250-W Unmatched LDMOS X-Parameters Extraction and Modeling Capability Demonstrated at European Microwave Week

Agilent Technologies and NXP Semiconductors announced a live demonstration of Agilent's award-winning Nonlinear Vector Network Analyzer. The NVNA, which runs on Agilent's PNA-X Series network analyzers, will be used to characterize a high-power LDMOS transistor from NXP specifically designed for 2.45-GHz ISM band applications.

The NVNA-based fundamental source- and load-pull system analyzes NXP's 250-W RF power device in the frequency band from 2400 to 2500 MHz. The demonstration will take place at the 2011 European Microwave Week (Stand G301), Oct. 11-13, in Manchester Central, Manchester.

The measurement system facilitates both nonlinear characterization at fundamental and harmonic frequencies, as well as the powerful modeling capabilities of X-parameters. When combined with passive tuners, it allows measurements from 10 MHz to 67 GHz.

During the demonstration, NXP's BLF2425M7L250P transistor will be used as the device under test. This seventh generation, Si-LDMOS-based product is specifically designed for 2.45-GHz ISM band applications. It boasts peak power levels in excess of 250 W with a gain of more than 16 dB and drain efficiencies above 50 percent. Like other NXP RF power devices, the BLF2425M7L250P also features excellent ruggedness, a property that is paramount in the ISM application space due to typically awkward RF loads.

"Thanks to the NVNA, our device behavior is analyzed under large-signal excitations with realistic input and output matching conditions," said Mark Murphy, marketing director for NXP Semiconductors' RF Power and Base Stations product line. "From this setup, we learn important figures of merit that enable in-depth device analysis, such as output power contours, power-added-efficiency contours, and load-dependent dynamic load lines. This information helps significantly improve our lead times for RF circuitry and device simulation models, in turn enabling faster time to market for our customers."

"Agilent is proud to support NXP with the advanced measurement capabilities available in our NVNA product," said Gregg Peters, vice president of Agilent's Component Test Division. "The NVNA takes away the pain of characterizing high-power RF devices outside the standard 50-Ohm environment – even at the very high power levels the NXP devices deliver. The demanding state-of-the-art power transistor used in this demonstration allows us to nicely demonstrate all the features of the NVNA."

Agilent's upcoming demonstration with the NXP BLF2425M7L250P transistor is the result of cooperative work performed as part of the Eureka/CATRENE CA101 PANAMA program. As part of this effort, both Agilent and NXP acknowledge the support from Flanders (IWT) and the Dutch national funding agency.

For more information on Agilent's NVNA solution, go to www.agilent.com/find/nvna [1].

Additional information on NXP's LDMOS RF power products is available at www.nxp.com/rfpower [2].

Posted by Janine E. Mooney, Associate Editor

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