Keysight N9040B
UXA X-Series Signal Analyzer

- Frequency range from 3 Hz up to 26.5 GHz
- Spurious-free dynamic range > 75 dBc with 510 MHz bandwidth
- Phase noise of -136 dBc/Hz at 1 GHz, 10 kHz offset
- Real-time spectrum analysis to 510 MHz bandwidth
- Streamlined, touch-driven interface

KEYSIGHT
TECHNOLOGIES

What is X-Series Signal Analysis?

Future-ready
Optimize your investment and extend instrument longevity with upgradeable processor, memory, connectivity, and more, to keep your test assets current today and tomorrow.

Consistent measurement framework
Achieve measurement integrity across your organization and drive more productivity in less time by leveraging a proven foundation for signal analysis and consistent operation—with the X-Series instruments.

Broadest set of applications
Address the changing demands of technology with the 89600 VSA software. It provides a comprehensive set of tools for demodulation and vector signal analysis, and has a first-to-market track record in emerging standards.

Stay ready, stay in sync, and **arrive ahead**—with the Keysight

www.keysight.com/find/X-Series
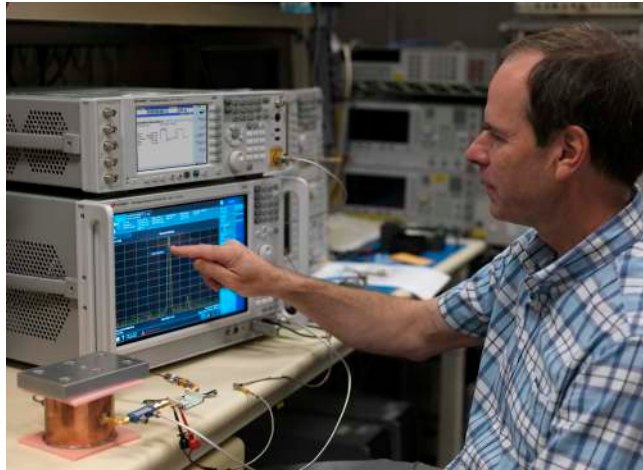
N9040B UXA has the ultimate performance for R&D troubleshooting.

Summary of Key Specifications

Frequency ranges	
	Minimum: 3 Hz
	Maximum: 8.4, 13.6 or 26.5 GHz
	Up to 1.1 THz with external mixing
Analysis bandwidth	
	10 (standard), 25, 40, 255 and 510 MHz
Displayed average noise level (DANL)	
	–171 dBm at 2 GHz, preamplifier and noise extension on
Third-order intermodulation (TOI) distortion	
	+23 dBm at 2 GHz
Spurious-free dynamic range (SFDR)	
	–75 dBc nominal over 510 MHz bandwidth
Phase noise	
	-136 dBc/Hz at 1 GHz and -126 dBc/Hz at 10 GHz (10 kHz offsets)
Amplitude accuracy	
	± 0.19 dB
Real-time bandwidth	
	510 MHz, up to 26.5 GHz frequency range
Probability of intercept (POI)	
	Minimal signal durations of 3.517 μs for 100% POI and full amplitude accuracy

See the Real Performance

Understanding what's happening inside your design helps you prove what it can do. Enhance your insight with the UXA: it's the industry-leading flagship of our X-Series signal analyzers, built around proprietary ADC and DAC technology and a streamlined, touch-driven interface.

By providing wider, deeper views of elusive and wideband signals—known or unknown—the UXA enables you to take your design farther. Put the clarity of the UXA on your bench and see the real performance.
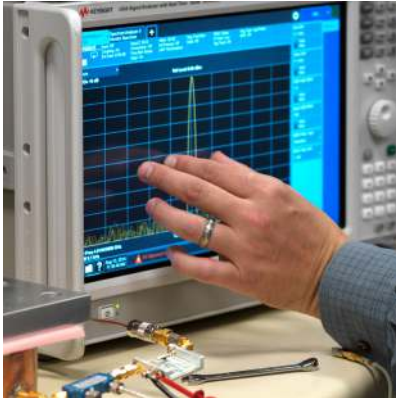
The multi-touch display allows the use of gestures such as pinch and zoom.

Move to a new level

Designed to deliver the ultimate in performance, the UXA lets you easily characterize today's most challenging signals—fast-hopping, wideband, transient—in radar, EW, and more. With industry-leading phase noise and excellent SFDR, the UXA lets you see signals of interest with greater clarity and gives you the ability to characterize your designs with increased confidence.

To meet current and future requirements, standard features include external mixing, IF output, preselector bypass and a low-noise path. The Noise Floor Extension (NFE) capability enables accurate measurements of low-level signals that would otherwise be buried in noise.

The included I/Q analyzer offers views of magnitude, phase or I/Q behavior over the analyzer's full bandwidth. PowerSuite provides one-button measurements of parameters such as third-order intermodulation (TOI), harmonics and channel power.

Simplify setups and gain fresh insights

We started with the familiar X-Series menu structure and optimized it for a touchscreen interface. One result: all setup items can be reached in two taps or less.

An array of flexible measurement displays deliver results quickly and clearly on the 14.1-inch multi-touch display. In addition, the enhanced display package enables additional insights into your design.

What it means to be "future ready"

A truly future-ready signal analyzer offers the flexibility to upgrade and enhance every major subsystem: mechanical, electronic, firmware, and software. The UXA delivers in all four areas:

– A removable CPU motherboard that enables CPU, memory and I/O upgrades

– GPIB, USB and LXI/LAN ports for automated testing

– Firmware-based measurement applications that add specific or standards-compliant capabilities

– An open Windows operating system that lets you run software applications inside the analyzer

These attributes let you and the UXA evolve as needs change—and help protect your equipment investment.

You can upgrade!

Options can be added after your initial purchase.

UP **GRADE**

Most X-Series options are license-key upgradeable.

Maximize the Performance of Advanced Aerospace/Defense Designs

With UXA, you can push the envelope in current- and next-generation radar and electronic-warfare (EW) systems. It starts with industry-leading IF quality and SFDR of more than 75 dBc over the 510-MHz analysis bandwidth.

The wide bandwidth works up to the 26.5 GHz range, letting you accurately measure parameters such as wideband chirp linearity in advanced radar systems. You also can characterize very narrow pulsed signals and quantify rise and fall times as short as 6.0 ns with pulse depth greater than 80 dB.

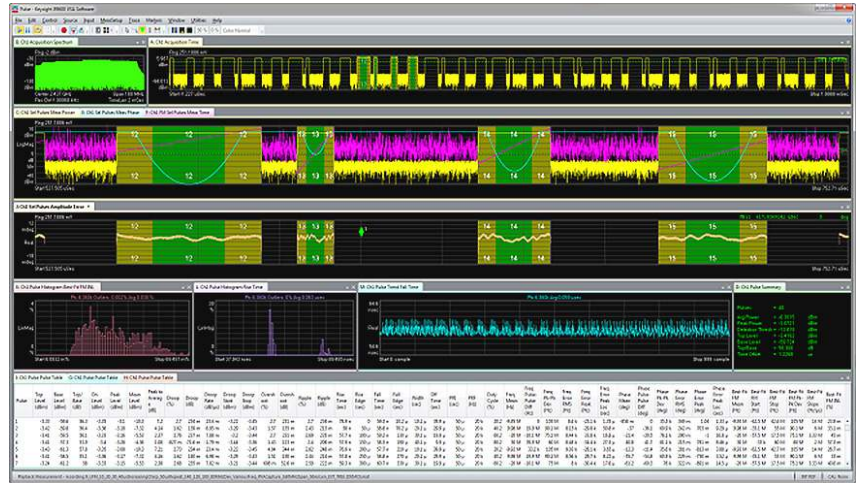Analyze pulse measurements with the 89600 VSA software.

Detect highly elusive signals

Optional real-time spectrum analysis (RTSA) also operates with a maximum bandwidth of 510 MHz. With RTSA you can detect elusive signals as short as 3.5 ns with 100% POI and find sporadic interference up to 26.5 GHz and beyond with stepped RTSA sweeps.
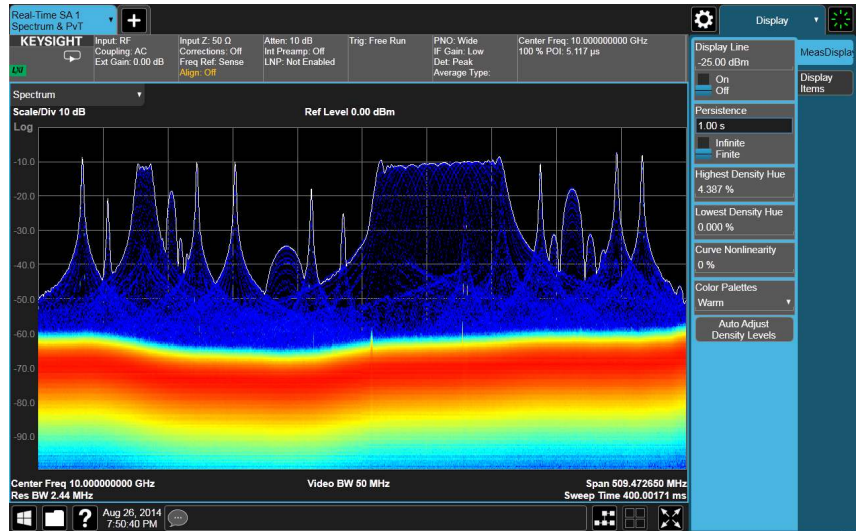
Combining RTSA with our industry-leading 89600 VSA software lets you see through the most complex signals. The 89600 VSA is a comprehensive set of tools for demodulation and vector signal analysis. These tools allow you to explore virtually every facet of a signal and optimize your most advanced designs.

Diagnose subtle design issues

Measure the spurious and phase noise performance of radar and EW exciters designed to detect slow-moving targets with the UXA's phase noise performance of -136 dBc/Hz (1 GHz, 10 kHz offset). Thoroughly analyze short-term signal stability by adding the phase noise measurement application (N9068C).

This density display clearly reveals coincident signals, including two pulses that occupy the same spectrum within the chirp.

The UXA streamlines the menu structure and provides flexible measurement displays.

Perform wideband vector measurements

Today's satellite systems require wide bandwidth for demodulation and analysis of received data streams. The UXA meets this need with high dynamic range over its 510-MHz analysis bandwidth. Adding the 89600 VSA software supports more than 75 signal standards and includes the ability to demodulate custom I/Q or OFDM signals.

Maintain data security

The UXA provides a number of choices that meet the most stringent data security requirements. For example, the removable solid-state drive makes it easy to move the instrument from one location to another. You can also configure the UXA to prevent the saving of results or configurations to the instrument, or block the launching of Windows programs from the instrument.

Analyze and demodulate wideband satellite signals.

Removable SSD and SDRAM card improves movements in secure environments.

Achieve True Excellence in the Design of Communication Systems

The complexity of leading-edge standards such as LTE-Advanced and 802.11ac continues to demand wider bandwidth in signal analysis. With 510 MHz analysis bandwidth, the UXA enables you to measure adjacent-channel power on a 160 MHz WLAN signal or test digital pre-distortion on a multi-carrier LTE signal.

Maximize system performance

Excellent SFDR of more than 75 dBc across the full 510-MHz bandwidth provides essential headroom when designing the latest multi-band or wideband wireless systems. The UXA's outstanding phase noise helps you maximize the performance of OFDM transmitters by minimizing common phase error and inter-chan-nel interference.

See through the complexity

In wireless applications, the 89600 VSA software accelerates devel-opment by providing simultane-ous measurements and advanced troubleshooting tools. These enable you to see across the time, frequency and modulation domains—and reach more deeply into your design.

When you add RTSA capability, you can use the UXA to identify intermit-tent signals, sources of interference and interoperability issues over the full analysis bandwidth. To pinpoint specific signals or signal behaviors, the frequency mask trigger (FMT) and time-qualified trigger (TQT) capabili-ties help you achieve deeper insights into your design.
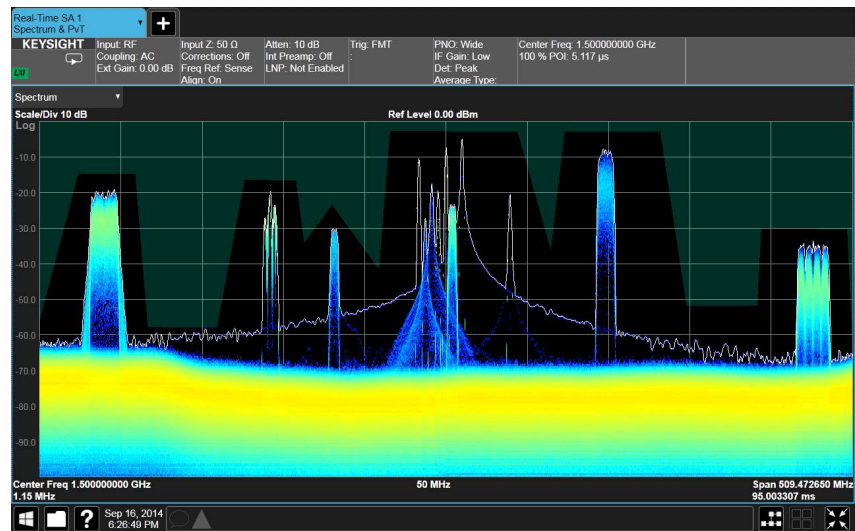
Frequency mask trigger (FMT) provides advanced troubleshooting for deeper insights in the crowded spectrum.

Measure at higher frequencies

With built-in support for external mix-ing capabilities, you can use the UXA to measure and analyze transmitters up to 1.1 THz. Automatic communica-tion with a variety of supported mix-ers simplifies instrument setup.

To enhance development and main-tenance of multi-antenna systems, add the industry-leading long-term frequency stability provided by the optional atomic frequency reference (J7203A). The resulting accuracy and stability provide highly sensitive frequency readings.

Capture, playback and analyze complex signals

With the 89600 VSA software, you can capture and play back signals for detailed gap-free analysis at multiple spans and center fre-quencies. Full-function playback facilitates analysis with capabili-ties such as loop-on-signal tools, user-defined file-segment storage, and graphical/numeric displays that show the progression of the signal file. Through the flexibility of the built-in overlap processing function, you can slow down playback for detailed analysis of captured files.

UXA Front and Rear Panels

X-Series signal analysis is more than a concept. At its core, it helps you keep your test assets current and extend instrument longevity with future-ready instruments. Each analyzer is designed with future-readiness in mind: you can easily upgrade CPU, memory, I/O ports, solid-state drives, measurement applications and instrument options.

14.1" multi-touch display allows support for gestures and ease of use

Mode / Meas key simplifies measurement setup to clearly see what measurements and displays are available.

View results quickly and cleary with a new array of flexible measurement displays

Quick Save – save files fast with the quick save feature

Help – Get answers quickly with the comprehensive context-sensitive embedded help system.
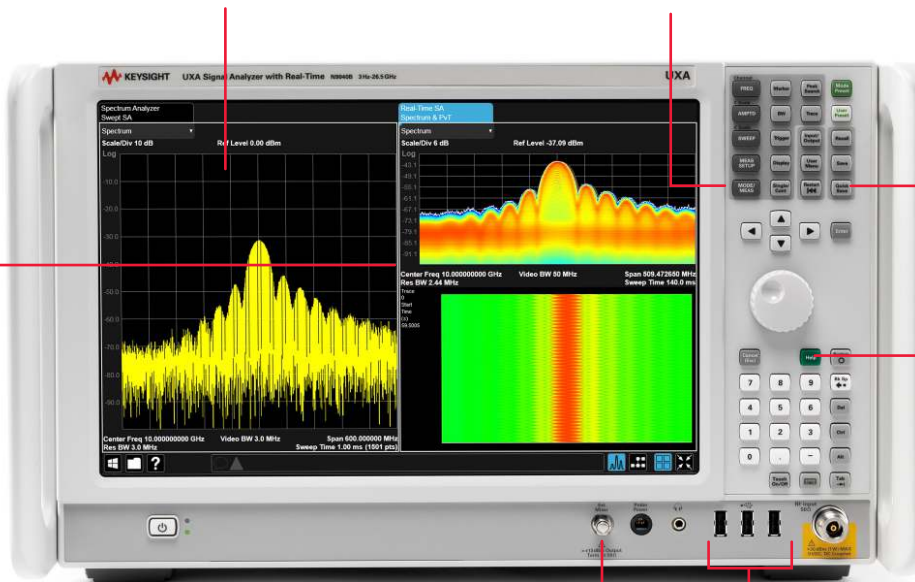
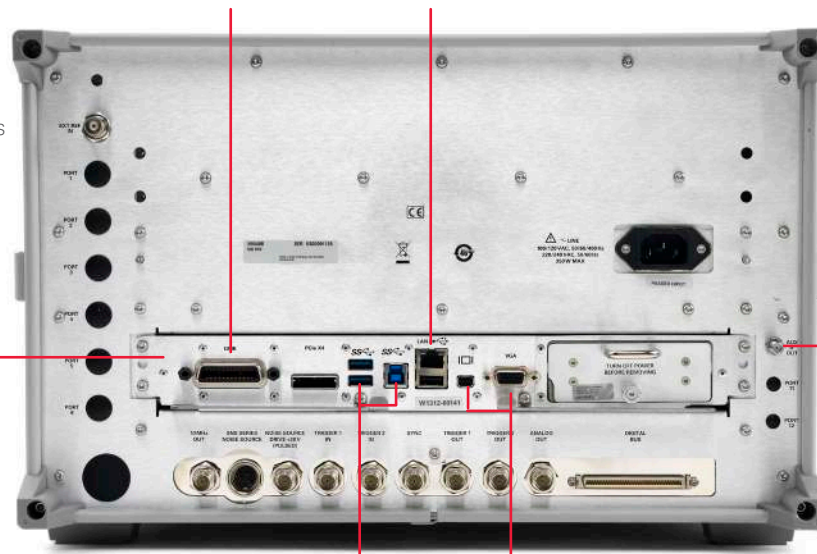Extend frequency to 1.1 THz with standard external mixing

Three USB 2.0 ports conveniently located on the front of the instrument

Send and receive SCPI commands over the GPIB interface

Control the UXA remotely over 1000Base-T LAN

Removable CPU enables processor, memory and I/O upgrades

Extend bandwidth beyond 510 MHz with the standard IF output

Two USB 3.0 (Type-A ports) and 1 x USB 3.0 (Type-B) port allow data to be transferred and control of the UXA.

View display externally using the VGA video output or the Mini Display Port

Related Literature

Keysight UXA Signal Analyzers

Data Sheet 5992-0090EN

Configuration Guide 5992-0043EN

Application Note Using Wider, Deeper Views of Elusive Signals to Characterize Complex Systems and Environments*: 5992-0102EN*

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