

# RF instrument line lowers cost of test while at the same time offering high performance and speed

Keithley Instruments offers an innovative line of RF test instruments. Combining high-performance, speed, flexibility, ease of use, and compact size, these instruments employ new approaches to test and measurement that enable users to save time, effort, and money. They are intended for use throughout the design, development and manufacturing processes, and complement existing Keithley solutions sold in this market such as battery simulation sources, semiconductor characterization systems, and source-measure units.

The first product available in this line is the Model 2910 RF vector signal generator. Utilizing a number of industry innovations, such as its Software-Defined Radio (SDR) architecture, patent-pending synthesizer technology, and unique power leveling techniques, the Model 2910 provides a flexible platform that utilizes software to adapt as test requirements change and reduces test time with the fastest frequency tuning, amplitude settling, and waveform switching available. In addition, the Model 2910 makes generation of RF signals simple for even the novice user with the most intuitive user-interface on the market.

In the summer, Keithley will announce the availability of two related products – the Model 2810 RF vector signal analyzer and the Model 3500 portable RF power meter. Designed to complement the Model 2910, the Model 2810 employs innovative approaches to provide high-speed measurement and modulation analysis with the same flexibility, ease of use, and compact size. The Model 3500 portable RF power meter is a handheld instrument used for measuring average RF power in both R&D environments as well as in the field.

## Dramatically reduces test time

Whether switching between frequencies, amplitude levels, or waveforms, the Model 2910 claims to deliver switching speeds that are two to ten times faster than the best competitors – delivering the fastest execution of key signal generation tasks. Faster execution times increases throughput, since more tests can be conducted on a greater volume of devices.

The RF vector signal generator enables dramatic test time reduction through a number of innovations. For example, unlike competitive instruments, the Model 2910 settles in 1.5 ms, and the sync-out source-settled indicator

is only set when the source is settled. This eliminates the need seen with other instruments to slow down tests by adding wait states to ensure the signal generator has settled. In another example, fast switching among waveforms is a critical attribute for reducing test time in devices operating within multiple wireless standards. A 64 mega-sample arbitrary waveform generator supports simultaneous loading of multiple signal waveforms and enables switching between these signals in less than five milliseconds.

## Easily adapting to changing needs

Model 2910 is an extremely flexible and versatile test instrument. Employing a Software-Defined Radio architecture, it can help reduce time-to-market, increase design flexibility, and provide adaptability as wireless standards evolve. The Model 2910 offers optional built-in signal generation software personalities for key cellular formats targeted at mobile phone testing, including GSM, GPRS, EDGE, W-CDMA, cdmaOne, and cdma2000. Users can easily upgrade to new and emerging standards as they become available.

For those signal formats not included in its initial release, the Model 2910's arbitrary waveform generator supports downloading of virtually any externally generated signal waveforms with up to 40 MHz of bandwidth. In addition, it can generate an RF signal with up to a 200 MHz bandwidth from analog baseband in-phase and quadrature signals provided by the users.

The bandwidth and architecture of the RF vector signal generator provide a significant future cost savings, because customers do not need to purchase new RF sources as new wireless applications emerge.

## Wireless products to market faster

The Model 2910 provides a variety of features to make it easy to configure and operate. For example, an intuitive touch-screen graphical user interface makes it simple to use for both experienced RF test engineers as well as novice users learning RF instrumentation for the first time to generate high-quality signals fast. Competing products tend to have rows of buttons on the front panel or multiple layers of soft-keys that are often confusing to operate.



In addition, users of the Model 2910 can choose between graphical or tabular methods to edit waveforms or create new ones. There is also comprehensive and easy-to-use help documentation accessible from the front-panel, the remote interface, or CD-ROM. The RF vector signal generator is also easy to control remotely. A built-in 100Base-T Ethernet and USB interface allows direct, high-speed programming and command transfer, while a GPIB interface provides configurability with legacy instruments.

## Full class C LXI compliance

The Models 2910 and 2810 feature LXI (LAN eXtensions for Instrumentation standard) Class C compliance. They support the physical, programmatic, LAN, and Web portions of the emerging LXI standard.

## Best of both worlds

While the Model 2910 offers capabilities and ranges that make it ideal for production testing of today's sophisticated mobile handsets, it also has features that make it useful for applications like testing mobile communications infrastructure, RFICs, and wireless connectivity devices. The Model 2910's industry leading testing capabilities and ease of use make it a good choice for use in mobile communications research and education settings.

## Company Information

Keithley Instruments  
[www.keithley.com](http://www.keithley.com)