# Rohde & Schwarz Demonstrates New Microwave Instruments and Capabilities at IMS 2010

Rohde & Schwarz is demonstrating a broad array of high-performance instruments and unique measurement capabilities at IMS 2010, including the industry's first 67 GHz vector network analyzer (VNA) with four integrated ports, four internal and independent sources, and eight receivers; large-signal network analysis; fast electronic source and load-pull measurement capabilities; and much more. The new R&S®ZVA67 is the industry's first 67 GHz VNA with four integrated ports, four internal and independent sources, and eight receivers, which greatly simplifies the test setup and enables advanced measurement capabilities. The instrument has the broadest dynamic range, highest RF output power, and fastest measurement speed of any instrument in its class. The R&S ZVA67 sets several benchmarks for millimeter-wave VNAs. It is the first 67 GHz VNA with four internal sources for fast two-tone measurements of amplifiers and mixers, the first to generate phase-coherent signals, as well as the first with IF bandwidths up to 30 MHz for pulsed measurement of amplifier performance. The instrument incorporates all of the features of the company's ZVA Series VNA family and applies them to millimeter-wave measurements with high speed and accuracy. It has short measurement times due to its fast internal synthesizers, high dynamic range, more than 100 traces and channels, a measurement wizard for easy setup of multiport and balanced measurements, simple error-free calibration, multiple calibration techniques for test fixtures as well as coaxial and on-wafer applications, optional automatic calibration, virtual and true differential mode for linear and nonlinear tests of differential components, simultaneous measurement of noise figure and S-parameters, and a wide sweep range for small- and large-signal analysis in a single sweep. The test set of the R&S ZVA provides one measurement channel and one reference channel for each test port, an RF switch in each generator path, and one generator for each pair of test ports. Measurement time per test point is less than 3.5 µs in the CW mode and a frequency sweep over 200 test points takes less than 5 ms without compromising measurement accuracy. In addition, when two or more devices are being tested, there is no need to load the required instrument setups from the hard disk one after the other. Once called, setups remain available in RAM including calculated data, so it is possible to switch between setups with virtually no delay. Rohde & Schwarz will demonstrate the ZVxPlus nonlinear vector network analyzer application developed by NMDG for large-signal network analysis using NMDG's S-functions for characterizing nonlinear components under large-signal conditions. ZVxPlus in combination with Rohde & Schwarz VNAs and AWR's Microwave Office® high-frequency design software allows direct measurement and simulation of RF and microwave systems under measurement conditions representative of what nonlinear devices will experience in operation.

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