attenuators or aftermarket channel simulators are introduced in software independently to each VMT. Thus, hundreds or even thousands of VMTs can run in a DMTS-8000. Because they are software entities, the density and scalability achieved by the DMTS-8000 is limited only by processing power and memory.

In addition, the DMTS-8000 system can generate predictable composite signals that will simulate multiple thousands of users, thereby simulating a wide range of real-world voice and data profiles, plus mobility and multipath fading scenarios. Given a better tool for verifying the functionality and optimal settings of their CDMA infrastructure equipment, users reduce blocked, dropped and lost calls. Because the solution can be reconfigured quickly for different tests, the DMTS dramatically speeds deployment and simplifies ongoing maintenance of offerings such as third-generation data services, including wireless email, Internet access, digital photo sharing and geographic positioning.

The DMTS-8000 is a programmable device capable of cost-efficiently producing equivalent load of up to 2000 mobile terminals. With the Dyaptive solution loading their products and infrastructure with up to two million calls per hour, wireless vendors and operators for the first time can simulate the busiest periods of network activity, according to Dyaptive. Traditionally, banks of mobile phones have been used for test and verification, but these "load boxes" cannot produce the deterministic, coordinated and repeatable load of the DMTS.

"CDMA networks are poised for tremendous growth, especially in 3G data services, and we are committed to enabling that growth," said Steven Szabo, vice president, Business Development, with Dyaptive. "The DMTS is a revolutionary CDMA toolkit — the first to cost-effectively generate rigorous, real-world load profiles of mixed voice and data traffic in high-mobility, dynamic environments requiring frequent handoffs among network sectors. A better tool for CDMA performance testing and optimization will translate into more profitable deployment and operation of wireless networks by our customers."

For more information, visit www.dyaptive.com.