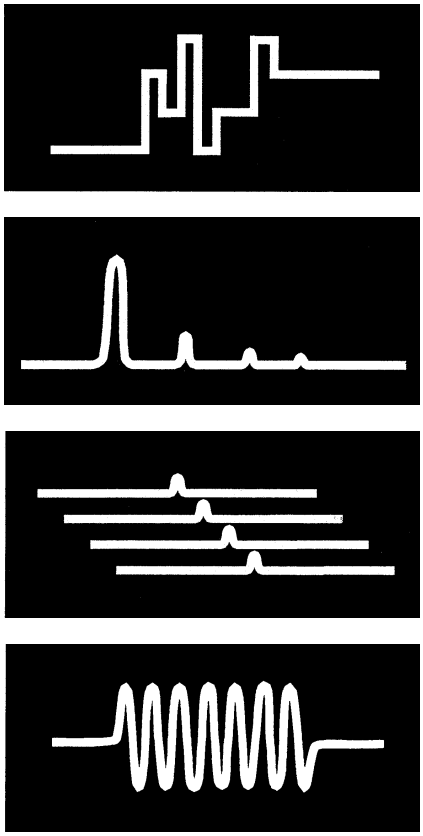
Agilent 89400 Series
Vector Signal Analyzers

Configuration Guide



Digital Video Modulation Analysis

Single Button Radio Test Personalities

The Agilent Technologies 89400 series vector signal analyzers perform critical measurements of signal quality quickly and easily. Powerful yet flexible digital signal processing furnishes insights into signal characteristics that, in the past, often required special purpose or customized test systems.

Two analyzers comprise the product family. An RF version includes the Agilent 89441A, which operates from dc to 2.65 GHz with enhanced sensitivity and dynamic range. One RF input channel is standard with options for an RF source and a second baseband-only input.

For those concerned only with signals below 10 MHz, the 89410A provides the same signal processing and analysis as the models above, less the RF front-end section. A built-in signal source is standard, and a second input channel is optional.

A wide selection of options allows 89400 series vector signal analyzers to be configured for specific applications. Measurement personalities bring one-button simplicity to common measurement tasks. The following pages of this guide show recommended configurations for several key application areas.

For complete descriptions and technical specifications for these analyzers and their options, please consult the 89400 series technical data sheets and product brochure.

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Agilent 89400 Series Recommended Configurations

Digital Communications

For designers of current and next-generation mobile or cellular radios, personal communication systems or other systems that transmit or receive voice, video, or data signals.

Recommended models

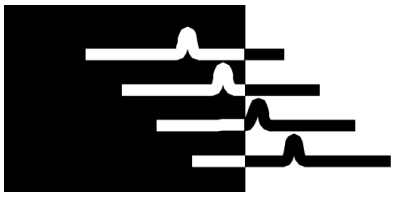
89441A	PCS, DECT, PHP, wireless LAN and other systems to 2.65 GHz
89410A	Baseband (I + Q) signals from dc to 10 MHz

Recommended options

Option AYA	Vector Modulation Analysis	Specialized analysis tools and displays for complex modulation formats
Option AY7	Second 10 MHz Input Channel	To view RF and baseband signals simultaneously, or for complex (I + Q) signal inputs
Option AY8	Internal RF Source	Generate custom signals or replay captured waveforms for test stimulus

Other options which may be useful

Option 1C2	Instrument BASIC
Option AY9	Extend Time Capture Memory to 1 Msample
Option AYH	Digital Video Modulation Analysis



Signal Monitoring

For government, regulatory and other surveillance functions that monitor spectrum occupancy, identify unknown signals and measure or verify communications signals off-air.

Recommended models

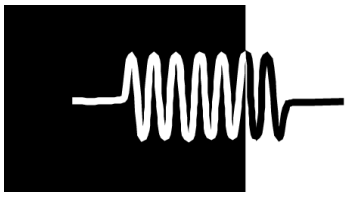
89441 A	Spectrum monitoring to 2.65 GHz with increased sensitivity and dynamic range
89410A	High-speed analysis of recorded or externally downconverted signals at baseband frequencies up to 10 MHz

Recommended options

Option AYB	Waterfall and Spectrogram Displays	Specialized display formats to portray the time history of spectrum events
Option UG7	Advanced LAN Support	Allows front panel control and display viewing from remote locations via LAN

Other options which may be useful

Option AYA	Vector Modulation Analysis
Option AY7	Second 10 MHz Input Channel
Option AY9	Extend Time Capture Memory to 1 Msample
Option 1C2	Instrument BASIC



Burst, Transient and Pulsed Signal Analysis

For measurements involving sonar, radar, medical imaging, data storage, and other signals that vary with time, or whose transient behavior must be precisely characterized.

Recommended models

89441A	Signals from dc-2.65 GHz with pulse bandwidths to 7 MHz
89410A	Acoustic, data and baseband signals entirely below 10 MHz

Recommended options

Option AY7	Second 10 MHz Input Channel	View and compare two baseband signals for phase and ratio measurements
Option AYB	Waterfall and Spectrogram Displays	Special display modes that can portray the entire time history of an event
Option AY9	Extend Time Capture Memory to 1 Msample	Capture longer transient signals for post-analysis
Option AY8	Internal RF Source	Replay captured events, or create custom stimulus waveforms

Other options which may be useful

Option AYA	Vector Modulation Analysis
Option 1C2	Instrument BASIC

General Spectrum Analysis

For traditional spectrum analyzer applications including harmonic and spurious analysis, phase noise measurements, modulation analysis, and component measurements.

Recommended models

89441A	Signals from dc-2.65 GHz, or for measurements requiring the highest possible sensitivity and dynamic range
89410A	Baseband and IF signals below 10 MHz

Recommended options

Option AY7	Second 10 MHz Input Channel	Allows ratio measurements of amplitude and phase, or comparisons of multiple test devices
Option AY8	Internal RF Source	High performance tracking source with arbitrary waveform capability

Other options which may be useful

Option AYA	Vector Modulation Analysis
Option AYB	Waterfall and Spectrogram Displays
Option AY9	Extend Time Capture Memory to 1 Msample
Option 1C2	Instrument BASIC

Measurement Personalities

Automate common radio measurements such as adjacent channel power, occupied bandwidth, and modulation accuracy.

89450A	DMCA Radio Test Personality	One-button measurements for RCR-32 Digital Multi-Channel Access (DMCA) radio systems. (Requires option AYA)
89451A	Radio Test Personality	One-button measurements for NADC, PHS, PDC and user-configurable system formats. (Requires option AYA)

Accessories

The following products are compatible with the 89400 series analyzers and can help complete your measurement solution.

Probes		
41800A	Active probe	5 Hz–500 MHz, 100 kΩ/3 pF input impedance
1141A	Active differential probe	dc–200 MHz, 1MΩ/7 pF input impedance
10020A	Resistive divider probe	1:1, 10:1 or 100:1, for 50 Ω systems
Preamplifiers		
8447D	Preamplifier	25 dB gain, 100 kHz–1.3 GHz, NF < 8.5 dB
Minimum loss pad		
11852B	50 Ω – 75 Ω minimum loss pad	Matches 50 Ω analyzer input to 75 Ω environment
11852B-004	50 Ω male to 75 Ω male	Required adapter

User Training

Gain the skills to become efficient in configuring and operating your 89400 vector signal analyzer with two days of comprehensive, hands-on training.

H7216A-314	Training course	89410A/89441A vector signal analyzer training

Agilent 89400 Series Vector Signal Analyzers Ordering Information

To add options to an order, order model number - option number. For example, 89441A-AYA, or 89410A-AYA.

89441A Vector Signal Analyzer, DC–2.65 GHz
89410A Vector Signal Analyzer, DC–10 MHz
89450A DMCA Radio Test Personality
89451A Radio Test Personality

		89441A 89441U	89410A 89410U	89431A	
Options available:					
AYA	Vector Modulation Analysis	•	•		Option UFG recommended
AYB	Waterfall and Spectrogram	•	•		Option UFG recommended
AYC	Freq. Reference Retrofit (reverses Opt. AY4)	•			Retrofit at service center only
AYH	Digital Video Modulation Analysis	•	•		Options AYA, UFG required
AY4	Delete Precision Frequency Reference	•		•	Retrofit unavailable
AY5	Precision Frequency Reference		•		Retrofit at service center only
AY7	Second 10 MHz Input Channel	•	•		
002	Second 10 MHz Input Channel for S/N > US4206	•	•		894XXU only
AY8	Internal RF Source	•		•	Retrofit at factory (89440/430A) Retrofit at service center (89441/431A)
AY9	Extend Time Capture to 1 Msample	•	•		
UE2	Firmware Upgrade	•	•		894XXU only
UG7	Advanced LAN Support	•	•		Option UFG required
UK6	Commercial Calibration Certificate	•	•		Retrofit unavailable
1C2	Instrument BASIC	•	•		
1D7	50-75 Ohm Minimum Loss Pad	•			
1F0	PC-style Keyboard - U.S. version	•	•		Other keyboards available; consult sales office
AX3	Front Handle Kit	•	•	•	
AX4	Rack Flange Kit	•	•	•	
AX5	Flange and Handle Kit	•	•	•	
0B1	Extra Manual Set	•	•	•	
0BU	Extra Instrument BASIC Manuals	•	•		
0B3	Service Manual	•	•	•	
B7A	EDGE demodulation	•	•		
B73	W-CDMA CDP for experimental system	•	•		
B79	ARIB 1.0 - 1.2 W-CDMA analysis	•	•		
080	3GPP W-CDMA, Version 3.1	•	•		

Option upgrades

To retrofit any of the above options, specify upgrade model number **89441U** or **89410U** and the codes for the options to be added. For 89440A upgrades, order the corresponding 89441U-option. Unless otherwise noted, all options are customer installable.

Mainframe upgrades

To convert an existing 89410A to an 89441A, order the appropriate model number below.

89431A Converts an 89410A to an 89441A

Additional options may be ordered at the same time using model number **89410U** as described under “option upgrades.”

Note: Older 89400 analyzers may require hardware upgrades at an Agilent Technologies service center prior to conversion or option retrofits.

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Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise
Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

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