



# Agilent Spectrum Analyzer and Signal Analyzer Selection Guide

Over Four Decades  
of Leadership in Spectrum Analysis



*Anticipate — Accelerate — Achieve*



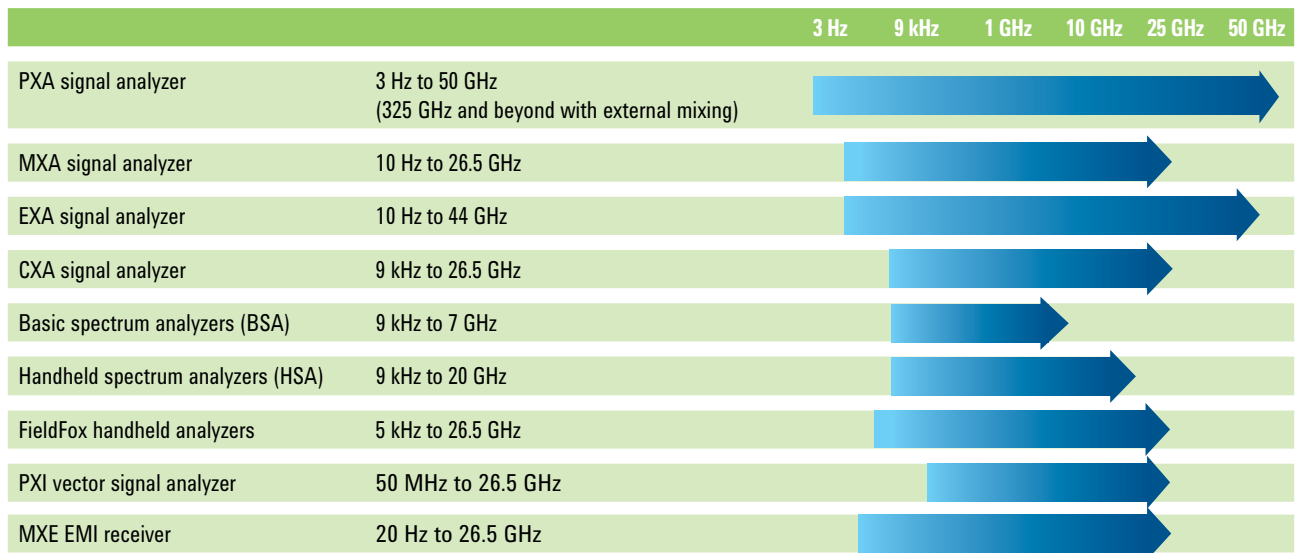
**Agilent Technologies**

## Introduction

Agilent Technologies' spectrum and signal analyzers include an extensive array of products, from DC to 325 GHz and beyond, designed to accurately measure frequency, amplitude, and modulation, including distortion, spurious, phase noise, and 2G to 4G wireless communications signals. By combining a spectrum or signal analyzer with 89600 VSA software, flexible modulation analysis software, or measurement applications, an instrument's capabilities can be expanded to demodulate a broad range of standard-based and general-purpose digital signals and formats. Purchasing an instrument for signal and spectrum analysis

is an investment. You are buying not only for today's tasks but with foresight into the requirements of tomorrow. Selecting the ideal instrument for your business can be complex and time consuming—every project and user is unique—and time is money. As the premier measurement company, Agilent is able to offer a wide selection of analyzers and applications that fit within a variety of budgets. This selection guide will help you more easily identify the right spectrum or signal analyzer to meet your specific measurement needs.

### Frequency coverage for Agilent spectrum and signal analyzers



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## Product Categories

### Spectrum analyzers and signal analyzers

Traditionally, spectrum analyzers are referred to as swept-tuned, super-heterodyne receivers that provide a display of amplitude versus frequency. Modern day analyzers offer both swept-tuned and FFT architectures. While the terms spectrum analyzer and signal analyzer are used interchangeably, signal analyzer is a more accurate term for modern day analyzers that provide more comprehensive signal analysis, not only in frequency-domain but also time- and modulation- domains.

### Benchtop and handheld analyzers

While benchtop spectrum/signal analyzers offer superior specifications and measurement applications, handheld spectrum analyzers are favored by engineers or technicians who are spending more time in the field to finish their work due to growing congestion in the spectrum space and evolving technologies. To address challenges faced by these field technicians and engineers, handheld spectrum analyzers need to be rugged, accurate, fast, and easy-to-use.

### Modular analyzers

The PXI open-standard provides measurement and test automation applications with a compact form factor and modular channel expandability. Benefit from a large portfolio of PXI form factor chassis and modules, integrated with world-class software applications to get the most trusted measurements in the DC, analog, digital, microwave, and lightwave domains. Drivers, documentation, example programs, and software tools are provided to help you quickly develop test systems with your software platform of choice.

### Applications and measurement software

Available for a broad range of communication standards and modulation types, Agilent offers PC- and instrument-based applications and software to address measurement needs, from R&D troubleshooting to one-button manufacturing measurements.

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### EMI compliance receivers and pre-compliance analyzers

Electromagnetic interference (EMI) is caused by the radiated and conducted emissions from a device. EMI compliance receivers meet the stringent performance requirements of commercial and military regulatory groups. They are mandatory instruments for making final product qualification measurements. EMI pre-compliance analyzers are used by development teams to evaluate and improve the emissions performance of their designs prior to full-compliance measurements. A spectrum analyzer running a pre-compliance measurement application is a flexible, cost-effective tool to perform pre-compliance measurements.

## Key Specifications Comparison

Specifications	PXA	MXA	EXA	CXA	HSA	FieldFox	BSA	PXI VSA	MXE
	N9030A	N9020A	N9010A	N9000A	N934xB/C	N993xA N991xA-233	N9320B N9322C	M9392A	N9038A
Performance	★★★★★	★★★★	★★★	★★	★	★★	★★	★★★	★★★★
Frequency range, min-max	3 Hz to 50 GHz	10 Hz to 26.5 GHz	10 Hz to 44 GHz	9 kHz to 26.5 GHz	9 kHz to 20 GHz	5 kHz to 26.5 GHz	9 kHz to 7 GHz	50 MHz to 26.5 GHz	20 Hz to 26.5 GHz
Analysis bandwidth Standard RF Optional RF Optional baseband	10 MHz 25, 40, 160 MHz 25, 40 MHz	25 MHz 40 MHz 40 MHz	25 MHz 40 MHz	10 MHz 25 MHz	2 MHz	25 MHz	1 MHz	250 MHz	10 MHz 25 MHz
Overall amplitude accuracy (95%)	± 0.19 dB	± 0.23 dB	± 0.27 dB	± 0.50 dB	± 1.50 dB	± 0.5 dB	± 0.50 dB ± 0.60 dB <sup>3</sup>	± 0.50 dB	± 0.75 dB
Dynamic range, max third order at 1 GHz	119 dB	116 dB	110 dB 116 dB <sup>2</sup>	111 dB	96 dB	106 dB	76 dB 83 dB <sup>3</sup>	–	112 dB
Displayed average noise level (DANL) @ 1 GHz	-172 dBm	-166 dBm	-163 dBm -165 dBm <sup>2</sup>	-163 dBm	-152 dBm	-154 dBm	-145 dBm -152 dBm <sup>3</sup>	-158 dBm	-167 dBm
@ 4 GHz	-172 dBm	-164 dBm	-162 dBm	-159 dBm -161 dBm <sup>1</sup>	-151 dBm	-154 dBm	– -151 dBm <sup>3</sup>	-156 dBm	-172 dBm
Third order intercept (TOI) @ 1 GHz	22 dBm	20 dBm	15 dBm 19 dBm <sup>2</sup>	17 dBm 15 dBm <sup>1</sup>	10 dBm	15 dBm	13 dBm 10 dBm <sup>3</sup>	–	15 dBm
Phase noise @ 1 GHz 10 kHz offset	-132 dBc/Hz	-106 dBc/Hz	-102 dBc/Hz -106 dBc/Hz <sup>2</sup>	-102 dBc/Hz -110 dBc/Hz <sup>1</sup>	-89 dBc/Hz (30 kHz offset)	-111 dBc/Hz	-90 dBc/Hz -86 dBc/Hz (30 kHz offset) <sup>3</sup>	-115 dBc/Hz (10 GHz)	-106 dBc/Hz
1 MHz offset	-146 dBc/Hz	-137 dBc/Hz	-137 dBc/Hz <sup>2</sup>	-121 dBc/Hz -130 dBc/Hz <sup>1</sup>	-119 dBc/Hz	-122 dBc/Hz	-112 dBc/Hz -115 dBc/Hz <sup>3</sup>	–	-137 dBc/Hz
Standard attenuator range/step	70 dB/2 dB	70 dB/2 dB	60 dB/10 dB	50 dB/10 dB 70 dB/10 dB <sup>1</sup>	50 dB/1 dB	30 dB/5 dB	70 dB/1 dB 50 dB/1 dB <sup>3</sup>	70 dB/10 dB	70 dB/2 dB
Resolution bandwidth	1 Hz to 8 MHz	1 Hz to 8 MHz	1 Hz to 8 MHz	1 Hz to 8 MHz	10 Hz to 3 MHz	10 Hz to 5 MHz	10 Hz to 1 MHz	–	1 Hz to 8 MHz
Battery					•	•			

1. For N9000A Option 513 or 526

2. For N9010A Option 532 or 544

3. For N9322C

## Applications, Core Capabilities and Software Comparison

Measurement applications	PXA	MXA	EXA	CXA	BSA	HSA	FieldFox	PXI VSA	MXE	89600 VSA software
<b>General purpose</b>										
AM/FM tune and listen	•	•	•	•	•	•	•		•	
Analog demodulation	•	•	•	•	•	•			•	•
EMI	•	•	•	•					•	
Enhanced display package (spectrogram plus)	•	•	•	•	• <sup>2</sup>	•	•		•	•
Stimulus/response measurement	•	•	•	• <sup>1</sup>	•	•	•			
Flexible digital modulation analysis	•	•	•	•	•	•		•		•
MATLAB	•	•	•	•				•		
Noise figure	•	•	•	•					•	
Phase noise	•	•	•	•					•	
Pulse	•	•	•	• <sup>1</sup>				•		
Real-time spectrum analysis	•									
Remote language compatibility for 856xE/EC and 8566/68	•	•	•							
SCPI language compatibility	•	•	•	• <sup>1</sup>	•	•	•		•	
<b>Cellular communications</b>										
1xEV-DO	•	•	•	• <sup>1</sup>						•
cdma2000®/cdmaOne	•	•	•	• <sup>1</sup>						•
GSM/EDGE/EVO	•	•	•	• <sup>1</sup>						•
iDEN/WiDEN/MotoTalk	•	•	•							
LTE FDD and TDD	•	•	•	• <sup>1</sup>						•
Multi-standard radio (MSR)	•	•	•	• <sup>1</sup>						•
TD-SCDMA/HSPA	•	•	•	• <sup>1</sup>						•
W-CDMA/HSPA+	•	•	•	• <sup>1</sup>						•
<b>Wireless connectivity</b>										
Bluetooth™	•	•	•	• <sup>1</sup>						•
Fixed WiMAX™		•	•							•
Mobile WiMAX	•	•	•	• <sup>1</sup>						•
WLAN 802.11a/b/g/n/ac	•	•	•	• <sup>1</sup>						•
<b>Digital video</b>										
CMMB	•	•	•	• <sup>1</sup>						
Digital cable TV	•	•	•	• <sup>1</sup>						
DTMB (CTTB)	•	•	•	• <sup>1</sup>						
DVB-T/H/T2	•	•	•	• <sup>1</sup>						•
ISDB-T/T <sub>SB</sub> /T <sub>mm</sub>	•	•	•	• <sup>1</sup>						
<b>PowerSuite One-Button Measurements</b>										
Channel power	•	•	•	•	•	•	•		•	
Occupied bandwidth	•	•	•	•	•	•	•		•	
Multicarrier, multi-offset ACP	•	•	•	•	•	•	•		•	
Multicarrier power	•	•	•	•					•	
CCDF	•	•	•	•					•	
Harmonic distortion	•	•	•	•					•	
Burst power	•	•	•	•					•	
Intermodulation (TOI)	•	•	•	•	• <sup>3</sup>				•	
Spurious emissions	•	•	•	•					•	
Spectrum emission mask	•	•	•	•	•	•	•		•	

1. Not compatible with N9000A Option 513 or 526

2. Not compatible with N9320B

3. Not compatible with N9322C

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## X-Series Signal Analysis

We can't predict the future, but Agilent can help you shape it with our future-ready test assets. The X-Series is an evolutionary approach to signal analysis that spans instrumentation, measurements, and software. It gives you the flexibility to satisfy your business and technical requirements across multiple products and programs—now and in the future. The X-Series creates a consistent framework that enables your teams to move at a faster pace. Stay ready, stay in sync, and arrive ahead with the Agilent X-Series.

### Future-ready instruments

X-Series signal analyzers are ready to evolve as technology changes. With X-Series instruments, you can move along the performance curve today and tomorrow without rewriting your test code, while optimizing price and performance for whichever technologies you're pursuing and whichever X-Series analyzer you choose to use. With upgradeable CPU, memory, solid-state drives, and I/O ports, you can keep your test assets current and extend instrument longevity. Adding functionality or applications to the X-Series' reliable and robust hardware architecture is simply a license-key upgrade that allows for increased instrument functionality and applications with no downtime. A recent example is the upgradeable real-time spectrum analysis option for the PXA that enables you to see, capture and understand the most elusive signals -- known or unknown.

### Consistent measurement framework

Proven algorithms, 100% code-compatibility, and a common UI across the X-Series create a consistent measurement framework for signal analysis that ensures repeatable results and measurement integrity so you can leverage your test system software through all phases of product development from R&D to design verification to manufacturing. You can further extend your test assets by transporting applications between multiple X-Series analyzers, from across the lab, or around the globe. A common, familiar user-interface means increased efficiency and productivity—when you learn how to use one X-Series analyzer, you know how to use them all.

### Applications and software

Save time and money with the X-Series signal analyzers' shared, common library of more than 25 measurement applications which can be easily upgraded as new applications and technologies are introduced. With the open Windows® OS you can create customized demodulation macros and run applications such as MATLAB or 89600 VSA software. The industry-leading VSA software supports over 70 signal standards and modulation types. In addition, Agilent's first-to-market track record can help you accelerate the speed with which you get your designs to market.



### CXA

Master the essentials



### EXA

Balance the challenges



### MXA

Accelerate in wireless



### PXA

Drive your evolution



## X-Series Signal Analyzers



### PXA N9030A

The high-performance PXA signal analyzer is the evolutionary replacement for other performance signal analyzers. Advanced performance, flexibility and expandability enable users to meet demanding applications in aerospace, defense, commercial communications, and more. Remote language compatibility features make it easy to replace existing spectrum analyzers. Adding real-time spectrum analysis (RTSA) capability to new or existing PXAs lets you see, capture and understand the most elusive signals.

- Agilent's exclusive noise floor extension (NFE) technology delivers  $-172$  dBm analyzer noise floor
- Excellent phase noise performance ( $-132$  dBc/Hz at 10 kHz offset) and third-order intercept (up to  $+23$  dBm)
- Analyze the most complex signals with 160 MHz analysis bandwidth and optional RTSA capability

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



### MXA N9020A

Standards evolve, product cycles get shorter, and each project demands tradeoffs and decisions about specifications and capabilities as well as throughput and yield. A highly flexible signal analyzer helps you make solid choices and keep things moving—quickly. The Agilent MXA is the accelerator as you develop new wireless devices and deliver them to manufacturing and the marketplace. It has the versatility to easily adapt to your evolving test requirements, today and tomorrow.

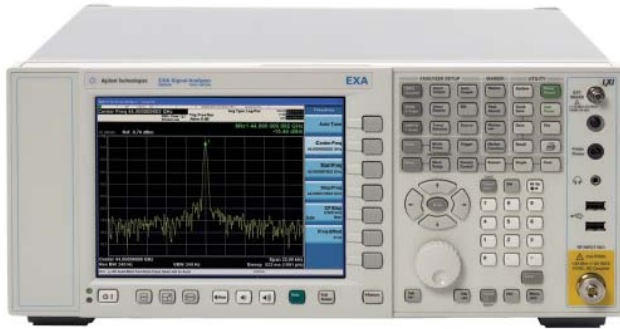
- Accelerate time-to-market in wireless
- Highest performance and accuracy in a midrange signal or spectrum analyzer
- Up to 40 MHz analysis bandwidth

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

Key specifications	PXA	MXA	EXA	CXA
Frequency range	3 Hz to 50 GHz	10 Hz to 26.5 GHz	10 Hz to 44 GHz	9 kHz to 26.5 GHz
Phase noise, 1 GHz (10 kHz offset)	$-132$ dBc/Hz	$-106$ dBc/Hz	102 dBc/Hz $-106$ dBc/Hz <sup>1</sup>	$-102$ dBc/Hz $-110$ dBc/Hz <sup>2</sup>
Maximum third order dynamic range, 1 GHz	119 dB	116 dB	110 dB 116 dB <sup>1</sup>	111 dB
Displayed average noise level, 1 GHz	$-172$ dBm	$-166$ dBm	$-163$ dBm $-165$ dBm <sup>1</sup>	$-163$ dBm
Standard attenuator range/step	70 dB/2 dB	70 dB/2 dB	60 dB/10 dB	50 dB/10 dB 70 dB/10 dB <sup>2</sup>
Overall amplitude accuracy	$\pm 0.19$ dB	$\pm 0.23$ dB	$\pm 0.27$ dB	$\pm 0.50$ dB

1. For N9010A Option 532 or 544  
2. For N9000A Option 513 or 526

## X-Series Signal Analyzers



### EXA N9010A

From RF to millimeter wave, whether you're pushing to enhance a product or improve test throughput, your general-purpose signal analyzer should be ready for a wide range of challenges. That's what drives the Agilent EXA signal analyzer—the fast, flexible way to cover diverse needs with a single tool. It provides a solid mix of speed and performance, and offers the versatility of X-Series measurement applications.

- Widest frequency coverage in its class - 10 Hz to 44 GHz and beyond
- Fast remote sweep and rapid trace transfer accelerate throughput and enhance yield
- Up to 40 MHz analysis bandwidth

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



### CXA N9000A

A great low-cost signal analyzer surpasses the basics and delivers crucial functionality. That's the strength of the CXA signal analyzer, the leading low-cost tool for essential signal characterization up to 26.5 GHz. Its capabilities provide a foundation for cost-effective testing and seamless integration with the other X-Series models. The CXA is also an excellent teaching tool for RF and microwave technologies and signal analysis.

- Reduce costs and improve throughput in manufacturing test
- Built-in tracking generator for component characterization
- Up to 25 MHz analysis bandwidth
- Additional 75-ohm RF input connector for cable TV measurement

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

## Express Configurations

If you do not require specialized functionality, such as measurement applications, wider bandwidth, or millimeter-wave coverage, then a preconfigured EXA or CXA signal analyzer may be appropriate for you. Available through Agilent's distribution partners, these express configurations offer excellent value and the fastest delivery. For more information go to:

[www.agilent.com/find/express\\_exa](http://www.agilent.com/find/express_exa)  
[www.agilent.com/find/express\\_cxa](http://www.agilent.com/find/express_cxa)



## X-Series Measurement Applications

A shared library of more than 25 measurement applications increases the capability and functionality of the X-Series signal analyzers to speed your time to insight. These software applications provide essential measurements for specific tasks in general purpose, cellular communications, wireless connectivity, and digital video applications. The measurement application software is identical across all of the X-Series analyzers. The only difference is the level of performance achieved by the instrument hardware selected. Choose the level of performance necessary for your application and have full assurance that the calculations and algorithms are the same across your X-Series signal analyzers, from development into manufacturing.

### Choosing Measurement Software and Applications

X-Series measurement applications provide embedded, format-specific, one-button measurements for X-Series analyzers. With fast measurement speed, pass/fail testing, and simplicity of operation, these applications are ideally suited for design verification and manufacturing.

89600 VSA software is the industry-leading measurement software for evaluating and troubleshooting wireless signals in R&D. Supporting numerous measurement platforms, the PC-based 89600 software provides the flexibility and sophisticated measurement tools essential to finding and fixing signal problems in R&D.



*Mix and match the X-Series instruments, applications and software to meet the needs of your specific tests and measurements.*

### Measurement applications

#### General purpose

- Analog demodulation
- EMI
- FM stereo/RDS
- MATLAB
- Noise figure
- Phase noise
- Pulse
- Remote language compatibility 856xE/EC, 8566/68
- SCPI language compatibility
- VXA vector signal analysis

#### Cellular communication

- 1xEV-DO
- cdma2000/cdmaOne
- GSM/EDGE/EVO
- iDEN/WiDEN/MotoTalk
- LTE FDD
- LTE TDD
- Multi-standard radio (MSR)
- TD-SCDMA/HSPA
- W-CDMA/HSPA+

#### Wireless connectivity

- Mobile WiMAX
- Bluetooth
- Fixed WiMAX
- WLAN 801.11a/b/g/n/ac

#### Digital video

- CMMB
- Digital cable TV
- DTMB (CTTB)
- DVB-T/H/T2
- ISDB-T/T<sub>v</sub>/T<sub>SB</sub>/T<sub>mm</sub>

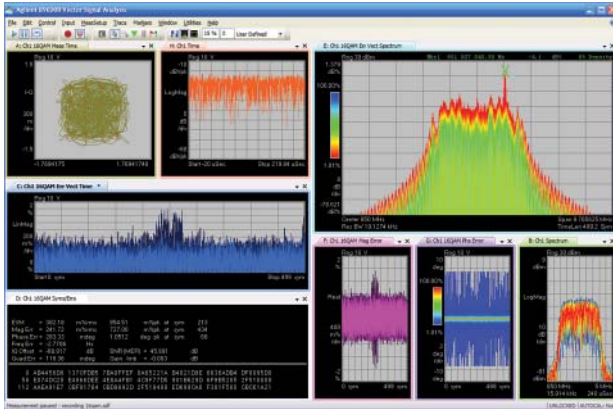
[www.agilent.com/find/X-Series\\_apps](http://www.agilent.com/find/X-Series_apps)

### Free Trial License

Try the X-Series measurement applications FREE for 14 days. Trial license provides unrestricted use of each application's features and functionality. Redeem a trial license for your X-Series signal analyzer online today at

[www.agilent.com/find/X-Series\\_trial](http://www.agilent.com/find/X-Series_trial).

# 89600 Software



## 89600 VSA software 89601B

On the leading edge of wireless design, signal interactions can cause the unexpected. The 89600 VSA software provides a window into what's happening inside complex wireless devices, allowing you to find the "why?" behind unexpected interactions. The software runs on a PC or inside PC-based instruments and supports more than 35 Agilent platforms.

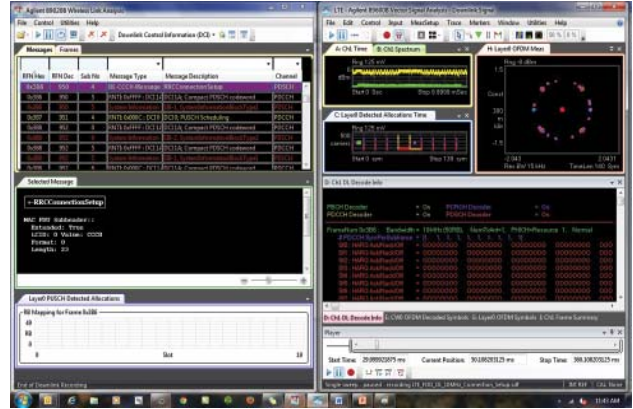
### Measure over 70 modulation and signal types

- 16FSK, QPSK, 1024 QAM, Star QAM, custom APSK, and OFDM
- LTE and LTE-Advanced FDD/TDD, W-CDMA/HSPA+, GSM/EDGE Evolution
- 802.11ac/b/g/n, WiMAX, Bluetooth, Zigbee, UWB

### See the "why?" with advanced troubleshooting tools

- Industry-leading multi-measurement capability allows for unlimited measurements to be executed simultaneously
- Get greater clarity with unlimited trace/marker capabilities
- Measure in the time, frequency, and modulation domains
- Quantify spectral performance with high-resolution, FFT-based measurements and a rich set of markers
- Analyze time-domain signal quality using signal capture and playback, pulse timing features, CCDF, robust trigger controls, and more
- Characterize complex modulation techniques, such as MIMO and LTE, down to raw bits

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



## 89600 WLA software 89620B

When you're troubleshooting designs based on complex wireless standards, a typical RF or protocol analyzer alone won't show you the whole picture. Deepen your understanding of link behavior with Agilent's 89600 WLA software, the MAC-layer complement to the 89600 VSA. Wireless-link analysis decodes control messages and correlates them with the PHY-layer signals they manage, giving you greater visibility into the complexities of MAC/PHY interaction. Expand your toolkit with 89600 WLA—and see inside the link.

### Get greater visibility into complex MAC and RLC/PHY interaction

- Decode and verify the MAC, RLC, and RRC-layer messages across multiple radio frames
- Utilize the seamless VSA connection to pinpoint problems across multiple domains and view PHY and MAC layer data side-by-side
- Identify discrepancies by graphing programmed signal content versus actual device behavior (requires Microsoft® Excel)
- Save and recall compressed data format message files for sharing of analysis between groups and fast certification after eNB software changes

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

## Basic Spectrum Analyzers (BSA)



### N9320B spectrum analyzer

Whatever type of consumer or general-purpose RF electronic devices or components you are manufacturing, spectrum analysis provides essential information on their performance, characteristics, and interaction. And in today's competitive world, you need this analysis to be dependable and affordable.

The N9320B spectrum analyzer is ideal for consumer electronics manufacturing, and bench repair. It provides:

- Fast sweep speed in narrow resolution bandwidths
- Rugged body, large display, and 3U height
- AM/FM tune and listen
- AM/FM, ASK/FSK demodulation analysis
- Tracking generator: 100 kHz to 3 GHz

[www.agilent.com/find/n9320b](http://www.agilent.com/find/n9320b)



### N9322C spectrum analyzer

Given the dynamic nature of RF devices, using the N9322C spectrum analyzer that can evolve with your needs is simply prudent. Beyond its feature rich standard base, the N9322C supports an array of value-added capabilities that can be added when needed.

- Time gated sweep
- Tracking generator with built-in VSWR bridge
- Power meter mode, supporting Agilent U2000 Series/U2020 X-Series USB power sensors
- AM/FM, and ASK/FSK signal analysis
- Signal monitoring with spectrogram recording and playback
- Channel scanner for simultaneous channel power measurement of up to 20 channels
- AM/FM IBOC and xDSL measurements with enhanced DANL and phase noise performance

[www.agilent.com/find/n9322c](http://www.agilent.com/find/n9322c)

Key specifications	N9320B	N9322C
Frequency range	9 kHz to 3 GHz	9 kHz to 7 GHz
Phase noise at 1 GHz, 1 MHz offset	-112 dBc/Hz	-115 dBc/Hz
Maximum third order dynamic range, 1 GHz	76 dB	83 dB
Displayed average noise level, 1 GHz	-145 dBm	-152 dBm
Standard attenuator range/step	70 dB, in 1 dB steps	50 dB, in 1 dB steps
Overall amplitude accuracy	± 0.5 dB	± 0.6 dB

## Handheld Spectrum Analyzers (HSA)



### Handheld spectrum analyzers (HSA) N9344C, N9343C, N9342C, N9340B

If you are making basic spectrum analyzer measurements in the field, the Agilent HSA family makes your job easier. Covering frequencies up to 20 GHz, the HSAs have the features you need for operating in tough field environments and the measurement performance gives you confidence the job's been done right. The Agilent HSA portable analyzers let you automate routine tasks to save time and ensure consistent results.

- Built-in tracking generator
- Spectrum monitor and interference analyzer
- Innovative task planner enables routine test automation <sup>2</sup>
- High accuracy power measurement with Agilent U2000 Series USB power sensor
- Built-in GPS receiver and GPS antenna <sup>2</sup>
- AM/FM and ASK/FSK modulation analysis <sup>1</sup>

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

Key specifications	N9344C	N9343C	N9342C	N9340B
Frequency range	9 kHz to 20 GHz	9 kHz to 13.6 GHz	9 kHz to 7 GHz	9 kHz to 3 GHz
Phase noise, 30 kHz offset	-89 dBc/Hz	-89 dBc/Hz	-89 dBc/Hz	-87 dBc/Hz
Maximum third order dynamic range, 1 GHz	95 dB	95 dB	96 dB	89 dB
Displayed average noise level, 1 GHz	-144 dBm	-144 dBm	-152 dBm	-144 dBm
Standard attenuator range/step	50 dB/5 dB	50 dB/5 dB	50 dB/1 dB	51 dB/1 dB
Overall amplitude accuracy	± 1.3 dB	± 1.3 dB	± 1.5 dB	± 1.5 dB

1. Currently available only on N9340B.

2. Currently available only on N9344C/N9343C/N9342C.

## FieldFox Handheld Analyzers



### FieldFox spectrum and combination analyzers N9935/36/37/38A and N9913/14/15/16/17/18A

Measuring up and earning a spot in your kit is the driving idea behind Agilent's FieldFox portable analyzers, available in frequencies up to 26.5 GHz. Carry the precision of our microwave models: they deliver Agilent-quality measurements wherever you need to go. Boost your readiness with an RF unit: every operating mode is flexible enough to meet the needs of novices and experts alike. And count on the durability of handheld analyzers designed to withstand your toughest working conditions.

- Get precision measurements that agree with benchtop results
- Meets MIL-PRF-28800F Class 2 and MIL-STD-810G, Method 511.5, Procedure 1, operation in explosive environments (type tested)
- Compact and lightweight (3.0 kg/6.6 lbs.)
- Dust-free and water-resistant design extends reliability in harsh environments

### FieldFox spectrum analyzers

FieldFox spectrum analyzers are optimized to excel in the dynamic spectral environment seen commonly in the field.

- Unprecedented amplitude accuracy of  $\pm 0.5$  dB with InstAlign - no warm up required
- Interference analysis and spectrogram
- Full-band tracking generator and preamplifier

### FieldFox combination analyzers

For maximum functionality, FieldFox combination analyzers integrate the measurement capabilities needed in a single, compact instrument.

- Make measurements quickly with CalReady and QuickCal; no need for a cal kit
- Base is a cable and antenna analyzer; Option 233 adds spectrum analyzer capability
- Optional vector network analyzer capability for full two-port S-parameters

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

Key specifications	FieldFox spectrum analyzers N9935/36/37/38A	FieldFox combination analyzers N9913/14/15/16/17/18A
Frequency range (min. to max.)	5 kHz to 26.5 GHz	5 kHz to 26.5 GHz
Phase noise, 1 GHz (10 kHz offset)	-111 dBc/Hz	-111 dBc/Hz
Maximum third order dynamic range, 1 GHz	106 dB	106 dB
Displayed average noise level, 1 GHz	-154 dBm	-154 dBm
Standard attenuator range/step	30 dB/5 dB	30 dB/5 dB
Overall amplitude accuracy	$\pm 0.5$ dB	$\pm 0.5$ dB

Note: All functionality and performance are identical for the N991X combo and N993x spectrum analyzers.

## Modular Analyzer



### PXI vector signal analyzer M9392A

Agilent's goal is to deliver the measurements you need today and enable new capabilities not previously available. Modular and software-defined building blocks provide flexible system configurations to meet diverse test needs. The M9392A PXI vector signal analyzer, when combined with the M9018A 18-slot PXIe chassis and Agilent 89600 VSA software, delivers a complete microwave vector signal analyzer solution enabling analysis of communications, radar, and avionics signals from 50 MHz to 26.5 GHz.

- Wide analysis bandwidth up to 250 MHz
- Long gapless signal capture with streamed analog bandwidth up to 100 MHz
- Fastest 12-bit digitizer with 2 GS/s sampling rate
- Real-time digital downconversion algorithm for data decimation and analog performance improvements

[www.agilent.com/find/M9392A](http://www.agilent.com/find/M9392A)

#### Key specifications

Frequency range	50 MHz to 26.5 GHz
Phase noise, 10 GHz (10 kHz offset)	-115 dBc/Hz
Maximum third order dynamic range, 1 GHz	—
Displayed average noise level, 1 GHz	-158 dBm
Standard attenuator range/step	70 dB/10 dB
Overall amplitude accuracy	± 0.5 dB

## EMI Compliance Solutions

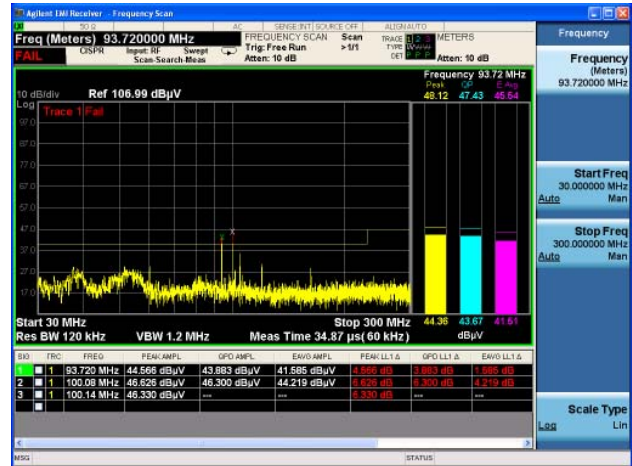


### MXE EMI receiver N9038A

In compliance testing, designers are counting on your expertise and advice. That's why the Agilent MXE is more than a CISPR-compliant EMI receiver—we've also included X-Series signal analysis and graphical measurement tools that make it easy to examine signal details. With these diagnostic capabilities, the MXE complements your knowledge and helps you advise the designers if a device fails compliance testing.

- CISPR 16-1-1 2010 compliant
- Outstanding accuracy ( $\pm 0.75$  dB at 1 GHz) and excellent sensitivity ( $-167$  dBm at 1 GHz with NFE)
- Extensive built-in diagnostic tools including Signal Analyzer and Strip Chart
- Upgradeable CPU, memory, disk drives, and I/O keep test assets current and extend instrument longevity

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



### EMI measurement application N6141A/W6141A

For precompliance test, the EMI measurement application enables users to perform conducted and radiated emissions tests to both commercial and MIL-STD requirements. It provides better sensitivity and accuracy and reduces test margins across the X-Series signal analyzers, so you can make more precise measurements.

The wide range of features enables you to use the scan table to set up frequency ranges, gains, bandwidths, and dwell time. Scan a frequency range and display the results in log or linear format, search for signals, measure the peak, quasi-peak, and average values of the signals, and place the results in a table. Use the Signal List feature to mark and delete unwanted signals, leaving only those of interest. Easily identify signals that fail the regulatory agency limit.

[www.agilent.com/find/N6141A](http://www.agilent.com/find/N6141A)  
[www.agilent.com/find/W6141A](http://www.agilent.com/find/W6141A)

#### Key specifications

Frequency range	20 Hz to 26.5 GHz
Phase noise, 1 GHz (10 kHz offset)	$-106$ dBc/Hz
Maximum third order dynamic range, 1 GHz	15 dB
Displayed average noise level, 1 GHz	$-167$ dBm
Standard attenuator range/step	70 dB/2 dB
Overall amplitude accuracy	$\pm 0.75$ dB

## Migrating from Legacy Spectrum Analyzers

Whether you are working in the aerospace and defense or communications industries, technologies evolve but one thing stays the same: the need to ensure readiness of your test system.

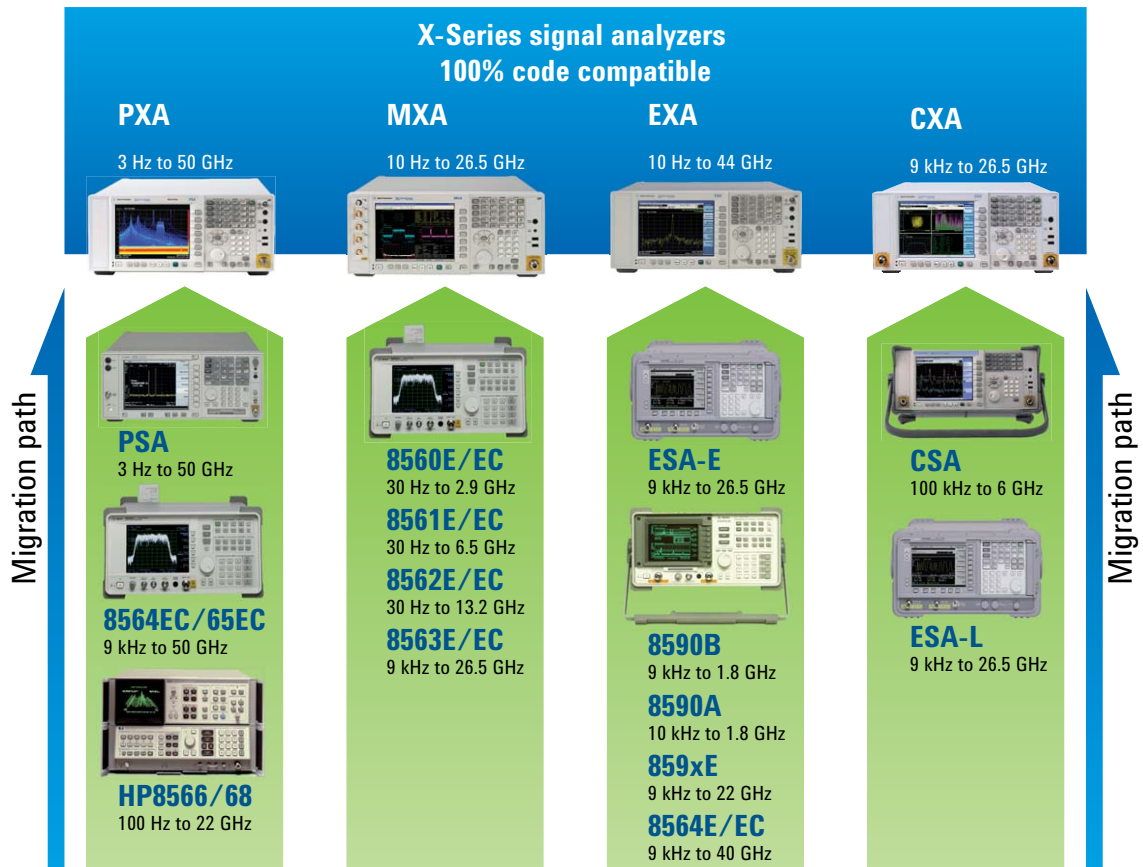
Carefully planned instrument migration and modernization can maximize your test-system efficiency, performance, and readiness, while minimizing risk and potential disruptions, keeping you at the leading edge in the competitive marketplace. The Agilent X-Series signal analyzers were designed as evolutionary replacements to their in-class predecessors. Take advantage of the X-Series' performance, flexibility, speed, modern connectivity, and backward compatibility in replacing the legacy HP/Agilent spectrum analyzers to achieve seamless migration and avoid the need to rewrite test software.

### Which migration path is right for you?

To modernize your test systems in manufacturing settings, EXA offers an ideal replacement to the ESA-E.  
[www.agilent.com/find/esa2exa](http://www.agilent.com/find/esa2exa)

For applications with the most stringent cost restrictions, CXA is the best replacement for ESA-L.  
[www.agilent.com/find/esa2cxa](http://www.agilent.com/find/esa2cxa)

To upgrade your test systems in R&D, manufacturing, and operations ATE, PXA is optimized for maximum backwards compatibility and easily configured as a replacement for the E444xA PSA.  
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LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. Agilent is a founding member of the LXI consortium.

### Agilent Channel Partners

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

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