PXI-based VSA Performs Into the 14 GHz Frequency Range

National Instruments introduced a 14 GHz version of its NI PXIe-5665 high-performance RF vector signal analyzer (VSA), which provides desirable dynamic range and accuracy in a PXI form factor. The new VSA is positioned as featuring exceptional phase noise and dynamic range, regardless of form factor, including traditional rack-and-stack instruments. Because of its PXI platform, the VSA can deliver measurement speeds up to 20 times faster than box instruments and for less cost, according to the company. It uses multicore computing architectures and parallel programming capabilities through NI LabVIEW system design software. It also offers peer-to-peer data streaming for signal processing and a flexible multiple input, multiple output (MIMO) architecture for phase-coherent measurements. Such features make it appropriate for demanding RF test applications including radio detection and ranging (RADAR), satellite, radio and harmonic testing.

“The new NI PXIe-5665 VSA gives ST-Ericsson the performance and accuracy we need for 3GPP RF IC design validation in our characterization labs,” said Sylvain Bertrand, RF broadband validation manager at ST-Ericsson. “At the bottom line, the VSA reduces our system cost while increasing flexibility and decreasing physical bulk compared to our previous box solutions.”

The VSA offers the same performance as the 3.6 GHz version of the NI PXIe-5665 while extending the capabilities into the 14 GHz frequency range. The VSA consists of the new NI PXIe-5605 downconverter, the NI PXIe-5653 local oscillator synthesizer and the NI PXIe-5622, a 150 MS/s intermediate frequency (IF) digitizer. This combination creates an ideal solution for spectrum and wideband vector signal analysis over a frequency range of 20 Hz to 14 GHz with analysis bandwidths up to 50 MHz. It features the industry’s best third-order intercept point at +24 dBm with an absolute amplitude accuracy of ±0.10 dB as well as an impressive error vector magnitude of 0.33 percent for a 256 QAM modulated signal. It also delivers an exceptionally low phase noise of -129 dBc/Hz at a 10 kHz offset at 800 MHz and an average noise level of -165 dBm/Hz.

Because the new 14 GHz NI PXIe-5665 joins an industry portfolio of more than 1,500 software-defined PXI modular instruments, engineers can mix and match the VSA with a variety of modules and control an entire automated test system with LabVIEW system design software. Engineers can take advantage of the VSA's software-defined performance with RF software toolkits for LabVIEW, NI LabWindows™/CVI and .NET to test the latest RADAR, satellite, radio and numerous RF and wireless communication standards including GSM/EDGE, WCDMA, LTE, WLAN and WiMAX.

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