

Digital Vector Signal Analysis Software for Logic Analyzers

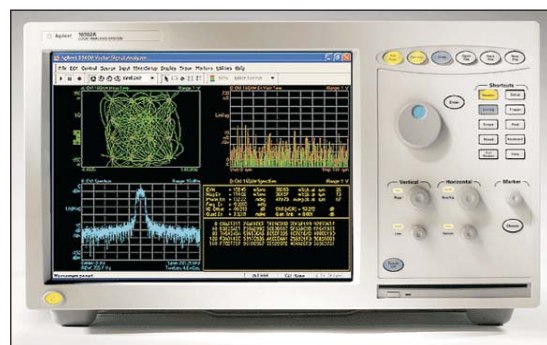
Signal analysis software has been integrated into logic analyzer instruments for analysis of digitized transmit and receive signals on a data bus

Agilent Technologies Inc. has introduced a powerful combination of solutions that tightly integrate the digital signal capture power of Agilent's logic analyzers with Agilent

89600 Series VSA (vector signal analysis) software, a proven tool for radio frequency (RF) signal analysis. The result is a digital vector signal analysis measurement system that delivers precise modulation measurements on the digitized signals found in today's DSP-based radio transceivers used in cell phones, base stations, satellite and military communications systems, and radar applications.

For the first time, digitized transmit and receive signals found on data buses between the baseband and RF blocks of digital radio applications can be analyzed in the time, frequency, and modulation domains within a logic analyzer, just as if they were in analog form. This allows a view into circuit behavior at the digital interface between the baseband and RF integrated circuits.

The system provides a unified user interface within the logic analyzer that allows baseband and RF teams to share the same measurements and more easily solve cross-domain problems. By capturing the transmit and receive data buses (digital I&Q or digital IF), and demodulating them in the digital domain, communication system architects have greater insight into circuit functionality, enabling quick identification of design flaws and accurate characterization of circuit performance. The new test capabilities of Agilent Digital VSA technology are provided within a single



High performance logic analyzers can analyze signals with new Digital VSA capabilities.

instrument by the tight integration of the 89600 Series software with a logic analyzer.

In addition to the full capability of the Agilent 1680, 1690 and 16900 Series logic analyzers, the Digital VSA solutions provide:

- Analysis of the digital baseband or digital IF signal in a variety of different formats, including scalar baseband, scalar IF, complex I&Q, magnitude and phase, and phase only.
- Flexible demodulations that measure carrier offset, error vector magnitude (EVM) and frequency error for QPSK, QAM, GSM, EDGE, WiMAX, W-CDMA and others.
- Multiple display formats, including phase vs. time, frequency vs. time, and spectrogram, for rapid insight into complex signal behavior.

Agilent Technologies

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www.agilent.com/find/dvsa

HFELink 301

LDMOS Technology Meets Performance Demands for WiMAX

These new devices allow 3.5 GHz WiMAX base stations to benefit from the advantages of LDMOS power transistors

With its seventh-generation high voltage (HV7) RF LDMOS technology, Freescale Semiconductor has achieved the RF power transistor performance required for use in WiMAX base stations operating in the 3.5 GHz band.

Freescale, which already offers a portfolio of 12V GaAs Pseudomorphic High Electron Mobility Transistor (PHEMT) products, plans to continue development of high-voltage GaAs PHEMT technology that will result in higher-power GaAs devices for use in WiMAX system designs, as well as other applications between 2 GHz and 6 GHz.

By offering power transistors in RF LDMOS and GaAs PHEMT technology, Freescale's RF solutions support virtually any high-power wireless infrastructure application – with LDMOS performance up to 3.8 GHz and GaAs PHEMT performance up to 6 GHz.

WiMAX systems use a 64 QAM orthogonal frequency-division multiplexing (OFDM) signal, which presents some unique challenges to the power amplifier designer. RF power transistor linearity in backoff is critical, not only in its spectral form with mask requirements, but also in its quadrature form with the EVM (Error Vector Magnitude) requirement. Previously, silicon LDMOS technology did not provide an acceptable level of RF power performance at 3.5 GHz. This meant that compound semiconductor devices, such as GaAs PHEMTs, were the only choice available for designers. Freescale's new devices offer the efficiency, linearity and EVM performance

required by WiMAX systems, giving designers a choice between compound semiconductors and silicon LDMOS.

HV7 RF LDMOS Availability



Samples of the initial 3.5 GHz LDMOS device are available now. The MRF7S38075H is a 75 watt P_{1dB}

RF transistor capable of 42 dBm (16W) average power while meeting WiMAX performance requirements over the 3.5 GHz band. Samples of 40W and 10W P_{1dB} 3.5 GHz devices are expected by the end of Q1, 2006. These three LDMOS devices round out Freescale's existing portfolio of RF power transistors targeting the emerging WiMAX/WiBRO bands at 2.3, 2.5 and 3.5 GHz.

High Voltage GaAs Availability

While advanced HV7 LDMOS devices complement 12V GaAs PHEMT devices for 3.5 GHz WiMAX applications, the new high voltage GaAs devices currently under development will operate up to 6 GHz. This makes them an excellent choice for WiMAX and other wireless applications operating in this frequency range. With an operating voltage above 20 V, the GaAs devices will achieve output powers as high as 100 W, while still meeting the stringent demands of digitally-modulated systems.

Freescale Semiconductor
www.freescale.com/rf
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Module Solution Provides Complete Radio for GSM/GPRS/EDGE

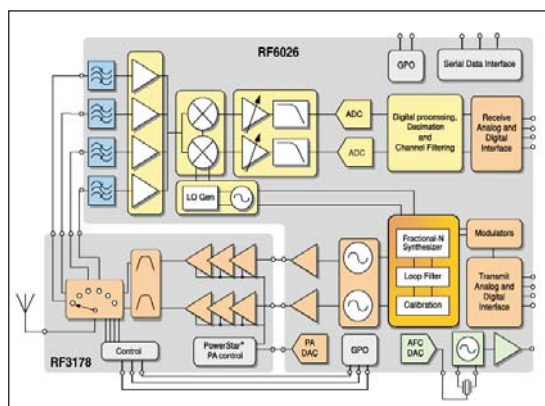
This EDGE radio solution reduces implementation from three to two modules, while supporting full functionality required for today's wireless handsets

RF Micro Devices, Inc. announces the commercial launch of its complete POLARIS 2™ TOTAL RADIO™ Module solution, which is comprised of a cellular transceiver module and a

cellular transmit module for handsets operating on the GSM/GPRS and GSM/GPRS/EDGE networks. The performance, size and cost advantages of the POLARIS 2 TOTAL RADIO Module solution enable handset manufacturers to quickly and cost-effectively introduce smaller, feature-rich handsets capable of delivering the advanced levels of functionality required for today's high data-rate networks.

The highly integrated and size-reduced two-module implementation succeeds RFMD's three-placement POLARIS 2 TOTAL RADIO high-volume EDGE radio chipset with a complete, two-placement radio. It consists of transceiver and transmit modules designed to support up to four frequency bands while operating under the GSM, GPRS and EDGE air interface standards. Features and benefits include the following:

- Small form factor and volume production.
- Streamlined supply chain through a two-module (RF6026 and RF3178) complete radio implementation.
- Reduced time-to-market with RX SAW filters and passive components integrated into the transceiver module (RF6026).
- Optimized performance in the transmit module (RF3178) achieved through Optimum Technology Matching® using a GaAs HBT power amplifier, GaAs pHEMT



switch and CMOS controller.

- Ability to interface with a range of basebands through support of very low IF (VLIF) and zero IF (ZIF) receive architectures, and the availability of both analog and digital baseband interfaces.

RFMD's POLARIS transceiver product portfolio is comprised of the POLARIS 1 transceiver chipset for GSM/GPRS handsets, the widely-used POLARIS 2 TOTAL RADIO transceiver chipset for GSM/GPRS/ EDGE handsets and the highly integrated and size-reduced POLARIS 2 TOTAL RADIO Module solution for both GSM/GPRS and GSM/GPRS/EDGE handsets.

Commercial shipments of the POLARIS cellular transceiver module for EDGE commenced in the December 2005 quarter, and the complete POLARIS module solution is ramping up now to support the manufacture of multiple GPRS and EDGE handsets in 2006.

RF Micro Devices
www.rfmd.com
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