Agilent EXA Signal Analyzer

N9010A
9 kHz to 3.6, 7.0, 13.6, or 26.5 GHz

- Up to 300 percent faster than other economy analyzers

- +13 dBm TOI, −150 dBm/Hz DANL, 0.3 dB absolute amplitude accuracy

- Spectrum analysis, Mobile WiMAX™, W-CDMA, HSDPA/HSUPA, GSM/EDGE, phase noise, noise figure, and analog demodulation applications

- 89600 vector signal analysis software running inside the instrument supports more than 50 demodulation formats

- MATLAB® driver support for custom measurements

- Code-compatible replacement for Agilent ESA Series economy spectrum analyzers

*Eliminate the compromise between **speed** and **price***
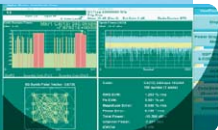
Agilent Technologies

Summary of Key Specifications

Fastest signal analysis

Up to 300 percent faster than other economy analyzers

Broadest set of applications

Enhanced spectrum analysis, measurement specific software applications, complex signal analysis, and troubleshooting capabilities

- *89600 VSA software (internal)*
- *One-button measurement applications including phase noise, W-CDMA, HSDPA, analog demodulation, and WiMAX*
- *More than 50 total demodulation capabilities via one-button applications and VSA software*

www.agilent.com/find/exa

Frequency ranges

Option 503	9 kHz to 3.6 GHz
Option 507	9 kHz to 7.0 GHz
Option 513	9 kHz to 13.6 GHz
Option 526	9 kHz to 26.5 GHz

Measurement speed

Local measurement and display update	<11 ms
Remote measurement and LAN transfer	<4 ms
Marker peak search	<5 ms
Center frequency tune and transfer (RF)	<51 ms
Center frequency tune and transfer (uW)	<86 ms
Measurement/mode switching	<75 ms
W-CDMA ACLR fast measurement mode	<14 ms (σ = 0.2 dB)

Analysis bandwidth

	10 MHz

W-CDMA ACLR dynamic range (typ)

	68 dB
	73 dB, noise correction on

Absolute amplitude accuracy (to 3.6 GHz, typ)

	±0.3 dB

Displayed average noise level with preamp on (Option P03) – DANL (typ)

1 GHz	–162 dBm

Displayed average noise level – DANL (typ)

1 GHz	–150 dBm

Third-order intermodulation distortion – TOI

1 GHz	+13 dBm

Phase noise (typ)

10 kHz offset	–103 dBc/Hz

Resolution bandwidths

	1 Hz to 3 MHz (10% steps); 4, 5, 8 MHz

Video bandwidths

	1 Hz to 3 MHz (10% steps); 4, 5, 8, 50 MHz

Frequency reference

Aging rate with Option PFR	±1 x 10^{-7}/year

Sweep time

Span = 0 Hz	1 µs to 6000 s
Span ≥ 10 Hz	1 ms to 4000 s

Trace points

All spans	1 to 20001

Maximum versatility to make every millisecond count

From product design to the production line, every new project demands decisions that require tradeoffs in your goals—customer specifications, throughput, and yield. Whether you're focused on time-to-market, time-to-volume, or cost of test, your choice of an economy signal analyzer should help you achieve those goals, while also saving you time and money.

The EXA signal analyzer is part of the Agilent X-Series Signal Analyzers (MXA/EXA). The EXA leverages many of the advantages of the higher-performance MXA Series signal analyzer platform, while eliminating the compromise between speed and price.

It's the fastest analyzer in its class. What's more, the accuracy of the EXA accelerates the transition from design into manufacturing and lowers the cost of test. When you need speed you can afford, the Agilent EXA signal analyzer makes every millisecond count.

Accelerate product development and manufacturing test

During product design, the EXA signal analyzer helps you reach new insights faster. Pinpoint signal quality issues and optimize test margins and error budgets—confidently—with its wide array of fast, accurate measurement, and demodulation capabilities. The EXA shares these software applications with the midrange MXA Series signal analyzer, letting you select the level of performance you need from an X-Series analyzer, without compromising on speed, functionality, or connectivity.

When it's time to create solutions for automated test systems or manual testing stations, the EXA signal analyzer offers speed and simplicity. Fast, remote sweep and rapid trace transfer accelerate throughput and enhance yield. Front-panel capabilities such as auto-tune, fast mode switching, and 5-ms peak search save time and effort. In electronics, RF/microwave communications, and aerospace/defense, the EXA is the economy signal analyzer of choice.

Designed for versatility

The EXA signal analyzer is as functional as it is affordable. That makes the EXA signal analyzer the perfect choice for

- *Development*
- *RF communications*
- *General purpose manufacturing test*
- *Automated manufacturing test*
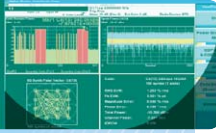
Powerful user interface

- *Auto tune*
- *Built-in help based on user's guide and manual*
- *Advanced trace math*
- *Markers*
- *Usability, familiarity, and connectivity via open Windows operating system*

The Design Test Solution

## Reach new insights faster with versatile measurement capabilities

During product design, the EXA signal analyzer offers fast, accurate measurements that let you confidently pinpoint signal quality issues. Troubleshooting is made easy with capabilities formerly found only in high-end signal analyzers: 6 independent traces, 12 markers (24 delta pairs), band-power markers, a dynamic peak table, and more.

For advanced troubleshooting, the EXA supports more than 50 demodulation formats and measurement applications—phase noise, noise figure, analog demodulation (including AM/FM metrics and tune-and-listen), and more—as well as the industry-leading Agilent 89600 VSA software. To test a wide range of format-specific devices, you can also add fast, one-button power measurements. To perform custom analyses or proprietary tests unique to your design, import and run your own MATLAB macros. All of these run inside the Windows®-based EXA.

Improve testing with affordable accuracy

The EXA provides highly accurate measurement results at an affordable price. Although the EXA is an economy analyzer, it enhances test margins and error budgets with specifications such as +13 dBm third-order intermodulation distortion, –146 dBm/Hz displayed average noise level, and –99 dBc/Hz phase noise.
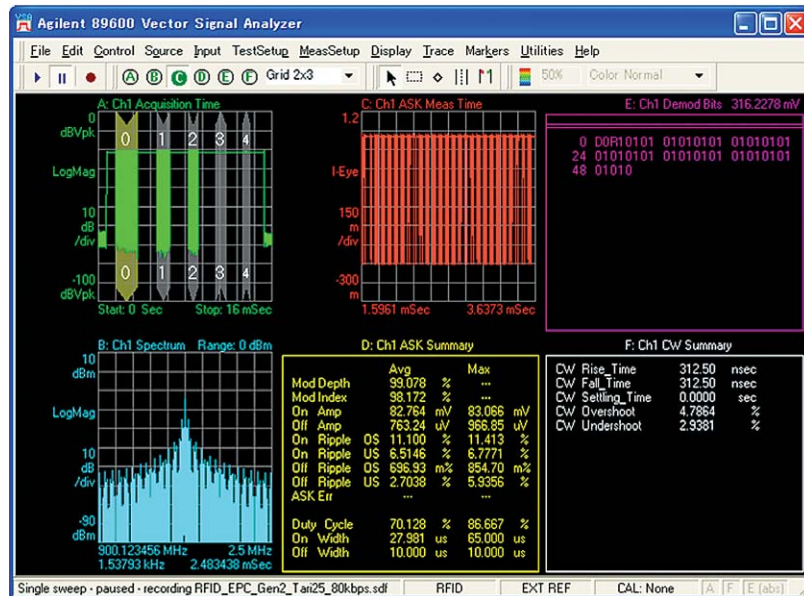
The RF Test Solution

Reduce the cost-of-test in RF/µW wireless communications

The EXA signal analyzer gives you an edge in the manufacturing of RF and microwave communications devices. It starts with enhanced spectrum analysis capabilities, complemented with a comprehensive suite of standards-based power measurements. These fast, one-button, measurements include adjacent channel power (ACP), channel power, occupied bandwidth (OBW), spectrum emission mask, complementary cumulative density function (CCDF), burst power, and spurious emissions.

When demodulation is needed, quickly adapt to the latest standards—Mobile WiMAX, W-CDMA/HSDPA/HSUPA, GSM/EDGE, TD-SCDMA, cdma2000®—by adding specific measurement applications that include proven, industry-tested algorithms without compromising speed. The fast, intuitive W-CDMA adjacent channel power ratio (ACPR) measurements retain excellent, class-leading dynamic range even at high speed—unlike "fast ACPR" functions available elsewhere.
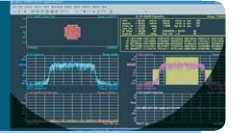
Leverage your existing test software

To help accelerate system development, the EXA is code-compatible with the Agilent MXA signal analyzer and provides the highest level of compatibility with Agilent PSA and ESA spectrum analyzers. When you need to replace these slower analyzers, SCPI programmability and versatile connectivity provides a solid foundation. Whether you want to streamline the design-to-manufacturing transition or need to update an existing test system, add the EXA without completely revising your system test code.

Discover remote operation

Utilizing Windows Desktop Remote functionality, you can control your EXA signal analyzer from across the room, in the next building, or around the world. This makes it possible to connect to a system installed in your contract manufacturer's facility and make measurements on the latest device.

The Manufacturing Test Solution

Simplify manual testing with an advanced— yet familiar—interface

When used within a test bench or rework station for general RF and microwave manufacturing, the EXA user interface is instantly familiar. The analyzer uses an open Windows XP Professional® operating system, letting you save files in formats compatible with common Windows applications and enabling easy connectivity to LAN, GPIB, and USB-based peripherals and accessories.

For greater one-box productivity, applications such as the Agilent 89600 vector signal analysis (VSA) software run inside the EXA. To make proprietary or frequently used measurements unique to your device, run MATLAB inside the EXA and create new analysis functions or import an existing macro library.

The EXA enhances its usability with built-in contextual help, which provides quick access to hints about instrument operation, infrequently used measurements, and more.

Enhance automated test throughput and yield with excellent speed and connectivity

For automated testing of RF and microwave devices, assemblies, and subsystems, the EXA improves test-system throughput with capabilities such as fast trace transfers and fastest-in-class, 11-ms remote sweep. You can also quickly characterize signal quality with power suite, a set of one button, format-specific, RF power measurements.

A range of available applications provide built-in measurements of analog demodulation, noise figure, phase noise, and more. These applications are common the X-Series signal analyzers, ensuring comparable results between R&D and manufacturing.

The features that matter for manufacturing

Save software efforts

The EXA is code-compatible with the Agilent PSA and ESA spectrum analyzers, so software written for either of these analyzers will work with the EXA—usually without modification. To further protect your system-software investment, instrument drivers are the same across all Agilent X-Series signal analyzers. When you need to create new software, the embedded help capability lets you migrate from manual keystrokes to automated procedures—with every keystroke, the EXA displays the equivalent SCPI command.

Reduce test time

The EXA is the only economy instrument to provide capabilities such as auto-tune, 6 independent traces, 12 independent markers (24 delta pairs), and 5-ms peak search. To further accelerate signal characterization, available measurement applications include analog demodulation and noise figure. These applications are common to the Agilent EXA and MXA signal analyzers, ensuring valid comparison of production test results with R&D benchmarks. If further analysis is necessary, transfer test results through the built-in LAN and USB ports.

Easily connect and configure your system

For flexible system connectivity, choose the interface you need: GPIB, LAN, or USB. Through its 100 Base-T LAN port, the EXA signal analyzer is LXI Class C-compliant, enabling fast, efficient, and cost-effective creation and reconfiguration of test systems. When high-speed USB connectivity is needed, connect accessory devices through six built-in ports and communicate with the EXA through a USB Test and Measurement Class (USBTMC) interface.

Evolve EXA capabilities as needed

Enhancing instrument functionality is easy. Any of the EXA's advanced measurement applications can be added at any time as your test needs—and budgets—evolve. All currently available instrument options are also license-key enabled, ensuring fast upgrades. Use EXA and MXA signal analyzers interchangeably to match the performance your device requires at each phase of development and manufacturing. Consistent applications, connectivity, and user interface ensure consistent results.

Eliminating the compromise between speed and price
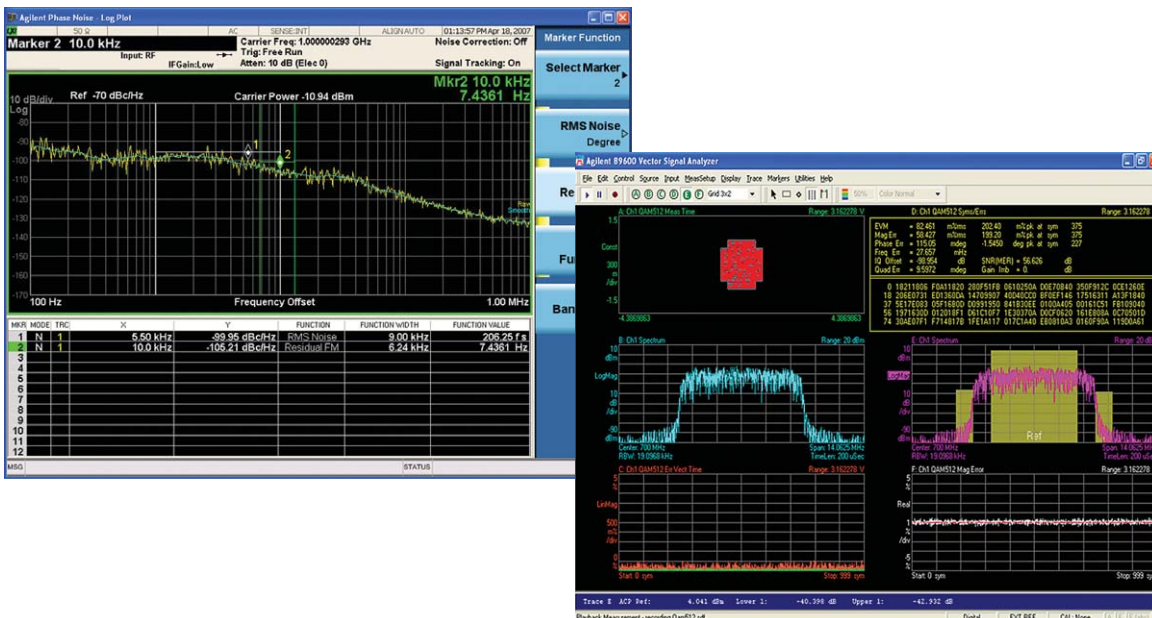
When Speed and...

Explore new dimensions in speed

Up to 300 percent faster than other economy analyzers, the EXA's speed is equally impressive from the front panel or as part of an automated test system. Its screen refresh rate is up to four times faster than the ESA and other economy analyzers. What's more, marker peak searches are more than 80 times faster than the alternatives, including the time required to send a command and receive data via GPIB—and it's even faster via LAN or USB. Speed comes from instant familiarity, too. The EXA utilizes an open Windows® XP Professional operating system and includes one-button help so you can quickly learn more about new, unfamiliar or complex functions.

The EXA is the fastest replacement for your current economy instrument— and switching from other analyzers is fast and simple. If you're already using the Agilent ESA spectrum analyzer, the EXA signal analyzer is the most code-compatible replacement. If you're using another economy or midrange analyzer, the EXA's Standards Commands for Programmable Instrumentations (SCPI) programmability and versatile connectivity make it easy to replace older, slower instruments.

Save time with one-button auto-tune, which centers on the strongest tunable signal, adjusts span, resolution and video bandwidth, optimizes reference level, and displays peak-search marker results.

Use six traces and three different detectors simultaneously.

Pinpoint the frequency or position of a trace with up to 12 markers.

Store files easily with the quick-save feature, which automatically labels files and places them in a specific directory.

Identify signals quickly. Instrument information is located at the top and bottom, leaving the rest of the screen clear to display your results
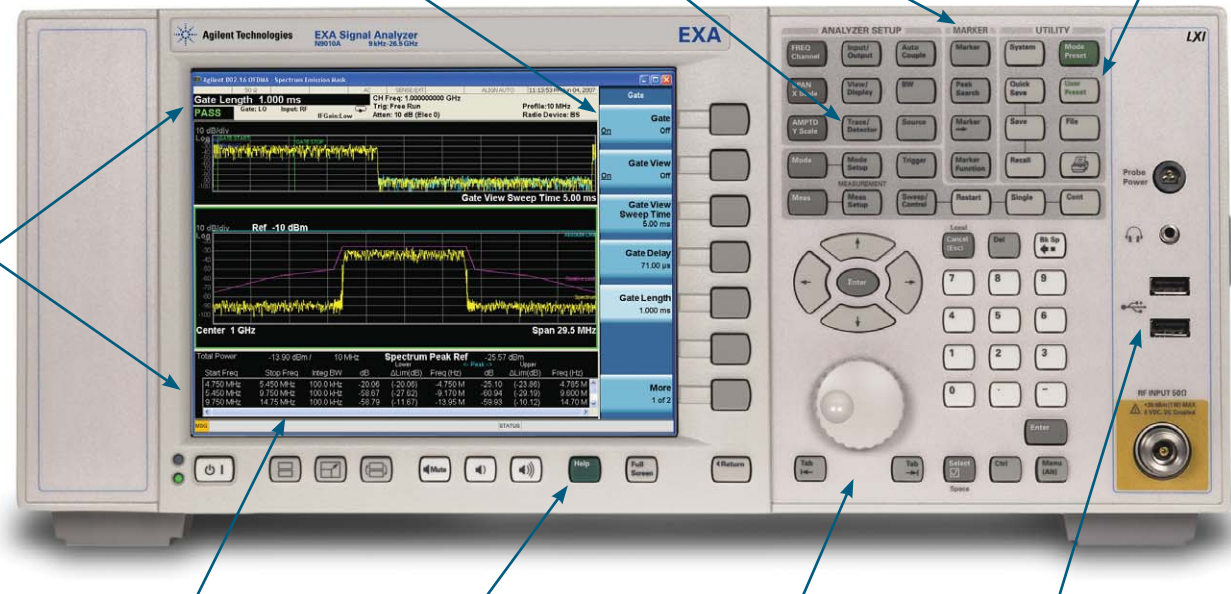
View traces, results, and status easily on the 21.4-cm, high-resolution XGA display.

Get answers quickly with the comprehensive, context-sensitive, help system.

Navigate the interface and help system using the front-panel keys, or a mouse and keyboard.

Connect USB 2.0 devices through the convenient front-panel ports.

...Price Meet

Optimize performance, budgets, and productivity

Meet your performance needs and budget constraints without compromising on high-end features, connectivity, user interface, or speed. Buy just the performance you need, knowing you can upgrade capabilities at any time.

The affordability of the EXA lets you boost productivity by putting its speed, accuracy, and versatility on every bench. With built-in GPIB, USB 2.0, and LAN connectivity—and LXI-C capabilities—setting up automated tests is quick and easy. What's more, the simple update process lets you enhance any individual instrument as test needs and budgets evolve.
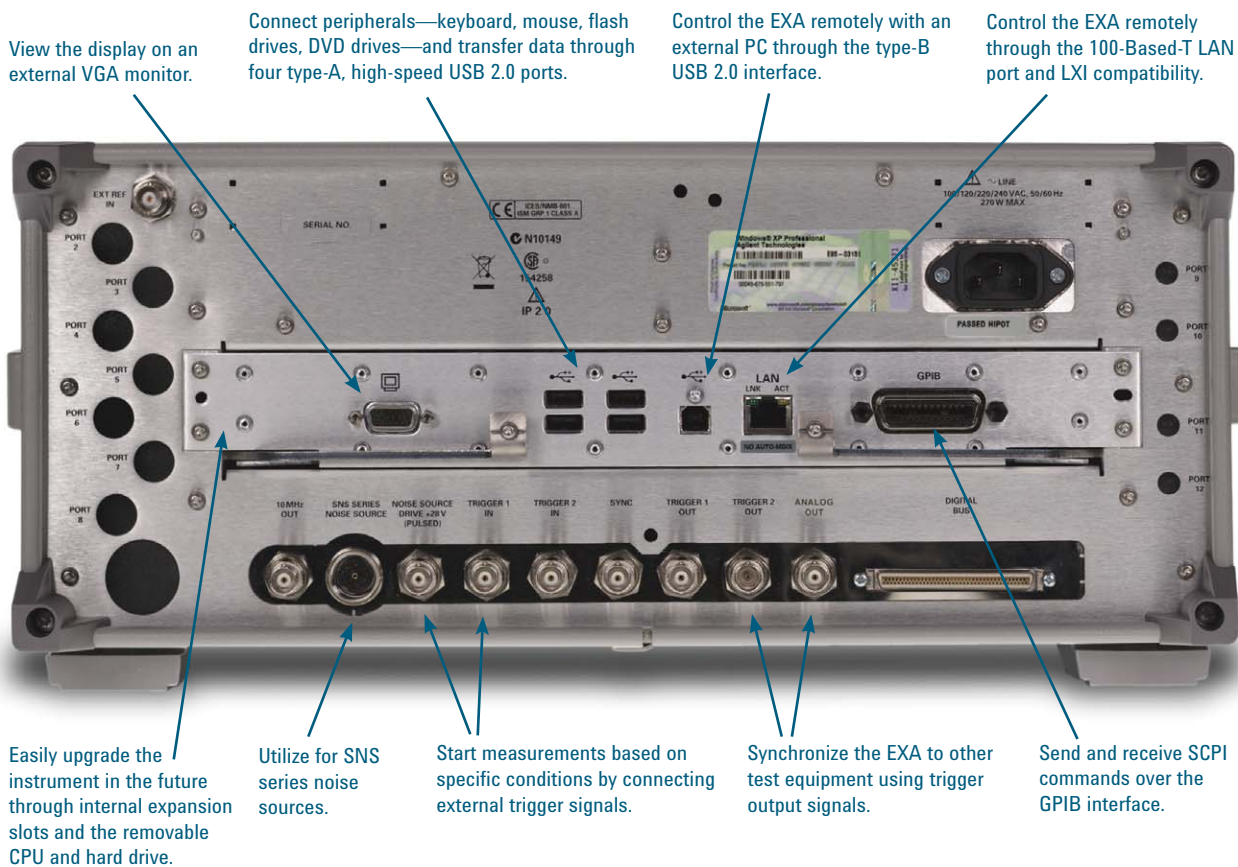
The fastest economy class signal analyzer

Whether you're focused on time-to-market, time-to-volume, or cost of test, the EXA signal analyzer includes capabilities that will help you save both time and money. From the easy-to-read display to auto-tune and one-touch measurements, from context-sensitive help to easy, versatile connectivity, the EXA makes signal analysis faster, simpler, and more effective.

View the display on an external VGA monitor.

Connect peripherals—keyboard, mouse, flash drives, DVD drives—and transfer data through four type-A, high-speed USB 2.0 ports.

Control the EXA remotely with an external PC through the type-B USB 2.0 interface.

Control the EXA remotely through the 100-Based-T LAN port and LXI compatibility.

Easily upgrade the instrument in the future through internal expansion slots and the removable CPU and hard drive.

Utilize for SNS series noise sources.

Start measurements based on specific conditions by connecting external trigger signals.

Synchronize the EXA to other test equipment using trigger output signals.

Send and receive SCPI commands over the GPIB interface.

EXA Ordering Information

The Agilent X-Series Signal Analyzers

Eliminate the compromises

When your test requirements demand top speed, the Agilent X-Series meets your needs without compromise. The midrange Agilent MXA signal analyzer delivers amazing speed and performance, while the economy Agilent EXA signal analyzer provides excellent speed for the price. For advanced analysis, the Agilent 89600 VSA software and our full range of X-Series applications run inside both the MXA and EXA. In automated testing, code written for the MXA works with the EXA and vice versa. From the front panel, all X-Series analyzers provide an innovative and useful user interface.

To learn more about the X-Series advanced measurement applications, please visit

www.agilent.com/find/xseries_applications

www.agilent.com/find/exa

Description	Ordering number	Upgradeable
Instrument		
EXA signal analyzer (includes spectrum analyzer measurement application)	N9010A	
Frequency range, 9 kHz to 3.6 GHz	N9010A-503	No
Frequency range, 9 kHz to 7.0 GHz	N9010A-507	No
Frequency range, 9 kHz to 13.6 GHz	N9010A-513	No
Frequency range, 9 kHz to 26.5 GHz	N9010A-526	No
Portable configuration	N9010A-PRC	Yes
Instrument security, additional CPU and HDD	N9010A-CPU	Yes
Performance options		
Precision frequency reference, fixed	N9010A-PFR	Yes
Electronic attenuator, 3.6 GHz	N9010A-EA3	Yes
Fine step attenuator	N9010A-FSA	Yes
Preamplifier, 3.6 GHz	N9010A-P03	Yes
Measurement applications		
Analog demodulation measurement application	N9063A	Yes
Phase noise measurement application	N9068A	Yes
Noise figure measurement application	N9069A	Yes
GSM/EDGE measurement application	N9071A	Yes
cdma2000 measurement application	N9072A	Yes
W-CDMA measurement application	N9073A-1FP	Yes
HSDPA/HSUPA measurement application	N9073A-2FP (requires 1FP)	Yes
802.16 OFDMA (WiMAX) measurement application	N9075A	Yes
TD-SCDMA measurement application	N9079A-1FP	Yes
TD-SCDMA measurement application HSDPA/8PSK	N9079A-2FP	Yes
Vector signal analysis measurement application	89601A	Yes
VXA signal analyzer measurement application	89601X	Yes
Accessories		
USB flash drive, 1 GB	N9010A-EFM	Yes
USB DVD-ROM/CD-R/RW drive	N9010A-DVR	Yes
Mouse, USB interface	N9010A-MSE	Yes
Keyboard, USB interface	N9010A-KYB	Yes
Minimum loss pad, 50 to 75 ohms (Type N to BNC)	N9010A-MLP	Yes
Front panel protective cover, additional	N9010AK-CVR	Yes
Hard transit case	N9010A-HTC	Yes
Rack mount kit with handles	N9010A-1CP	Yes
Front handle kit	N9010A-1CN	Yes
Rack mount kit	N9010A-1CM	Yes
Rack slide kit	N9010A-1CR	Yes
Warranty and service		
Standard warranty is one year		
R-51B-001-3C	One-year return-to-Agilent warranty extended to three years	
Calibration (Options not available in all countries)		
R-50C-011-3	Inclusive calibration plan, three-year coverage	
R-50C-013-3	Inclusive calibration plan and cal data, three-year coverage	

The X-Series Advantage

X-Series signal analyzer comparison		
Capabilities and characteristics	**EXA economy signal analyzer**	**MXA midrange signal analyzer**
Auto tune	Yes	Yes
Traces with independent detector control	6	6
Individual markers	12	12
Easy-to-read marker table	Yes	Yes
One-button power suite measurements	7	7
89600 VSA software running inside	Yes	Yes
Absolute amplitude accuracy (to 3.6 GHz)	±0.3 dB	±0.23 dB
Analysis bandwidth (standard; optional)	10 MHz	10 MHz; 25 MHz
Third-order intermodulation distortion (TOI)	+13 dBm	+16 dBm
Displayed average noise level (DANL) (typical; pre)	–150 dBm/Hz; –162 dBm/Hz	–154 dBm/Hz; –166 dBm/Hz
Phase noise	–99 dBc/Hz at 10 kHz offset	–103 dBc/Hz at 10 kHz offset
Hardware options	Four: EA3, P03, FSA, PFR	Seven: EA3, PFR, P03, P08, P13, P26, B25

X-Series advanced measurement applications	
Description	Model
Analog demodulation measurement application	N9063A
Phase noise measurement application	N9068A
Noise figure measurement application	N9069A
GSM/EDGE measurement application	N9071A
cdma2000 measurement application	N9072A
W-CDMA measurement application	N9073A-1FP
HSDPA/HSUPA measurement application	N9073A-2FP
802.16 OFDMA measurement application	N9075A
TD-SCDMA measurement application	N9079A-1FP
TD-SCDMA measurement application HSDPA/8PSK	N9079A-2FP
VXA signal analyzer measurement application	89601X

The Agilent X-Series Signal Analyzers

Leverage your investment

Another advantage to using the Agilent X-Series signal analyzers is that the common platform provides you with the ability to better leverage your investment of measurement applications. Now you can run the same applications on an MXA as the EXA without making any adjustments. Think of the time you can save using these X-Series advanced measurement applications.

To learn more about the MXA signal analyzer, please visit

www.agilent.com/find/mxa

www.agilent.com/find/exa

Literature Resources

Agilent MXA Signal Analyzer
Agilent MXA Signal Analyzer, Brochure, Literature number: 5989-5047EN
Agilent MXA Signal Analyzer, Data Sheet, Literature number: 5989-4942EN
Agilent MXA Signal Analyzer Configuration Guide, Literature number: 5989-4943EN

Agilent EXA Signal Analyzer
Agilent EXA Signal Analyzer, Brochure, Literature number: 5989-6527
Agilent EXA Signal Analyzer, Data Sheet, Literature number: 5989-6529EN
Agilent EXA Signal Analyzer Configuration Guide, Literature number: 5989-6531EN

Agilent X-Series Signal Analyzers
Agilent X-Series Signal Analyzer (MXA/EXA) Demonstration Guide,
   Literature number: 5989-6126EN
Agilent X-Series Signal Analyzers (MXA/EXA) W-CDMA, HSDPA/HSUPA
   Technical Overview, Literature number: 5989-5352EN
Agilent X-Series Signal Analyzers (MXA/EXA) 802.16 OFDMA
   Technical Overview, Literature number: 5989-5353EN
Agilent X-Series Signal Analyzers (MXA/EXA) Phase Noise
   Technical Overview, Literature number: 5989-5354EN
Agilent X-Series Signal Analyzers (MXA/EXA) GSM/EDGE
   Technical Overview, Literature number: 5989-6532EN
Agilent X-Series Signal Analyzers (MXA/EXA) TD-SCDMA
   Technical Overview, Literature number: 5989-6534EN
Agilent X-Series Signal Analyzers (MXA/EXA) Analog Demodulation
   Technical Overview, Literature number: 5989-6535EN
Agilent X-Series Signal Analyzers (MXA/EXA) Noise Figure
   Technical Overview, Literature number: 5989-6536EN
Using Agilent X-Series Signal Analyzers (MXA/EXA) for Measuring and
   Troubleshooting Digitally Modulated Signals, Application Note
   Literature number: 5989-4944EN
Using Agilent X-Series Signal Analyzers (MXA/EXA) Preselector Tuning for
   Amplitude Accuracy in Microwave Spectrum Analysis, Application Note
   Literature number: 5989-4946EN
Maximizing Measurement Speed with Agilent X-Series Signal Analyzers
   (MXA/EXA), Application Note, Literature number: 5989-4947EN

Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance onsite education and training, as well as design, system integration, and project management.

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