Keysight 89600 VSA and 89600 WLA Software Revision History

Version 21.00 (Release Date April, 2016)
License Version 2016.0401 required

Enhancements:

Option 200: Basic VSA
- Support for S-Series scopes with E band mixers
- Support for "B" models of CXA, EXA, MXA and PXA
- Support for Infiniium DSAZ592A, DSOZ592A, DSAZ632A, DSOZ632A
- Support for Z9070B RF Tuner as a standard hardware configuration
- 16-channel support with dual M9703A or M9703B Digitizers

Option B7U: Modulation Analysis for W-CDMA (3GPP) and HSPA+
- DTCH based BER/BLER (RMC 12.2K)

Option BHF: Custom OFDM Analysis
- Variable CP and time gaps
- Multi carrier filtering

Option BHD/BHE: LTE FDD/TDD Modulation Analysis
- Time scale factor extended to 1000

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis
- LTE-A CSI-RS 8x8 MIMO Info Table
- PSDCH (physical sidelink dedicated channel) support
- Time scale factor extended to 1000

Option BHL: Channel Quality Measurement
- Significant speed improvement for the case of large tone count
- Stimulus bandwidth can now extend to full measurement span (previously limited to span x 5/6)
- Sample utility supports N8241A AWG and M8190A + PSG

Option BHM: Docsis 3.1 Modulation Analysis
- Upstream measurement (New)
- DOCSIS3.1 Downstream measurement enhancements
    - Embedded profile editor for Profile A-P and support for mixed modulation
    - Allow removal up to 5 sub-carriers for MER calculation

Option BHP: FMCW Radar Analysis
- Copy Auto to Manual function for auto detected reference regions
- Support for customizable decimation for FM traces

Option BHQ: Pulse Analysis

- Ability to export the entire recording at once for Pulse Descriptor Word (PDW)
- Support for 2-channel measurements

Issues Resolved:

- Custom IQ Equalizer behavior changes after pressing Reset
- Aborting measurement or recording causes error message "error locking deep capture resource"
- DSP error when configuring triggering with UXA

Version 20.20 (Release Date October, 2015)
License Version 2015.0601 required

Enhancements:

Option 200: Basic VSA

- Support for M9420A VXT PXIe Transceiver Modules
- Support for InfiniiVision 3000T Series
- Support for Infiniium DSAZ594A, DSOZ594A
- E-Band Mixer Utility

Option BHF: Custom OFDM Analysis

- IEEE 802.11ah presets added

Option BHJ: 802.11 ac Modulation Analysis

- 1024QAM support

Option BHM: Docsis 3.1 Downstream Modulation Analysis

- BER testing for variable-bit-loading profiles

Option BHP: FMCW Radar Analysis

- New measurement pause test conditions ("between" and "not between")

Option BHQ: Pulse Analysis

- New measurement pause test conditions ("between" and "not between")

Issues Resolved:

- Crash occurs when sending SCPI commands while connected to PXI hardware

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Version 20.00 (Release Date July, 2015)
License Version 2015.0601 required

Enhancements:

Option 200: Basic VSA

- Increase maximum input sample points from 82 MSa to 134 MSa for the 64-bit version
- Support for M9290A CXA-m PXIe Signal Analyzer
- Support for M1971E smart mixer
- Support for Infinivision 6000X Series
- Support for Infiniium V Series
- 5 MSa limit removed from X- Series analyzers

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- DL PDSCH 256QAM (E-TM3.1a) support in 3GPP Rel-12
- UL virtual cell ID support in 3GPP Rel-11

Option BHJ: 802.11 ac Modulation Analysis

- Frequency estimation mode selection
- Automatic symbol timing adjustment
- Frequency dependent IQ impairment estimation and compensation

Option BHK: Custom IQ Modulation Analysis

- Add disabling frequency estimation option
- Improved constellation preset UI (including new DVB-APSK presets)
- Improved synchronization pattern search

Option BHM: Docsis 3.1 Downstream Modulation Analysis

- New demodulation result summary for raw bit stream and information through demodulation and decoding process
- User profiler editor for profile configuration even with mixed modulation formats
- MER for ZBL
- Average power over measurement interval in dBm

Option BHP: FMCW Radar Analysis

- New FMCW phase noise spectrum trace

Option BHQ: Pulse Analysis

- Add triangular FM chirp, Barker code detection and analysis
- Automatic detection of modulation per pulse (CW, LFM, Triangular FM, and Barker)
- Save PDW into .csv file for use by Keysight UXG

Version 19.50 (Release Date April, 2015)
License Version 2014.1101 required

Enhancements:

Option AYA: Digital Modulation Analysis

- Added 4RC reference filter for HCPM modulation used by APCO25

Option BHJ: 802.11 ac Modulation Analysis

- Added two frequency estimation modes, preamble & pilots, preamble & pilots & data

Option BHM: Docsis 3.1 Downstream Modulation Analysis

- New Option

Version 19.02 (Release Date March, 2015)
License Version 2014.1101 required

Issues Resolved:

- UXA external/IFMag/FMT triggers produce DSP errors for higher spans (>230MHz).
- UXA Time Qualified Trigger minimum step size increased for higher spans (>230MHz).
- Startup error when Keysight IO Libraries is not installed.
- Crash when CSI-RS is enabled in LTE Advanced measurement.
- Degraded CSI-RS EVM when measurement interval is <= 1 slot.
- Power Spectrum measurement not enabled with trial license.
- Symbol clock error reported is not accurate with Upstream Docsis signals

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Version 19.00 (Release Date December, 2014)
License Version 2014.1101 required

Enhancements:

Option 200: Basic VSA

- Option 300: Hardware Connectivity is now included with option 200
- Support for N9040B, UXA.
- Support for segmented capture.

- Time qualified triggering.
- VXI hardware support discontinued.

Option BHD/BHE: LTE FDD/TDD Modulation Analysis

- Support for Version 13.1.1 Signal Studio Setup files

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- Cross-carrier in-band emission measurement
- Cross-carrier scheduling
- DCI decoding for Rel-10
- Transmission Mode 9 (up to 8x8 MIMO) auto-detection

Option BHK: Custom IQ Modulation Analysis

- Support for analysis on two channels

Option SSA: Spectrum Analysis

- Support for zero span measurement
- Equivalent sweep time
- Sweep trigger
- SCPI for gate trigger
- Additional X-series SA compatible SCPI commands

Option BHL: Channel Quality Measurement

- New Option
- Multi-tone stimulus based channel response measurement

Option BHP: FMCW Radar Analysis

- New Option
- Modulation quality measurements on multi-chirp linear FM modulated signals

Option BHQ: Pulse Analysis

- New Option
- Support for various Keysight hardware platforms with wide dynamic range and analysis bandwidth required by narrow pulse analysis

Issues Resolved:

- Crash occurs after presetting a multi-measurement configuration that includes one or more digital demod measurements.
- Sync search fails in Custom IQ.

Version 18.70 (Release Date August, 2014)
License Version 2014.0501 required

Enhancements:

Option 200: Basic VSA

- Cosmetic rebranding to Keysight Technologies

Version 18.50 (Release Date August, 2014)
License Version 2014.0501 required

Enhancements:

Option 200: Basic VSA

- Sequencing measurements
- Trace Averaging
- In process SCPI Server including support for HiSLIP connections
- Support for running 89600 in process

Option 300: Hardware Connectivity

- Support for Infiniium Z-Series scopes.
- Support for M9393A.
- Resource sharing of M9393 and M9391 Vector Signal Analyzers using M9000 Resource Manager.

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- SCPI Support

Option BHF: Custom OFDM Analysis

- Support for 8192-QAM and 16384-QAM

Option SSA: Spectrum Analysis

- New Option
- Supports M9391A and M9393A
- Limited X-Series SA Mode Compatible SCPI

Version 18.02 (Release Date September, 2014)
License Version N/A required

This version was never officially released but was mistakenly included on the factory disk image of X Series analyzers that shipped with A.14.54 software. This version will not run with an error message:

>> Startup Failed
>> Unable to load one or more of the requested types. Retrieve the LoaderExceptions property for more information.
>> Agilent 89600 VSA software failed to start - exit code -1.

If you have this version installed on your analyzer please upgrade to a released version.

Version 18.00 (Release Date May, 2014)
License Version 2014.0501 required

Enhancements:

Option 200: Basic VSA

- Support for Windows 8 (WinXP no longer supported)
- Increase maximum input sample points by 10-fold for the 64-bit version.
- Increase the maximum decimation factor to allow narrower RBW for wide-band analysis for the 64-bit version.
- Graph traces can use stimulus/response data at different center frequencies.
- Support of Matlab Simulink discontinued.

Option 300: Hardware Connectivity

- Support for Infiniium S-Series scopes.
- Support logic analyzers with the 64 bit application.

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- Support for UL-MIMO single channel analysis.
- Support measuring LTE release-11 defined sub-frame type.
- Add Time Alignment Error results between component carriers to the error summary table.

Option BHK: Custom IQ Modulation Analysis

- New option.

Model 89620B/BN: 89600 WLA software

- Support for Release 10 RRC message decoding.

Version 17.22 (Release Date April, 2014)
License Version 2013.0601 required

Issues Resolved:

- Measurements can be slowed on some processors due to blocking threads in the Intel DSP libraries.

- Legacy floating licenses (agilevsa2) not working, introduced in 17.21.

Version 17.21 (Release Date February, 2014)
License Version 2013.0601 required

Issues Resolved:

- Errors when running on Intel Haswell processors.

Version 17.20 (Release Date October, 2013)
License Version 2013.0601 required

Enhancements:

Option 300: Hardware Connectivity

- Added user preference to automatically restore measurement after hardware configuration change.

Option AYA: Digital Modulation Analysis

- Added presets and new metrics to support Wi-SUN 2-FSK modulation quality measurements.
- Enhanced custom APSK measurement to handle non-uniform phase shift definitions for the case of 4 or 6 constellation states.
- Added MER metrics to the Syms/Errs summary table for 8PSK.
- Extended QAM modulation quality analysis to include QAM2048 and QAM4096.

Version 17.00 (Release Date June, 2013)
License Version 2013.0601 required

Enhancements:

Option 200: Basic VSA

- Complex Stimulus / Response: new Graph traces for computing and plotting AM/AM, AM/PM, Gain Compression, Differential EVM and other key metrics for power amplifiers and other two port devices.
- Added support for Blackman-Harris, Kaiser-Bessel, and Gaussian window types.

Option 300: Hardware Connectivity

- Support for frequency-mask triggering (FMT) using Agilent X-Series Analyzers Option RT1/RT2.
- Support for Agilent Infiniium MSOX90000 Series oscilloscopes.

Option BHD/BHE: LTE FDD/TDD Modulation Analysis

- Improved power level auto-detection for downlink control channels (P-SS, S-SS, PBCH, PCFICH).
- Uplink auto-detection of frame boundary (for automatic exclusion of EVM transient time).

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- Updates to decoding for UL PUCCH UCI.

Model 89620B/BN: 89600 WLA software

- Support for simultaneous Uplink and Downlink measurements and protocol analysis has been added.
- Charting capabilities have been improved.
- Examples have been added to demonstrate protocol analysis verification tasks such as: UL/DL throughput, UL power control, and connection setup.

Issues Resolved:

- Errors when attempting to upload large files to a signal generator

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Version 16.20 (Release Date March, 2013)
License Version 2012.1201 required

Enhancements:

Option 200: Basic VSA

- Additional SCPI commands and queries for all Input Correction and Correction APIs

Option 300: Hardware Connectivity

- Support for Agilent Infiniium 9000 H-Series oscilloscopes.
- Support for 13 GHz models of Agilent Infiniium 90000 X-Series oscilloscopes.

Option AYA: Digital Modulation Analysis

- New measurement parameter to specify EVM Normalization Reference as either Constellation Maximum (default) or Reference RMS.
- Improved filter response when filter alpha <0.4, for the following formats:

BPSK	Custom APSK
QPSK	16-APSK
DQPSK	16-APSK w/DVB
8-PSK	32-APSK
D8PSK	32-APSK w/DVB

Option BHF: Custom OFDM Analysis

- Support for 2048-QAM and 4096-QAM.

Issues Resolved:

- Host ID changes after a reboot

Version 16.01 (Release Date January, 2013)
License Version 2012.1201 required

Issues Resolved:

- Startup Error on Win XP with no network connectivity and no Windows Updates

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Version 16.00 (Release Date December, 2012)
License Version 2012.1201 required

Enhancements:

Option 200: Basic VSA

- Improved synchronization within Multi-Measurements Analysis using multiple hardware configurations.
- Support for customized routing of physical input channels onto measurement channels.
- Additional SCPI commands and queries for improved coverage of the .NET API
- Simplified download of current recording for arbitrary waveform playback through Source control.
- Option 105: Dynamic link to ADS/SystemVue is now included with option 200.
- Option 106: Link to MathWorks Simulink is now included with option 200.

Option 300: Hardware Connectivity

- Support for Agilent InfiniiVision 4000 X-Series Oscilloscopes

Option BHD/BHE: LTE FDD/TDD Modulation Analysis

- Support for FDD Beamforming has been added.
- Support for analysis of MBSFN with mixed-mode CP's has been added.
- Summary metrics have been added for in-band emissions and spectral flatness measurement results.

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- Support for PUCCH Format 3 has been added.
- Support for TM9 (Downlink 8x8 MIMO) has been added.
- Support for CSI-RS analysis has been added.

Option BHJ: 802.11 ac Modulation Analysis

- Support for 8x8 MIMO analysis.
- Support for Multi-User analysis.
- Support for Dynamic Phase Noise measurement.
- Channel equalization has been improved, including an optional frequency-domain smoothing algorithm.

Option BHA: TETRA (TEDS) Modulation Analysis

- New option
- Measurement analysis matching 89600 VSA 12.02 capabilities.

Issues Resolved:

- Translator Framework failures related to Null Reference Exception

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Version 15.01 (Release Date August, 2012)
License Version 2012.0401 required

Enhancements:

Option 300: Hardware Connectivity

- Support for Agilent Infiniium 90000 Q-Series Oscilloscopes.

- Support for Agilent InfiniiVision 3000 X-Series 1 GHz Bandwidth Oscilloscopes
- Support for source control using N5172B EXG, N5182B MXG

Option BHF: Custom OFDM Analysis

- Support for non-power-of-two FFT sizes

Issues Resolved:

- Unsigned assembly error
- Connection to Logic Analyzers fails
- Translator Framework interferes with non-English keyboards

Version 15.00 (Release Date April, 2012)
License Version 2012.0401 required

Enhancements:

Option 200: Basic VSA

- Native 64-bit 89600 VSA application (32-bit 89600 VSA application still supported).
- Multi-Measurements Analysis. Note: because this can potentially use a large amount of memory, we recommend using the 64-bit 89600 VSA application when doing Multi-Measurements analysis.
- Multiple Trace Windows.
- Support for channel configurations using 8 input channels.
- Cross-channel measurements (cross-correlation, coherence, etc.) now support arbitrary pairs of channels.
- Improvements to SCPI API help documentation, and some additional commands and queries.
- Source control and arbitrary waveform playback using signal recording files.

Option 300: Hardware Connectivity

- Support for Agilent InfiniiVision 3000 X-Series oscilloscopes.
- Support for source control using Agilent ESG/MXG/PSG-series signal generators.
- Support for external mixing using Agilent X-series signal analyzers.
- Support for the Agilent N6841A RF Sensor.
- Support for 8-channel configuration of Agilent N7109A Multi-Channel Signal Analyzer.

Option 105: Link to EEsof ADS/SystemVue

- Support for ADS connectivity is now available with ADS 2011.10.

New Option 106: Link to the MathWorks Simulink Model-Based Design

- Agilent 89600 VSA Blockset now supports side-by-side installations of 89600 VSA version 14.23 and newer.
- Supports MATLAB versions 2010a and newer.
- 89600 VSA Blockset installation available from the More Installation Choices section of the 89600 Software Installation Manager.

Option AYA: Digital Modulation Analysis

- Support for Shaped Offset QPSK modulation format, including filter and preset for SOQPSK-TG (IRIG 106).

Option BHD/BHE: LTE FDD/TDD Modulation Analysis

- Support for Positioning-RS analysis
- Support for analysis of MBSFN-RS/PMCH
- Support for 8-antenna beamforming analysis (TDD only)

Options BHG/BHH: LTE-Advanced FDD/TDD Modulation Analysis

- Support for Inter-band Carrier Aggregation

Version 14.23 (Release Date February, 2012)
License Version 2011.0701 required

Enhancements:

Option 300: Hardware Connectivity

- Support for 160 MHz analysis bandwidth when using N9030A-B1X with PXA Signal Analyzers (requires firmware version A.10.00 or later)

New Option 244: 89600 VSA software for Simulation Environments

- Available for 89601BE and 89601BNE products. Enables simulation environment use of the 89600 VSA software without hardware connectivity.

Version 14.20 (Release Date October, 2011)
License Version 2011.0701 required

Enhancements:

Option 200: Basic VSA

- C++ redistributables not re-installed during each installation

New Application: 89600 WLA

- The 89600 WLA software lets you perform detailed analysis of your downlink LTE signal by correlating 89600 VSA measurements with protocol events across multiple frames and multiple protocol layers (MAC, RLC, PDCP, and RRC). Demodulation of the LTE signal is performed by the VSA and the results are further decoded by WLA.

Version 14.00 (Release Date July, 2011)
License Version 2011.0701 required

Enhancements:

Option 300: Hardware Connectivity

- Support for N9030A-BBA
- Support for N9030A-550, -544, -543
- Support for N9038A
- Support for M9392

Option AYA: Digital Modulation Analysis

- Custom APSK modulation analysis
- Low SNR mode for OQPSK and DQPSK

Option B7Y: Mobile and Fixed WiMAX modulation analysis

- This license enables both 802.16 OFDM and 802.16 OFDMA

Option BHJ: 802.11 ac Modulation Analysis

- New option

Option BHG: LTE-Advanced FDD Modulation Analysis

- New option

Option BHH: LTE-Advanced TDD Modulation Analysis

- New option

Issues Resolved:

Option 200: Basic VSA

- Windows firewall exception installed for floating licenses
- Unable to install Agilent Application Services

Option 300: Hardware Connectivity

- Errors in AliasChecker macro

Option BHE: LTE TDD Modulation Analysis

- Crash when both UL and DL present in the waveform

Version 13.01 (Release Date March, 2011)
License Version 2010.1201 required

Issues Resolved:

Option 200: Basic VSA

- SystemVue will not connect when using a trial license
- Double characters entered in dialog boxes with Japanese language setting
- Input User Corrections only applied to "I" part of I+jQ signal

Option 300: Hardware Connectivity

- Installation on X-Series signal analyzers
- Connection issues for external PC to X-Series signal analyzers
- ESA models E4402B, E4404B, and E4405B are not recognized

Option AYA: Digital Modulation Analysis

- Sync search without Pulse search disables Search Length

Version 13.00 (Release Date February, 2011)
License Version 2010.1201 required

Initial release, below are the changes relative to 89601A version 12.xx

Enhancements:

Option 200: Basic VSA

- Many more traces (up to 20 traces supported)
- Many more markers (up to 20 markers supported)
- Flexible trace layout. Traces can be docked, floated, and overlaid.
- New Digital Persistence and Cumulative History trace display modes
- Print preview & save screen or selected traces to file
- Macros support Visual Basic .NET and C# languages
- New Output window with Show Code feature
- New SCPI based remote control
- New .NET API based remote control
- COM API Backwards Compatibility (see online help topic "89600B VSA COM API (Backwards Compatibility)")
- Side-by-Side installation of multiple versions
- Dynamic Context Sensitive Help
- New licensing redemption and software subscription update via Agilent Software Licensing and Agilent Software Manager

Option 300: Hardware Connectivity

- Built-in Auto Range function
- Easier to use Hardware Configuration, dynamic HW rediscover
- Custom channel configuration for Infiniium Oscilloscopes
- Input coupling/Impedance and Probe support for Infiniium Oscilloscopes
- Support for Infiniium 90000 X-Series High-performance Oscilloscopes
- Support for N7100 Series SIGINT System

Option BHD /BHE: LTE FDD /TDD Modulation Analysis

- Uplink decoding
- Auto-detection of PUCCH parameters
- Auto-detection of UL power levels
- Demodulation of DL in the presence of UL for TDD and vice-versa

Option BHE: LTE TDD Modulation Analysis

In addition to the features listed above section, the following features are supported for Option BHE:

- UE-specific RS Analysis with auto-detection
- One layer and dual layer Beamforming analysis with new Antenna Beam Pattern trace

Option BHF: Custom OFDM Analysis

New flexible demodulator supports

- TDD or FDD
- FFT size up to 65536 points
- Subcarrier modulation to 1024 QAM
- MIMO (max 4 streams)
- Multi-users (max 8)
- Choice of sync techniques – pilot, preamble, cyclic prefix, etc.
- Choice of EQ training – preamble, pilots, data.

Issues Resolved:

Option 300: Hardware Connectivity

- PSA returns invalid data with long time measurements after changing span.
- No measurement updates occur when using PSA via GPIB
- VISA timeout error while using 90000 series scopes

Option B7U: Modulation Analysis for W-CDMA (3GPP) and HSPA+

- Improved HSPA synchronization algorithm
- Inconsistent results when switching Pilot Aided Timing Estimation on and off

Option B7Z: 802.11n Modulation Analysis

- Software crash when using PXA hardware

Option BHC: RFID Modulation Analysis

- Various measurement setups could cause the software to crash

89600A Features not available 89600B:

- TETRA/TEDS (option BHA)
- Source Control
- Acqiris ADC Support
- Simulink support
- ADS link (SystemVue link is supported)
- 89607A WLAN Test Suite
- 89604A Distortion Suite
- ESA as a down converter

- PSA as a down converter
- Agilent SI Spectrum Analyzer
- Existing VBScript macros need to ported to Visual Basic.NET or C#