

# 89601B/BN-105 Link to EEsof ADS/SystemVue 89600B Vector Signal Analysis Software



## Technical Overview



## Key Features

- Add 89600B's rich complement of powerful displays and measurements to simulations
- Ensure consistent design evaluations by using the same measurement calculation algorithms across the design lifecycle
- Expedite learning process and minimize setup errors with common Agilent graphical user interface
- Add multiple VSA sink and source blocks directly to simulation designs to analyze performance
- Compare multiple simulation runs or compare to actual hardware for consistent evaluation across design lifecycle



**Agilent Technologies**

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# Dynamic Links to Simulation

The 89600B vector signal analysis (VSA) software can dynamically analyze data generated by simulation software packages, providing a rich set of visual display and troubleshooting tools. Simulation software packages include:

## Agilent EEsof ADS (Advanced Design System) EDA software

ADS is the industry's leading RF, microwave, and high-speed digital electronic design automation software for wireless communications and networking, aerospace and defense, and signal integrity applications.

## Agilent SystemVue ESL software

SystemVue is an EDA environment for electronic system-level (ESL) design that enables system architects and algorithm developers to innovate the physical layer (PHY) of next-generation wireless and aerospace/defense communications systems.

The 89600B vector signal analysis software supports over 70 signal standards and modulation types and creates a window into what's happening inside your complex wireless devices. The 89600B tools provide views of virtually every facet of a problem, helping you see the "why?" behind signal problems. Whether you're working with emerging or established standards, Agilent's industry-leading 89600B VSA software helps you see through the complexity.

### Try before you buy!

Download the 89600B software and use it free for 14 days to make measurements with your analysis hardware, or use our recorded demo signals by selecting **File > Recall > Recall Demo>** on the software toolbar and choosing a signal format of interest. Request your free trial license today:

[www.agilent.com/find/89600B\\_trial](http://www.agilent.com/find/89600B_trial)

## Overview of dynamic links to simulation technology

Option 105 Dynamic Link to EEsof ADS/SystemVue integrates the 89600B VSA software with Agilent's EEsof Advanced Design System (ADS) electronic design automation software or SystemVue ESL software.

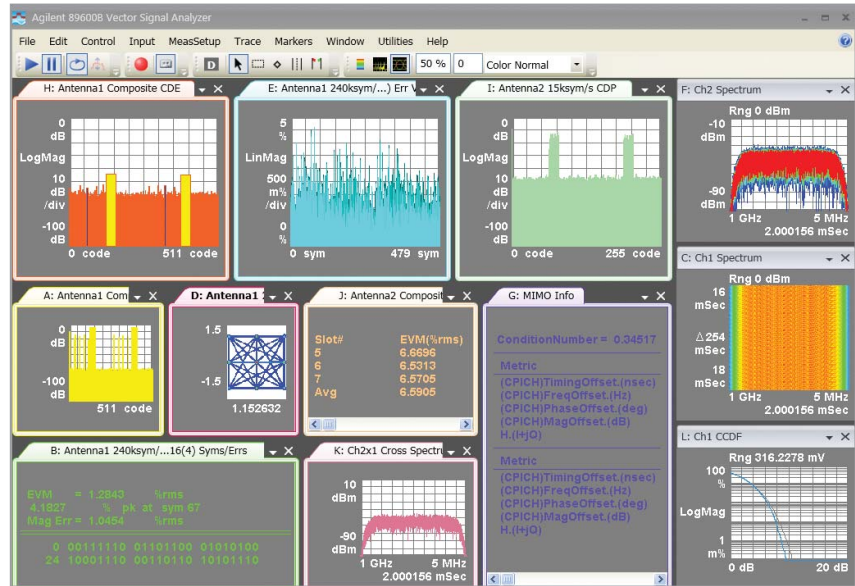
Option 105 adds a stream interface to 89600B software. The stream interface takes in digitized waveforms directly from the simulation program. The full functionality of the 89600B software with all installed modulation analysis options is available to analyze and display the simulated signal. It also provides a source component to source measurement data into the simulation.

Linking simulation designs to the analysis capability of the 89600B offers unprecedented capability. For instance, simulation results can be compared to a previous simulation run or to device performance. Or, the 89600B can measure data from real hardware and source it into a simulation of the next block's design. This "virtual hardware" lets you uncover system problems before hardware even exists. In short, a simulated design can replace real hardware.

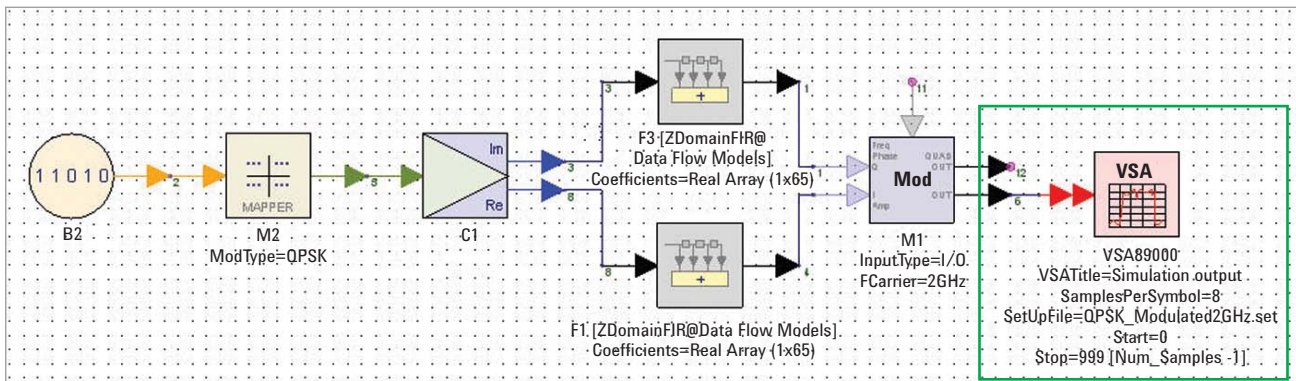
Software-defined radios (SDRs) benefit from using the 89600B to make measurements in a simulation, as well as source data measured from logic analyzers, oscilloscopes, and spectrum analyzers. This capability provides consistent analysis across the design and troubleshooting life-cycle of an SDR system.

# Analysis and Troubleshooting

Put the power of the 89600B's rich visualization toolset to work for you. With the VSA sink component installed, you gain access to every display format available for the measurement options installed, right on the same PC running ADS or SystemVue simulations. The link dynamically updates the instrument's measurement display as the simulation provides new time-series data to the 89600B.



Up to 20 displays each with 20 markers can be viewed per 89600B instance in the simulation design. Innovative display formats, like cumulative history, spectrogram, and digital persistence offer insight into a signal's behavior over time.

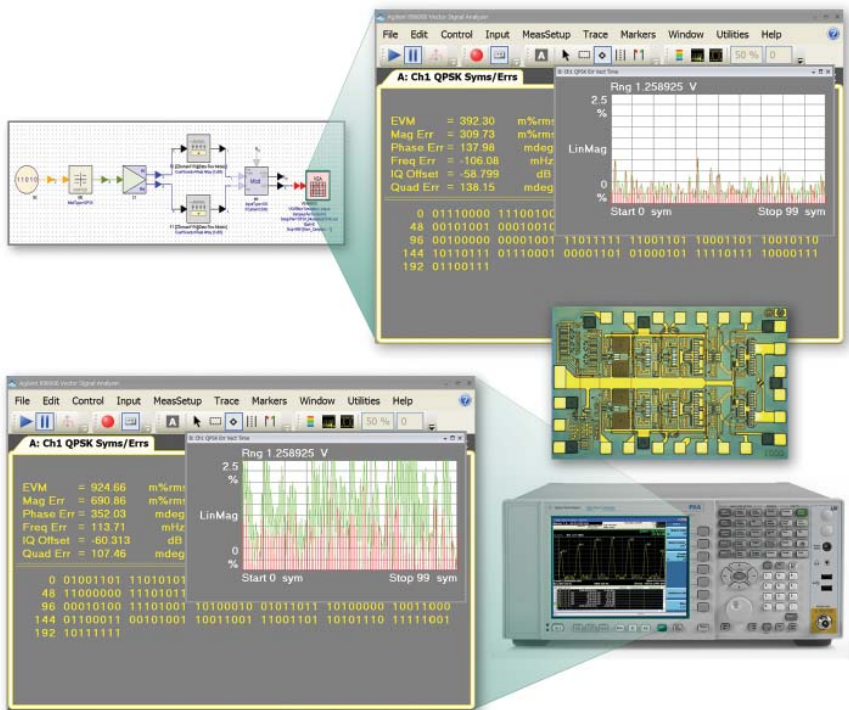


Option 105 provides both a real time source element and visualization sink to add to your simulations. Here the VSA simulation setup includes a few basic parameters and a saved instrument setup file.

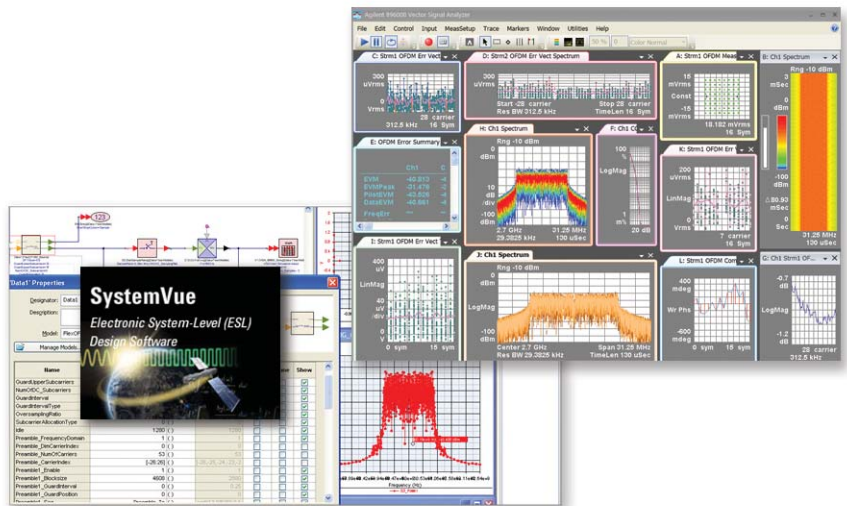


Avoid surprises when transitioning from design to test. Since you're using the same measurement algorithms and displays used by the test equipment, there's no question whether any differences measured on prototypes are due to differences between measurement hardware and simulation tools. Use any differences noted to refine simulation models for future use. Or, input measured data taken as simulation input to the next block.

Save time by using the same off-the-shelf tools for simulation and test. Use the 89600B's powerful troubleshooting toolset so that the early design team is free to work on product designs--not on measurement algorithms or display development. And using the same graphical user interface in simulation and test means that there is no learning curve related to the introduction of new tools as the design transitions through its development life cycle.

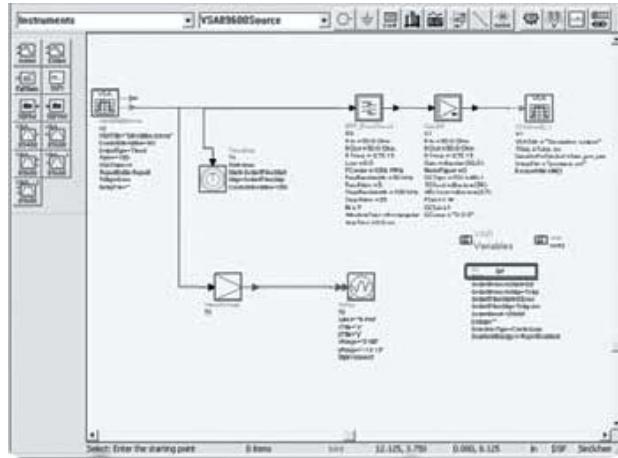


Whether you are analyzing a simulation or physical hardware, the 89600B VSA tracks expected performance and uncovers errors. Here, the EVM values are only slightly different, but the error vector time trace indicates a filtering problem compared to simulated values.



When using SystemVue, ADS, or test instruments, the measurements, displays and UI are identical, minimizing user setup errors and learning curve.

Choose the solution optimized for working with Agilent test equipment. The 89600B VSA is designed to work with over 30 Agilent hardware platforms, linking your simulation design to the real world for digital and analog baseband or IF, all the way up through RF and microwave.

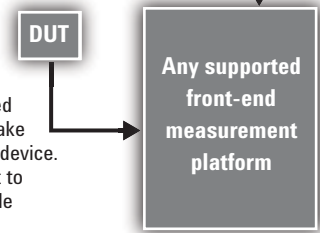


Use "virtual hardware" to make measurements and evaluate your system even before actual hardware is realized.

Measurements from actual prototype hardware can be fed into a design simulation.



Use Connected Solutions to download a simulation signal to an Agilent signal generator to stimulate your DUT



Use any of the supported Agilent front ends to make measurements on your device. You can also compare it to measurements you made on the simulated DUT.

*Use the 89600B and Connected Solutions to create "virtual hardware" where the simulation acts as a missing design block — allowing you to uncover system problems before hardware even exists.*

# Software Features

Overall features	
Description	This option links the 89600B VSA with design simulations running on Agilent EEsof ADS or SystemVue ESL, providing real-time, interactive analysis of results. It adds vector signal analysis sink and source components to the Agilent Ptolemy simulation environment. When a simulation is run, the 89600B software is automatically launched.
Available components	The Option 105 VSA sink component analyzes waveform data from a simulation. Its user interface and measurement functions are the same in this mode as for hardware-based measurements. The Option 105 VSA source component outputs measurement data to a simulation. Its input data can be from a recording or hardware. Front-end hardware need not be present when using either component unless live measurements are to be sourced into a simulation.
Source component	
ADS version required	ADS 2001 or later
SystemVue version required	SystemVue 2008 or later
VSA input modes	Data from: hardware, recording
VSA analysis range	Dependent on input mode and hardware installed
Sink component	
ADS version required	ADS 1.5 or later
SystemVue version required	SystemVue 2008 or later
VSA input modes	1-4 channels, I + jQ
VSA analysis range	
Carrier frequency	DC to > 1 THz
$T_{\text{step}}$ (sample time)	< $10^{-12}$ to > $10^3$ seconds
Number of VSAs that can run concurrently	64

# Ordering Information

## Software licensing and configuration

### Choose from two license types:

- **PC/instrument license:** Order 89601B if the software license will reside on a PC/instrument. The license can be transferred to another PC/instrument at any time.
- **Floating license:** Order 89601BN if the software license will reside on a server to be accessed by multiple users, one at a time.

## Hardware configuration

The 89600B software supports over 30 instrument platforms including spectrum analyzers, oscilloscopes, logic analyzers and modular instrument systems with its hardware connectivity option (89601B/BN-300).

Note that no hardware is required to use Option 105. However, hardware may be required to acquire data that can be sourced into simulations.

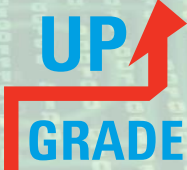
[www.agilent.com/find/89600B\\_hardware](http://www.agilent.com/find/89600B_hardware)

Model-Option		Description	Notes
PC/Instrument license	Floating license		
89601B	89601BN	89600B VSA software	Required
89601B-105	89601BN-105	Link to EEsof ADS/SystemVue	Required for dynamic link to EEsof ADS or SystemVue simulations <sup>1</sup>
89601B-200	89601BN-200	Basic vector signal analysis	Required
89601B-300	89601BN-300	Hardware connectivity	Required if measurements from hardware will be used to gather data for input into simulations with VSA source component

Keep your 89600B VSA up-to-date

You can upgrade!

With rapidly evolving standards and continuous advancements in signal analysis, the 89601BU/BN software update and subscription service offers you the advantage of immediate access to the latest features and enhancements available for the 89600B VSA software. [www.agilent.com/find/89600B](http://www.agilent.com/find/89600B)



All 89600B options can be added after your initial purchase and are license-key enabled. For more information please refer to [www.agilent.com/find/89600B\\_upgrades](http://www.agilent.com/find/89600B_upgrades)

1. You must order any additional options needed to make modulation measurements on the signals of interest. See the configuration guide for a complete listing of available options and their supported formats.



# Additional Resources

## Literature

*89600B Vector Signal Analysis Software*, Brochure, literature number 5990-6553EN

*89600B Vector Signal Analysis Software*, Configuration Guide, literature number 5990-6386EN

*89600B Opt 200 Basic VSA and Opt 300 Hardware Connectivity*, Technical Overview, literature number 5990-6405EN

*Software Defined Radio Measurement Solutions*, Application Note, literature number 5989-6931EN

## Web

[www.agilent.com/find/89600B](http://www.agilent.com/find/89600B)  
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