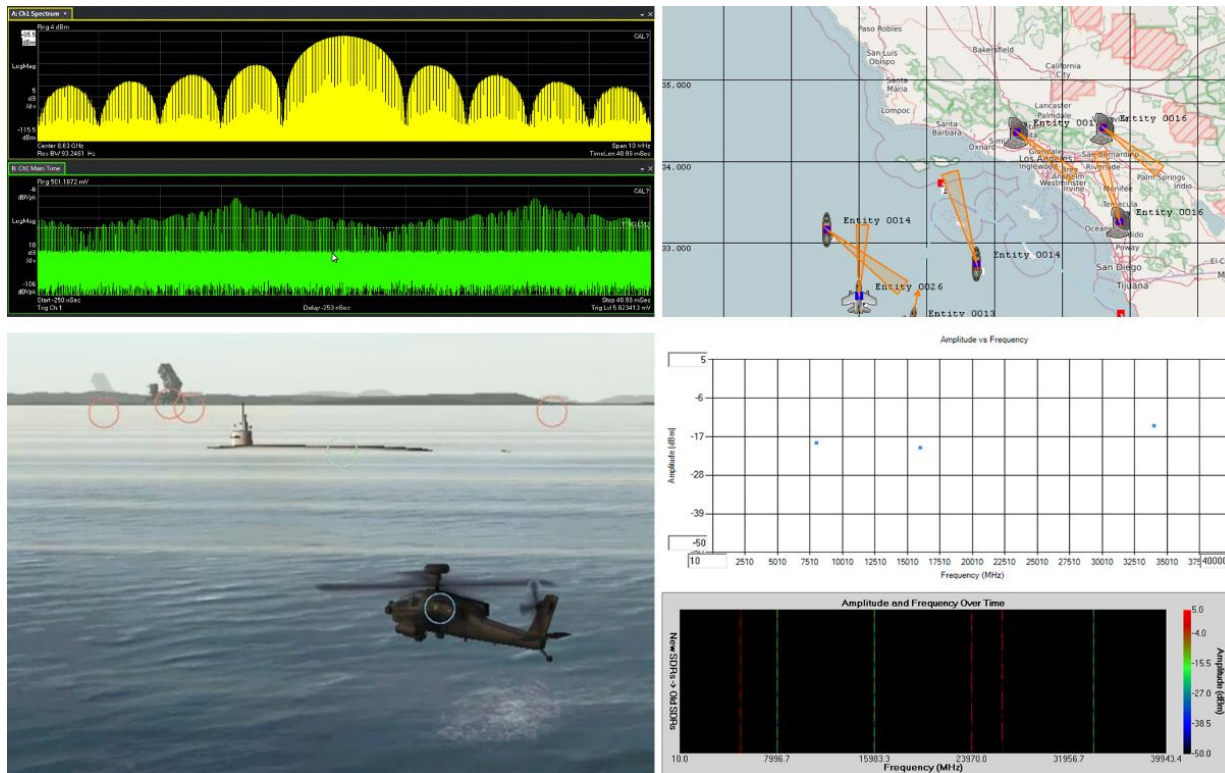


Keysight EW Threat Simulation View

From Desktop to Battlefield

Full Spectrum Real-Time RF Modeling with Dynamic Scenario Control and High-Fidelity Visualization

Keysight EW Threat Simulation View software enables the rapid development, integration, and test of sophisticated Electronic Warfare Systems by allowing you to incrementally build out an RF System Development Environment specialized to your needs and budget.



Build: Real RF simulation of a theater environment for a system under test (SUT)

- TDOA, FDOA, Amplitude, and Phase Interferometry DF/Geolocation
- High density environments (millions of pulses per second)
- Import emitter definition from legacy and government threat databases
- Different depth of pulse-on-pulse cases and realistic threat emulation

Visualize: See every level of detail

- Simulation gameboard to view complex entity laydowns and dynamic mission scenarios
- Automated RF output verification with automatic entity tracking using Keysight analysis tools including oscilloscopes, spectrum analyzers and 89600A Pulse Analysis software
- Emitter trend graphing tools to verify expected model behavior
- Antenna scan visualization
- PPI display that can switch between different simulated radars for jamming response

Output: Flexible scenario options for different types of tests

- Real-time PDWs streaming to UXG X-Series Agile Signal Generators
- Real-time digital injection of PDWs to SUT when hardware is not available

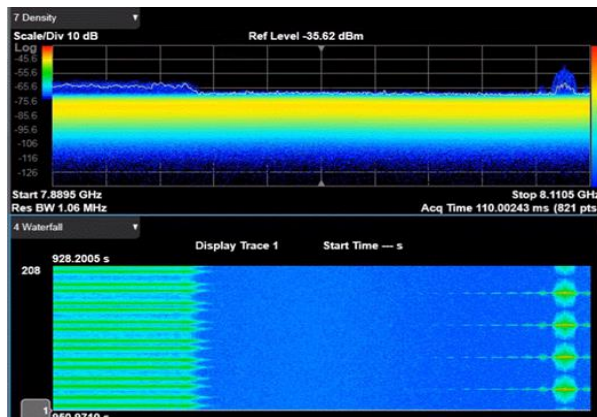


Figure 1. Real-time automated RF output verification



Figure 2. Automatic Pulse Analysis with Keysight 89600 VSA

Test the Way You Fly

Z9500A Simulation View's scalable framework allows the incremental build out of both software and hardware to support a program's requirements. Initially, EW Threat Simulation View can be used to create a software-only RF environment to test operational code, allowing software development to proceed without dependencies on hardware. Use of the Interface Modeling Language (IML) enables rapid implementation and test of device interfaces.

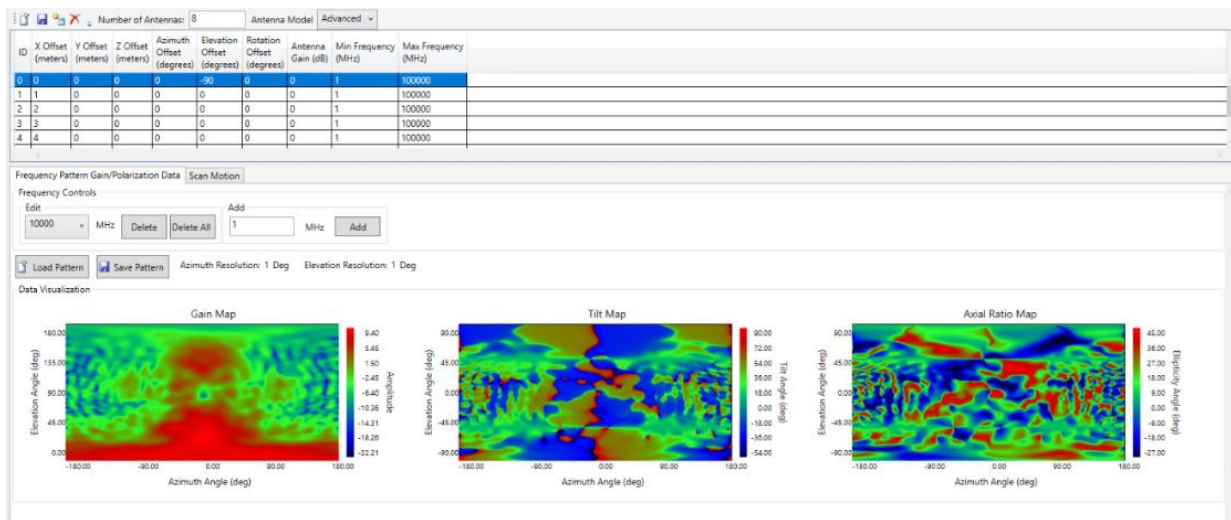
As program development progresses, and more sophisticated environments are required, additional components can be added with ease. Hardware-in-the-Loop can be introduced as needed and when available. Using high fidelity generators like the UXG Agile Signal Generator and a scalable, plug-in software architecture, a program can assemble RF test and evaluation environment early with low entry cost. The capabilities and architecture of EW Threat Simulation View:

- Increase test assets from bench-top to multi-port high density threat simulator system
- Utilize same test processes at all test levels from labs, to installed test facilities to open air ranges
- Save time by importing legacy threat databases
- Enhance capability by building additional plug-ins to optimize test life cycles

High Fidelity Antenna Model (Z9512A)

The High-Fidelity Antenna Model option increases the antenna model fidelity of the SUT receive antenna by:

- Implementing full spherical antenna pattern with a minimum of 1-degree resolution
- Model amplitude and phase for all points on the sphere
- Model installed effects
- Import elemental I and Q for each point on the sphere



License and configuration

Keysight EW Simulation View offers flexible licensing options with different terms, support subscriptions, and types of licensing shown below. However, two model numbers are required:

Z9500A Keysight EW Simulation View Bundle includes:

- Y9500EMBC UXG Based license Keysight Simulation View for each UXG output
- Y9500APPC PC Based license for Keysight EW Simulation View

License term		
Perpetual	License is perpetual. However, a support subscription includes software updates and support for a chosen duration (i.e., from 12 months to 60 months). Can be renewed annually.	
Subscription	Support subscription includes software updates and support through the license duration.	
License type	Description	Use case
Node locked	License may be used on one specified instrument/PC.	Locked to one instrument/PC
Transportable	License may be used on one instrument at a time, but can be transferred to another.	Flexibility to move from instrument to instrument

Z9500A Keysight EW Simulation View

Model number	Description	Software support duration
Z9500A-1FP	Node-locked perpetual license bundle includes UXG (Y9500EMBC) and PC (Y9500APPC) licenses	Includes 1-year KeysightCare software support subscription
Z9500A-1TP	Transportable perpetual license bundle includes UXG (Y9500EMBC) and PC (Y9500APPC) licenses	Includes 1-year KeysightCare software support subscription
Z9500A-1FP-2YR	Node-locked perpetual license bundle includes UXG (Y9500EMBC) and PC (Y9500APPC) licenses	Includes 2-year KeysightCare software support subscription
Z9500A-1FP-3YR	Node-locked perpetual license bundle includes UXG (Y9500EMBC) and PC (Y9500APPC) licenses	Includes 3-year KeysightCare software support subscription
Z9500A-1FP-5YR	Node-locked perpetual license bundle includes UXG (Y9500EMBC) and PC (Y9500APPC) licenses	Includes 5-year KeysightCare software support subscription
Z9500A-1FL	Node-locked subscription license bundle includes UXG (Y9500EMBC) and PC (Y9500APPC) licenses	1-year subscription license with KeysightCare support included

Z9512A High Fidelity Antenna Model¹

Model number	Description	Software support duration
Z9512A-1FP	Node-locked perpetual license bundle includes UXG (Y9512EMBC) and PC (Y9512APPC) licenses	Includes 1-year KesightCare software support subscription
Z9512A-1T_	Transportable perpetual license bundle includes UXG (Y9512EMBC) and PC (Y9512APPC) licenses	Includes 1-year KeysightCare software support subscription
Z9512A-1FP-2YR	Node-locked perpetual license bundle includes UXG (Y9512EMBC) and PC (Y9512APPC) licenses	Includes 2-year KesightCare software support subscription
Z9512A-1FP-3YR	Node-locked perpetual license bundle includes UXG (Y9512EMBC) and PC (Y9512APPC) licenses	Includes 3-year KesightCare software support subscription
Z9512A-1FP-5YR	Node-locked perpetual license bundle includes UXG (Y9512EMBC) and PC (Y9512APPC) licenses	Includes 5-year KesightCare software support subscription
Z9512A-1FL	Node-locked subscription license bundle includes UXG (Y9512EMBC) and PC (Y9512APPC) licenses	1-year subscription license with KeysightCare support included

¹ Requires Z9500A

Options for the N5193A UXG X-Series Agile Signal Generator to operate with Simulation View software²

One option from each category in the below table is required.³

Category	Option	Option details
Frequency range		
	N5193A-520	10 MHz to 21.5 GHz
	N5193A-540	
Switching speed		
	Standard	100 μ s
	N5193A-SS1	1 μ s
	N5193A-SS2	250 ns (switching time to or from regions 6-9 is 30 μ s, has been discontinued and N5193A-SS4 has replaced it)
	N5193A-SS4	180 ns (Recommended, supersedes SS2, reduced switching time of 2.7 μ s @ 20-40 GHz when switching to or from Regions 6-9)
Frequency resolution		
	Standard	10 kHz resolution BDC mode, 8.192 kHz in LVDS/binary mode
	N5193A-FR1	1 Hz resolution (Recommended)
Power⁴		
	Standard	-10 to +10 dBm
	N5193A-AT1	Mechanical + solid state attenuator assembly (120 dB overall range, 80 dB agile range to 26 GHz, has been discontinued and N5193A-AT2 has replaced it)
	N5193A-AT2	Mechanical + solid state attenuator assembly (Recommended , supersedes AT1, 120 dB overall range, 85 dB agile range to 40 GHz)
Spectral purity		
	Standard	Standard Phase Noise
	N5193A-EP1	Enhance phase noise (Recommended)
Analog modulation		
	N5193A-PM1	Pulse modulation
	N5193A-UNT	AM, FM, phase modulation, LF output, and narrowband chirp (Required for intra-pulse modulation including chirps and Barker Codes)
	N5193A-WC1	Wideband chirp (requires opt UNT) (Recommended)
	N5193A-U04	Enhanced frequency and phase modulation. Allows Keysight's N7660C Multi-Emitter Scenario Generation Software to provide Non-Linear Chirps, FM Step, PM Step, Frank Code, and polyphase codes P1-P4. (Option U04 or higher is required for enhanced modulations)
Multi-box synchronization (MBS)		
	N5193A-CC1	100-pin LVDS I/O interface, 14 triggers (Required for use as a primary . Can also be used as a secondary. Needed to use as Fast LO for Vector UXG.)
	N5193A-CC2	50-Pin Interface, BCD Data interface (Secondary only, rarely used)
	N5193A-CC3	10 Gigabit Ethernet I/O interface (Secondary only , has been discontinued and Option N519A-CC4 has replaced it)
	N5193A-CC4	10 Gigabit Ethernet LAN, 14 triggers (Recommended , supersedes CC3)

² N5193A-PM1 is required for pulse modulation

³ Z9512A is recommended for antenna modeling

⁴ For AOA, Antenna Scans, or any other pulse to pulse amplitude changes, Option N5193A-AT1 or Option N5193A-AT2 are required. Without either one of these options, pulse density will be greatly reduced.

Options for the N5194A UXG X-Series Vector Adapter to operate with Simulation View software

N5193A UXG X-Series Agile Signal Generator is required along with the following options:

Required:

- N5193A-520, SS4, CC1
- N5194A - N5194326A

In addition, 1 option in each of the follow categories is required:

Category	Option	Option details
Frequency range		
	N5194A-520	10 MHz to 21.5 GHz
	N5194A-540	10 MHz to 40 GHz
Baseband generator bandwidth/sample rate		
	Standard	200 MHz modulation bandwidth, 250 MSa/s sample rate
	N5194A-BB1	1.6 GHz modulation bandwidth, 2 GSa/s sample rate (Recommended)
	N5194A-BB2	400 MHz modulation bandwidth, 2 GSa/s sample rate
Baseband generator memory size		
	Standard	512 MSa memory
	N5194A-BB2	4-6 GSa memory (Recommended)

Hardware Configurations

To learn more about the UXG Agile Signal Generator family, please visit:

www.keysight.com/find/uxg

Additional Information

Keysight EW Test and Evaluation Solutions Brochure, [5992-3476EN](#)

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.



This information is subject to change without notice. © Keysight Technologies, 2018 – 2023, Published in USA, October 3, 2023, 5992-4339EN