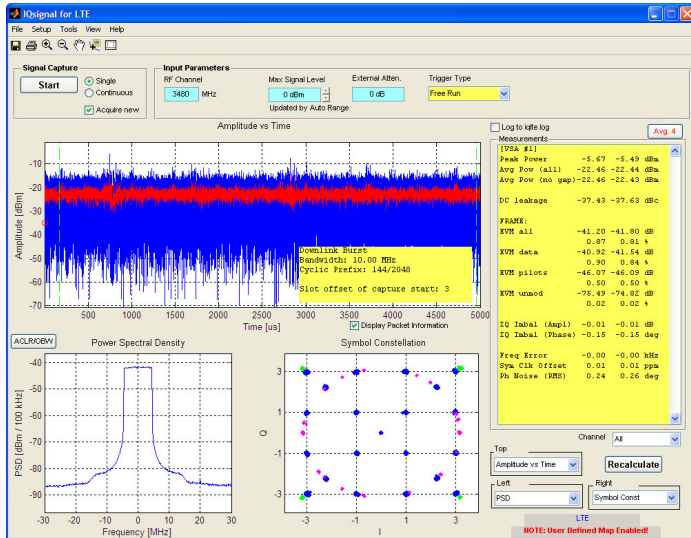


Spectrum Analyzer Software

RSALTE Data Sheet



Applications

- Component and System R&D
- Product Development
- Design Verification
- Product Debugging

Discover, Trigger, Capture, Analyze

RSALTE provides spectrum and modulation measurements on downlink (OFDMA) and uplink (SC-FDMA) signals in accordance with standard 3rd Generation Partnership Project (3GPP). The Tektronix spectrum analyzer discovers and captures intermittent events that other solutions miss, enabling engineering teams to detect, diagnose, and resolve design errors more quickly.

The revolutionary DPX® spectrum display offers an intuitive live-color view of signal transients changing over time in the frequency domain, giving you immediate confidence in the stability of your design or instantly displaying a fault when it occurs. This live display of transients is impossible with other signal analyzers. Once a problem is discovered with DPX, the spectrum analyzer can be set to trigger on the event in the frequency domain, capture a continuous time record of changing RF events and perform time-correlated analysis in all domains. You get the functionality of a high-performance vector signal analyzer, a traditional spectrum analyzer, and the unique discover-trigger-capture-analyze capability of a Real-time Spectrum Analyzer – all in a single package.

The combination of an RSA6000 Series or RSA3000 Series spectrum analyzer and RSALTE demodulation software enables you to perform the much-needed time, frequency, and modulation domain measurements to decompose signals and uncover anomalies, and generate in-depth analysis for troubleshooting LTE devices in the design stage.

Features & Benefits

RSALTE: LitePoint IQsignal™ LTE Software for Tektronix RSA3000 Series and RSA6000 Series Spectrum Analyzers

- Support for LTE Release December 2008
 - 3GPP TS 36.211 – Version 8.5.0
 - 3GPP TS 36.212 – Version 8.5.0
 - 3GPP TS 36.213 – Version 8.5.0
- Software Suite for 3GPP LTE Downlink (OFDMA) and Uplink (SC-FDMA) Signal Analysis
- Quickly Detect, Diagnose, and Resolve LTE Design Errors
- Easy-to-Use Graphical User Interface, Running inside the RSA6000 Series or on Standalone PC
- Supports RSA3000 Series and RSA6000 Series Spectrum Analyzers
- Automate Measurements for System Troubleshooting and Device Stress Testing

Description

RSALTE offers advanced analysis of LTE waveforms captured by the RSA Series, including EVM and spectral measurements. For example, RSALTE can easily analyze frequency-settling time and phase errors that occur during a burst transmission. Such capabilities significantly help in understanding and debugging RF performance-related issues. A PC is used to run the RSALTE analysis software and control the RSA Series through either a 10/100Base-T Ethernet or IEEE 488.2 GPIB connection. The software's application programming interface allows users to automate measurements to characterize system and device performance. RSALTE software supports Tektronix .IQT and .TIQ file formats, and LitePoint .SIG and .MOD formats.

RSALTE software supports in-band transmit analysis through a graphical display of the following tests:

- Spectrum (PSD) and Mask
- Symbol Constellation
- Spectral Flatness and Delta Spectral Flatness
- Captured Waveform Display in the Time Domain

To support product debugging, various other graphical displays are supported by RSALTE, including:

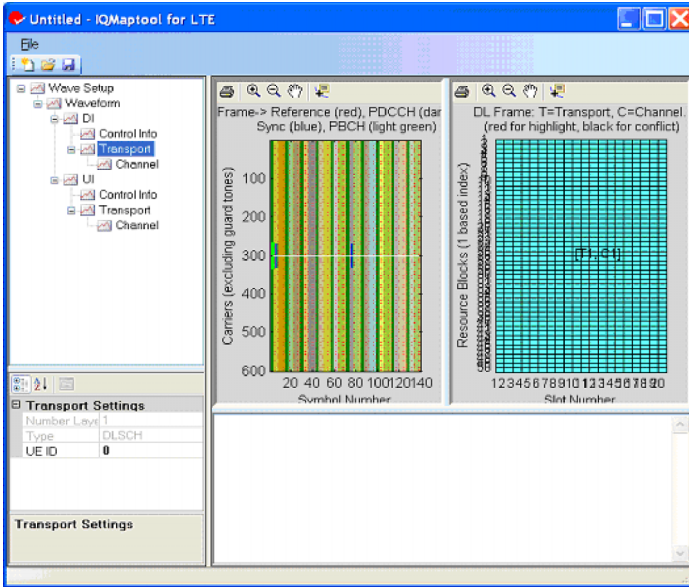
- Phase Error versus Time
- Frequency Error versus Time
- CCDF (for Support Compression Analysis)
- Spectrogram
- EVM (versus OFDM Subcarriers and versus Time)

Besides the graphical display of measurements, RSALTE also presents relevant numerical data including:

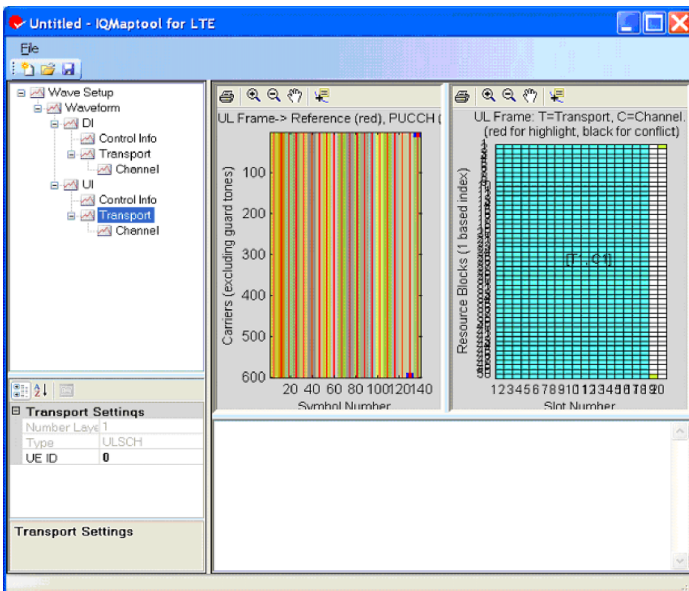
- EVM (All, Data, Pilots, Unmodulated)
- Power (Peak, Average)
- Frequency Error
- Symbol Timing Error
- Integrated Phase Noise
- I/Q Imbalance (Amplitude, Phase)
- Average of Numerical Data over Multiple Captures Can Also be Displayed

RSALTE additionally provides a wide range of compensation methods that can be used for advanced analysis of a captured signal's sensitivity to certain impairments. For example, the available compensation methods when analyzing OFDM signals include:

- Phase Tracking (Off, Fast)
- Channel Estimation (Based on Averaging of the Long Training Sequence, Averaging of the Full Packet)
- Symbol Timing Tracking
- Frequency Synchronization (Based on Long Training Sequence or Full Packet)
- Amplitude Tracking



Downlink Map



Uplink Map

The RSALTE software will auto-detect the resource allocation maps in the uplink and downlink further simplifying signal analysis. The maptool allows you to configure the LTE map such that the signal can be properly decoded. Traditionally, a map is automatically generated from data that is contained

in the downlink control channel. With the maptool, you can view the map and also create/modify the map if nonstandard schemes are used. The maptool provides both symbol number and slot number views giving you more flexibility in how the data is displayed.

Characteristics

Transmitter Measurements: (LTE release December 2008 - Version 8.50)

Measurement	Downlink Transmitter Measurements: OFDMA	Uplink Transmitter Measurements: SC-FDMA
EVM - for all data symbols for a frame	✓	✓
IQ offset	✓	✓
Center Frequency Error	✓	✓
Symbol Clock Error	✓	✓
Crest factor – Peak to Average Power Ratio	✓	✓
Power vs Time	✓	✓
Spectrogram	✓	✓
EVM vs Carrier	✓	✓
EVM vs Symbol	✓	✓
Spectral Flatness	✓	—
Spectral Flatness Difference	✓	—
Constellation	✓	✓
CCDF	✓	✓
Frequency Error vs Symbol	✓	✓
Mapping/Allocation Table	✓	✓
ACL	✓	✓

Application Programming Interface (API)

The RSALTE software supports an API using the TCP/IP Interface. It is language- and platform-independent interface for controlling the RSALTE software when connected to an RSA Series. The interface allows the user to program a sequence of commands to simulate user actions in the application's user interface.

PC System Requirements

Characteristic	Description
PC Intel Pentium processor or compatible	1 GHz or higher
Operating System Microsoft Windows (US English versions)	Windows 2000 (SP3 or higher), Windows XP (SP1 or higher)
Memory	512 MB of RAM
Disk Space	500 MB of available hard disk space
Monitor	1024 x 768 resolution
Connectivity	TCP/IP over 10/100Base-T Ethernet or IEEE 488.2 GPIB

Ordering Information

RSALTE

- LitePoint IQsignal™ LTE Software for Tektronix RSA3000 Series and RSA6000 Series Spectrum Analyzers

Includes: Quick Start Guide, software CD, and software license key.



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.



Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

Contact Tektronix:

ASEAN / Australasia (65) 6356 3900
Austria 00800 2255 4835*
Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
Belgium 00800 2255 4835*
Brazil +55 (11) 3759 7627
Canada 1 800 833 9200
Central East Europe and the Baltics +41 52 675 3777
Central Europe & Greece +41 52 675 3777
Denmark +45 80 88 1401
Finland +41 52 675 3777
France 00800 2255 4835*
Germany 00800 2255 4835*
Hong Kong 400 820 5835
India 000 800 650 1835
Italy 00800 2255 4835*
Japan 81 (3) 6714 3010
Luxembourg +41 52 675 3777
Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
Middle East, Asia, and North Africa +41 52 675 3777
The Netherlands 00800 2255 4835*
Norway 800 16098
People's Republic of China 400 820 5835
Poland +41 52 675 3777
Portugal 80 08 12370
Republic of Korea 001 800 8255 2835
Russia & CIS +7 (495) 7484900
South Africa +41 52 675 3777
Spain 00800 2255 4835*
Sweden 00800 2255 4835*
Switzerland 00800 2255 4835*
Taiwan 886 (2) 2722 9622
United Kingdom & Ireland 00800 2255 4835*
USA 1 800 833 9200

* European toll-free number. If not accessible, call: +41 52 675 3777

Updated 10 February 2011

For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com



Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.

02 Oct 2011

37W-21887-2

