

## **New Tektronix Real-Time Spectrum Analyzer Addresses Explosion of Digital RF Technologies**

**Tektronix RSA6100A Has Industry Leading Bandwidth / Dynamic Range Combination; DPX™ Waveform Image Processor Provides First Live RF Presentation, Revealing Never Before Seen Phenomena**

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Tektronix, Inc. , a leading worldwide provider of test, measurement and monitoring instrumentation, announced the Tektronix RSA6100A Series of Real-Time Spectrum Analyzers that provides an unmatched combination of real-time performance, capture bandwidth, and dynamic range to meet the needs of a broad range of cutting-edge digital RF applications. DPX™ waveform image processor technology transforms volumes of real-time data to produce a live RF spectrum presentation that reveals previously unseen RF signals and signal anomalies. Live RF is achieved by improving the spectrum measurement rate nearly 1000 times compared to the fastest swept spectrum and vector signal analyzers (VSA).

The rapid expansion of digital RF applications has driven the measurement needs of many applications including radar, mobile communications, software defined radio (SDR), cognitive radio and surveillance beyond the capabilities of swept spectrum and vector signal analysis. Digital RF signals carry complex modulation and change from one instant to the next, hopping frequencies, spiking briefly and then disappearing. These transient and time varying transmission techniques help RF devices avoid interference, maximize peak power and, oftentimes, evade detection.

Test instruments for digital RF require wide bandwidth with high dynamic range, fast signal capture, and the ability to fully correlate the time, frequency, and modulation domains. The first offerings in the new RSA6100A series of Real-Time Spectrum Analyzers -- the 6.2 GHz RSA6106A and 14 GHz RSA6114A -- provide industry-leading 110 MHz real-time bandwidth simultaneous with 73 dB spurious-free dynamic range. The RSA6100A series provides world- class capabilities ideally suited to the needs of a broad range of digital RF applications, from power amplifiers for advanced cellular radios to the latest pulsed radar signal.

"The combination of exploding technical capabilities brought about by digital RF combined with an equal increase in demand for more functionality and mobility has created unprecedented innovations in wireless communications," said Rick Wills, CEO and Chairman, Tektronix. "Tektronix recognized several years ago that digital RF creates a highly complex technical environment and the emerging need for test tools whose capabilities mirror the time-varying nature of today's signals. The RSA6100A series of Real-Time Spectrum Analyzers are the most capable and effective instruments available for solving even the most demanding digital RF test challenges."

"Tektronix' Real-Time Spectrum Analyzers are the first and only analyzers designed specifically to solve digital RF problems," said Rick King, Vice President, Real-Time Spectrum Analyzer product line, Tektronix. "The RSA6100A Series is the first RF analyzer to simultaneously deliver 110 MHz real-time bandwidth and 73 dB spurious-free dynamic range, enabling the design of advanced and next generation RF systems with wide capture bandwidth and no sacrifice in dynamic range. The live RF spectrum display provided by DPX waveform image processing provides engineers a view into signal instabilities and transients that they never knew existed. The RSA6100A is a perfect fit for the measurement needs of digital RF and will become a fundamental test instrument fueling the expansion of wireless communications."

"Many new and emerging applications need to detect and analyze RF signals that quickly change frequencies

or use complex modulation techniques," said Dr. Jeff Reed, Virginia Tech University. "Traditional instruments often cannot adequately perform the measurements needed for these applications, requiring home grown solutions that are often expensive and inefficient. Tektronix has addressed these problems by adding robust capabilities for the time domain through its RSA family of Real-Time Spectrum Analyzers. This ability of the RSA instruments to fully correlate the time, frequency, and modulation domains has been very useful in our work with software defined and cognitive radio development. The additional bandwidth and dynamic range plus the unique real-time presentation of live RF signals make the new RSA6100A Series very attractive."

## DPX Makes All the Difference

DPX waveform image processor technology displays the live spectrum by processing more than 48,000 spectrum measurements per second. This is orders of magnitude more information than is shown by any other spectrum analyzer, minimizing the analysis gaps inherent in swept spectrum and vector signal analyzers. This compares to a maximum of 50 spectrums per second for all other analyzers. To achieve over 48,000 spectrum measurements per second, DPX makes use of dedicated, real-time hardware to process the incoming signal. By minimizing the signal gaps, the RSA6100A provides users with a live RF signal view, unlike anything they have ever seen. This is achieved with a 100% probability of intercept for signals as brief as 24 5s.

In addition to live RF, the waveform image processor also provides an intensity-graded persistence display that holds anomalies until the eye can see them to show the history of occurrence for dynamic signals and immediate feedback on signal variations over time. This provides engineers the ability to rapidly see on screen both transients and signals that ordinarily could not be seen, either because they are masked by other signals or could only be deduced after time consuming offline analysis. DPX waveform imaging will enhance productivity by quickly capturing elusive anomalies and transient events, improving accuracy and accelerating design debug.

"For TelASIC, a supplier of radio subsystems for HSDPA, EVDO and WiMAX base stations, demonstrating that linearization techniques for designing highly-efficient power amplifiers do not cause any violations of spectral emission mask and adjacent channel power ratio specifications is difficult and critical," said Ashis Khan, Vice President of Sales and Marketing for TelASIC. "Demonstrating no SEM / ACPR violations required that TelASIC develop a complete test environment using the Tektronix RSA6100A. The RSA6100A Series Real-Time Spectrum Analyzers with live RF presentation easily revealed complete spectrum details, dramatically simplified our testing and demonstrated clear results."

"The live RF spectrum technology provided by DPX waveform image processing offers a level of insight and diagnostic capability never seen before on spectrum analyzers," said Galen Wampler, President, Prime Data. "The performance specifications of the RSA6100A are industry-leading and the ability to capture transient information is compelling. The RSA6100A is able to display signals and transients that no other instrument can show and is ideal for RF engineers who need to look for hidden, intermittent or infrequent signals. The RSA6100A Series will foster new digital RF applications and transform the performance and capability expectations of engineers for spectrum analyzers."

## New Measurement-Centric UI Improves Spectrum Analyzer Usability

Tektronix User Experience designers researched spectrum analyzer usage and customer needs to determine requirements for the RSA6100A Series. Based upon this research, the RSA6100A provides a measurement-centric user interface that is designed to be intuitive and seamless, enabling engineers to focus on their analysis of the signal without worrying about the configuration of the instrument. The UI is easy to use by traditional RF designers as well as by digital signal processing experts.

The measurement-centric interface of the RSA6100A includes default settings for each of the particular measurements, optimizing the instrument for the primary measurement being performed. These intelligent presets speed set-up and measurement time, but the engineer still has the ability to manually override the settings for added control if needed. The RSA6100A also provides engineers a 10.4" XGA touch screen display, mouse/keyboard and conventional front panel controls. Microsoft Windows XP reduces the learning curve for those new to making RF measurements and streamlines operations.

Introduction of the Tektronix RSA6100A Series denotes a new era in spectrum analysis with its unmatched combination of real-time performance, capture bandwidth, dynamic range and unique live RF. The RSA6100A provides engineers with a single spectrum analyzer that is designed to solve the needs of a broad range of traditional and cutting-edge digital RF applications.

#### About Tektronix

Tektronix, Inc. is a leading test, measurement, and monitoring company providing measurement solutions to the communications, computer, and semiconductor industries worldwide. With over 60 years of experience, Tektronix provides general purpose test and measurement, video test and monitoring and communications network management and diagnostic products that enable its customers to design, build, deploy, and manage next-generation global communications networks and advanced technologies. Headquartered in Beaverton, Oregon, Tektronix has operations in 19 countries worldwide. Tektronix' Web address is [www.tektronix.com](http://www.tektronix.com).

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