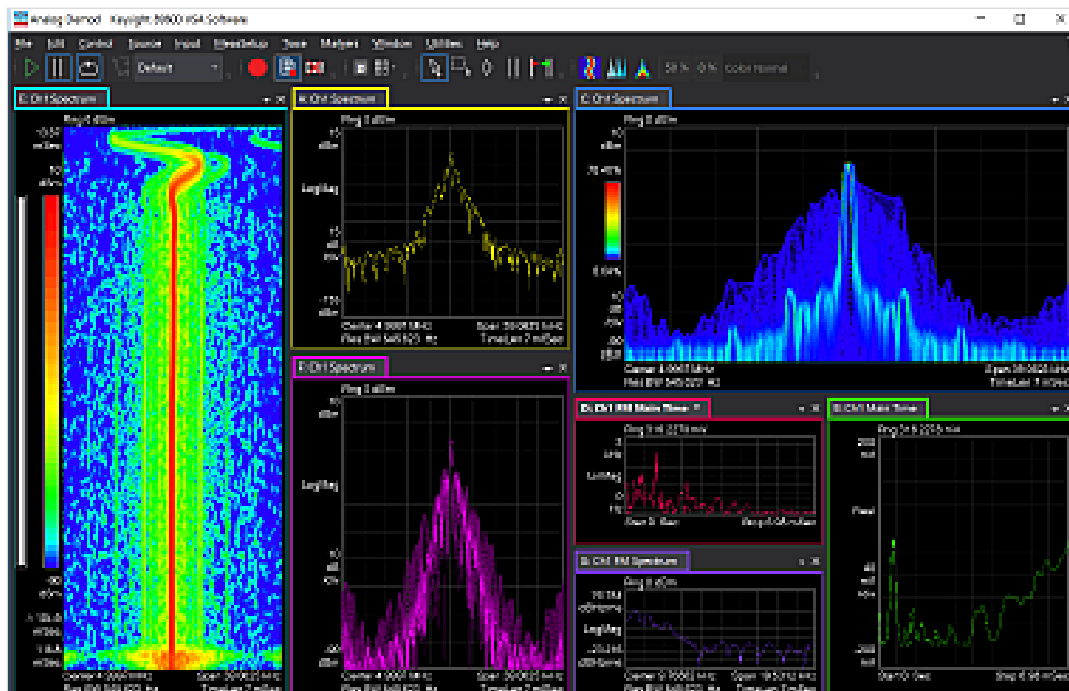# PathWave Vector Signal Analysis (89600 VSA) Software

See Through the Complexity

Development becomes more complex when faster data rates intersect with today's crowded spectral environment. Finding a signal problem is essential—but achieving the clarity to pinpoint the answer is the crucial challenge. PathWave Vector Signal Analysis (VSA) software is a comprehensive set of tools for demodulation and vector signal analysis. These tools enable you to explore virtually every facet of a signal and optimize your most advanced designs. As you assess the tradeoffs, PathWave Vector Signal Analysis (VSA) helps you see through the complexity.

Configure Your New Software

This step-by-step process will help you configure your new PathWave Vector Signal Analysis (VSA) software when making your initial order. See the upgrade section to learn how to add any of these options after initial purchase.

Beginning with **Step 1**, determine the license type you need.

KEYSIGHT

PATHWAVE

Did you know…

Connectivity to over 45 Keysight instrument platforms, is a standard feature of Basic VSA (Option 89601200C).

For a complete list of hardware platforms, visit www.keysight.com/find/89600_hardware

Step 1: Choose Basic Vector Signal Analysis

Model	Description	Additional information
89601200C (required core option)	Basic vector signal analysis and hardware connectivity	• Time and frequency domain analysis with up to 409,601 point FFT • Flexible traces and displays with simultaneous and multi-measurements • Analog demodulation of AM, FM, PM signals • AM/AM, AM/PM, and gain compression for power amplifiers • Trigger with selectable level, slope, delay and hold-off • Record the acquired signal waveforms to playback for troubleshooting • Make group delay measurements using a simple wideband multi-tone stimulus signal (Channel quality mod analysis) • Import/export the multi-tone stimulus definition from/to Keysight N7621B Signal Studio software (channel quality mod analysis) • Make multiple measurement with synchronous (simultaneous) or sequenced acquisition mode • Calibrate the input stimulus model with measured signal data (Channel quality mod analysis) • Perform simple and repeatable phase and magnitude channel response analysis (Channel quality mod analysis) • Links to Keysight EDA PathWave SystemVue and ADS • Connectivity to more than 45 Keysight Signal Analyzer hardware platforms including X-Series signal analyzer, oscilloscopes, logic analyzers, transceivers, digitizer, vector network analyzer, RF sensor, wirelesses test set, radio test set etc. • Connectivity to Keysight Signal Generators for source control • Power spectrum measurement with multi-band support • Power spectrum with PXIe VSA M9393A/M9391A

Try before you buy!

Download PathWave Vector Signal Analysis (VSA) software and use it free for 30 days. Visit www.keysight.com/find/89600_trial

Step 2: Add Other 89600 VSA Measurement Applications

Model	Description	Note
General purpose		
89601AYAC	Digital modulation analysis	• Analysis of >40 modulation formats, including custom APSK and presets for communication formats like GSM/EDGE, ZigBee FSK, Bluetooth® BR, APCO25 and SOQPSK • Proprietary and pre-standard, customized IQ constellation signals. • TEDS modulation analysis • Channel response measurements such as phase/magnitude response and multi-tone group delay • Flexible frame analysis
89601BHFC	Custom OFDM modulation analysis	• Proprietary and pre-standard OFDM formats such as WLAN, DAB, DVB-T/H, DVB-SH, ISDB-T and more…
89601PSMC	PowerSuite measurement	• Support PowerSuite SEM and ACP measurements with FFT mode • Support multiple spectrum regions and multiple acquisition with narrow IF bandwidth
Cellular communication		
89601BHNC	5G NR modulation analysis	• 5G NR modulation analysis • Pre-5G modulation analysis
89601BHGC	LTE/LTE-A FDD modulation analysis	• LTE FDD modulation analysis • LTE-Advanced FDD modulation analysis
89601BHHC	LTE/LTE-A TDD modulation analysis	• LTE TDD modulation analysis • LTE-Advanced TDD modulation analysis
89601B7NC	3G modulation analysis bundle	• W-CDMA/HSPA+ modulation analysis • TD-SCDMA/HSPA modulation analysis • cdma2000 modulation analysis • 1xEV-DO modulation analysis • 1xEV-DV modulation analysis
Wireless connectivity		
89601B7RC	Wireless connectivity modulation analysis	• WLAN 802.11a/b/g/j/p modulation analysis • WiMax® modulation analysis
89601BHXC	High throughput WLAN modulation analysis	• WLAN 802.11n/ac modulation analysis • WLAN 802.11ax modulation analysis • WLAN 802.11be modulation analysis
89601BHTC	IoT modulation analysis	• NB-IoT modulation analysis • RFID modulation analysis • IEEE 802.15.4/4z HRP UWB
Radar analysis		
89601BHQC	Pulse analysis	• Pulsed modulated radar signal analysis • FM linear chirp, frequency hopping signal analysis
89601BHPC	FMCW radar analysis	• For multi-chirp linear FM modulated signals or automotive radar
Other standard formats		
89601101C	Direct Data Connectivity	• Allow user to use their own data input stream for 89600 VSA measurement
89601301C	Multi-vendor hardware connectivity	• Connect multi-vendor hardware for modulation analysis
89601BHMC	DOCSIS modulation analysis	• DOCSIS3.1 and 4.0 downstream and upstream modulation analysis
89601EVMC	Cross-correlated EVM	• Improve the EVM performance by noise cancellation by multiple receivers working with modulation analysis for WLAN or 5G NR
89601CC1C	Phase Coherent Channel Count Expander up to 8-Port	• Phase Coherent Channel Count Expander Up to 8-Port with Sequential Acquisition
86901CC2C	Phase Coherent Channel Count Expander up to 64-Port	• Phase Coherent Channel Count Expander up to 64-Port with Sequential Acquisition
89601CSDC	Channel sounding signal analysis	• Perform channel sounding measurement with coded channel sounding reference waveforms

Step 3: Select Desired License Type, License Term and Subscription

Each of the following license types are offered as perpetual or subscription licenses as shown in the table below. A valid support contract is included with subscription licenses. For perpetual license, a separate support contract is required to access Keysight technical support and software updates.

License type	Description
Node-locked	Allows you to use the license on one specified instrument/computer.
Transportable	Allows you to use the license on one instrument or computer at a time. This license may be transferred to another instrument or computer using Keysight's online tool.
USB Portable	Allows you to move the license from one instrument/computer to another by end-user only with certified USB dongle, which is purchased separately.
Floating	Allows you to access the license on networked instruments/computers from a server, one at a time. For concurrent access, multiple licenses may be purchased. Three types of floating license are available: **Single Site**: 1-mile radius from the server; **Single Region2**: Americas; Europe; Asia; Worldwide (export restriction identified in End User License Agreement (EULA))
Perpetual	Software license can be used in perpetuity
Subscription	Software license is time limited to a defined period, such as 12 months.

Note: Americas (North, Central, and South America, Canada); Europe (European Continent, Middle Eastern Europe, Africa, India); Asia (North and South Asia Pacific Countries, China, Taiwan, Japan)

Subscription	Description
KeysightCare support subscription	Perpetual licenses are sold with a 12 (default), 24, 36, or 60-month software support subscription. Support subscriptions can be renewed for a fee after that.
	Subscription licenses already include a software support subscription through the term of the license.

Step 4: Confirm 89600 VSA Ordering Information

Software license type and term	Software license	Support subscription
Node-locked perpetual	R-Y5A-001-A	R-Y6A-001-y[2]
Node-locked subscription	R-Y4A-001-z[1]	Included
Transportable perpetual	R-Y5A-004-D	R-Y6A-004-y[2]
Transportable subscription	R-Y4A-004-z[1]	Included
USB Portable perpetual	R-Y5A-005-E	R-Y6A-005-y[2]
USB Portable subscription	R-Y4A-005-z[1]	Included
Floating perpetual (single site)	R-Y5A-002-B	R-Y6A-002-y[2]
Floating subscription (single site)	R-Y4A-002-z[1]	Included
Floating perpetual (single region)	R-Y5A-006-F	R-Y6A-006-y[2]
Floating subscription (single region)	R-Y4A-006-z[1]	Included
Floating perpetual (worldwide)	R-Y5A-010-J	R-Y6A-010-y[2]
Floating subscription (worldwide)	R-Y4A-010-z[1]	Included

1. z means different subscription license duration. F for six months, L for 12 months, X for 24 months, and Y for 36 months. All subscription licenses have included the support subscription same as the subscription license duration.
2. y means different support subscription duration. L for 12 months (as default), X for 24 months, Y for 36 months, and Z for 60-months. Support subscription must be purchased for all perpetual licenses with 12-months as the default. All software upgrades and KeysightCare support are provided for software licenses with valid support subscription.
3. Support subscription for all perpetual licenses can be extended with monthly extensions
4. When purchasing a USB portable license, you can include E8900-D10 as part of the order. To purchase the USB dongle as a stand-alone part order E8900-80036.

Upgrade your existing software

All PathWave Vector Signal Analysis (VSA) software options can be added after initial purchase and are license-key enabled. Some require the latest software version. To learn more and upgrade your software, visit www.keysight.com/find/89600_upgrades

To determine if you already have a licensed measurement option: For transportable licenses, go to the 89600 VSA toolbar and select **Utilities > Licenses… > Options**. The options you have installed are indicated with a Yes.

For floating licenses, check with your network manager to determine the Option 89601200C quantity in your system.

Configuration Example

In this example with 89601C, 5 people can use the 89601C VSA software at the same time because of quantity of 5 option 89601200C floating licenses have been purchased. This means that at any one time, two users can make LTE/LTE-A FDD measurements because two LTE/LTE-A FDD option 89601BHGC licenses have been purchased, three users can make 5G NR measurements because one 5G NR option 89601BHNC license has been purchased, and two more users can use 89601C VSA software to make basic time and spectrum measurements (without LTE/LTE-A FDD or 5G NR).

Model-License	Description	Quantity
89601200C-1NP	Basic vector signal analysis and hardware connectivity, floating (single site) perpetual license	5
89601BHGC-1NP	LTE/LTE-A FDD modulation analysis, floating (single site) perpetual license	2
89601BHNC-1NP	5G NR modulation analysis, floating (single site) perpetual license	3

Update and Subscription Service

Protect your software investment.

A 12-month subscription to 89601C VSA software must be included with each 89601200C initial purchase. You may also purchase additional KeysightCare support subscription at the time of initial purchase or after the initial purchase, to gain immediate access to the latest features and enhancements for the 89601C VSA software (2019 Update 1.0 or higher), after the initial 12-month subscription period expires. To check that your software and license are up to date, follow these steps:

Check the version number of your software by selecting Help > About in the 89600 VSA software toolbar and comparing that to the current version number found at www.keysight.com/find/89600_updates.

If you do not have the current version of the PathWave Vector Signal Analysis (VSA) software, check your license version (YYYY.MMDD) by selecting Utilities > Licenses… in the 89600 VSA software toolbar. Compare this to the license version required for the current version available at www.keysight.com/find/89600_updates.

If your license version is greater than or equal to the current license version, no new license is need. Simply download and install the new software version.

If your license version is lower than the current version, please contact Keysight to renew the 89601200C KeysightCare support subscription to update your software.

Current license	Renew KeysightCare support subscription	Note
89601B/BN-200	Upgrade to 89601200C license	Install base customer with 89601B-200 or 89601BN-200 license can use the software upgrade program to upgrade their license from 89601B to 89601200C
89601200C	Extend 89601200C version date	Please contact Keysight to extend the 89601200C license version date
89601xxxC	Extend 89601xxxC feature license version date	Please contact Keysight to extend the 89601xxxC feature license version date

PC Requirements

Any laptop, desktop or Windows-based instrument may be used to run PathWave Vector Signal Analysis (VSA) software, as long as it meets or exceeds the following minimum requirements. For a list of the most current requirements, see www.keysight.com/find/89600-pc

Operating system	Microsoft Windows 10 Professional, or Enterprise or Educational (64-bit for 89600 version above v22.0)
CPU	1 GHz (>2 GHz recommended)
RAM	2 GB (16 GB recommended)
Video RAM	128 MB minimum (1 GB recommended)
Windows experience index	>5 (recommended)
Hard disk	3 GB minimum available
Additional drives	DVD or network access to load the software; license transfer requires network access or a USB memory stick
Interface support	LAN, GPIB, USB For USB portable license, a USB port is necessary for license activation with a dongle (USB hardware key).
Browser	Internet explorer v9.0 or higher required for more reliable context sensitive online help functionality

Floating License Server Requirements

PathWave Vector Signal Analysis (VSA) floating license requires loading a vendor daemon on a license server. This server may be the same PC running PathWave Vector Signal Analysis (VSA) software. Full installation instructions and support are provided for compatible server operating systems: Windows 10 (x64, 64-bit), Windows 10 (x86, 32-bit), Linux Red Hat (64-bit) (VSA version above v22.0)

Visit: www.keysight.com/find/89600vsa

Web Resources

To learn more about 89600: www.keysight.com/find/89600

To download the latest 89600 software and apply trial license: www.keysight.com/find/89600_software

To learn more about 89600 supported hardware: www.keysight.com/find/89600_hardware

KEYSIGHT