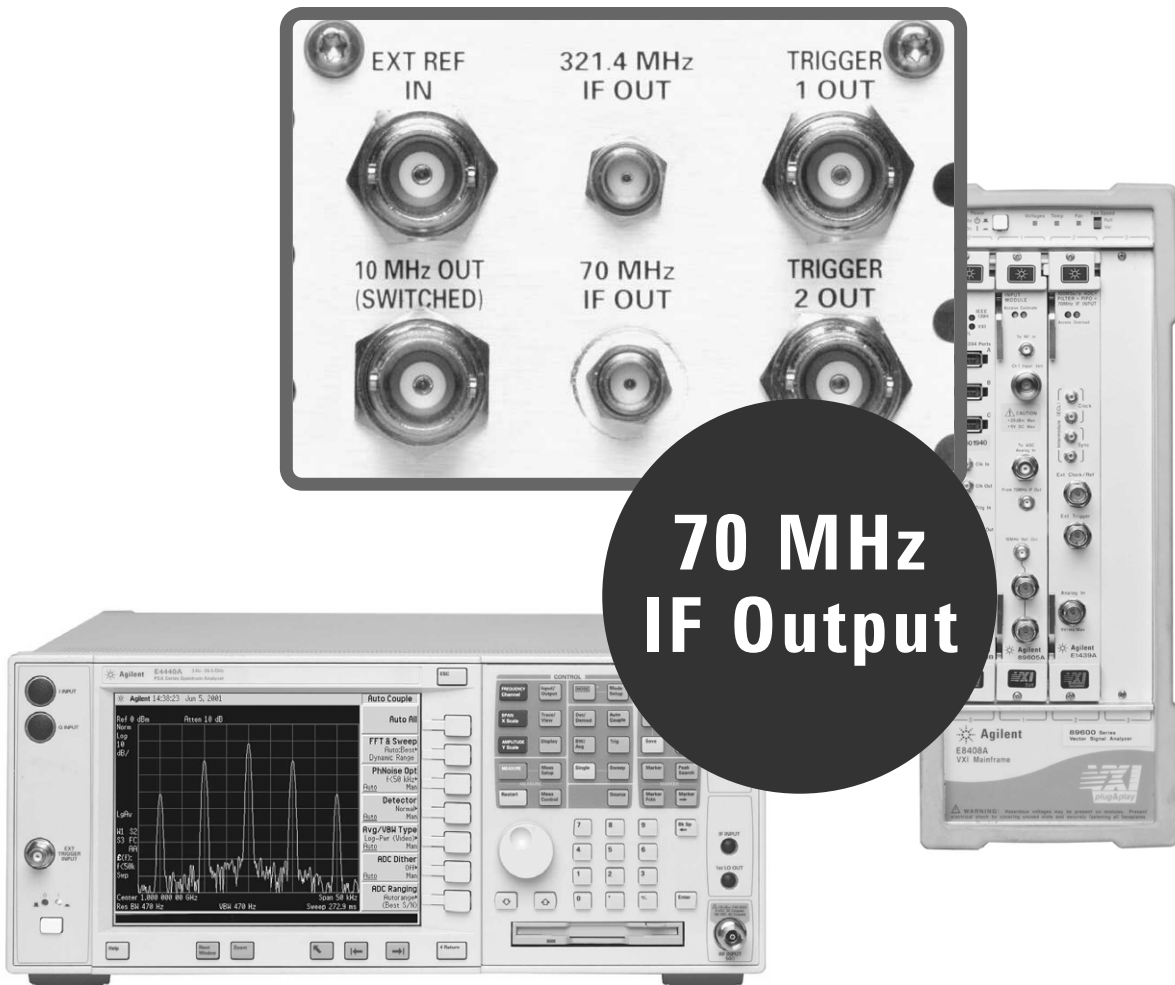


Agilent PSA Series Spectrum Analyzers Option H70, 70 MHz IF Output Product Overview

For use with external signal analyzers that have
70 MHz IF input



PSA spectrum analyzers with Option H70

The PSA series of high performance spectrum analyzers from Agilent Technologies provides a superior combination of speed, accuracy, high dynamic range, low phase noise, fine resolution, and flexible digital demodulation. Configured with Option H70, a PSA series spectrum analyzer provides its 70 MHz IF output to other signal analyzers. This down converter option will extend the flexibility of the PSA to meet measurement requirements of broadband applications.

Expand the flexibility of your test solution to meet requirements for emerging communication and broadband wireless applications

Emerging communication

The change and growth in emerging communication and broadband wireless access are demanding flexibility from test solutions. Engineers keep using wider bandwidths, higher frequencies, and more complex modulation formats to satisfy the demand for more data and more reliable delivery at a lower cost. Design teams must keep in touch with rapidly evolving standards to ensure that your design and testing is current and that your solutions can operate with others.

In these highly competitive markets, Option H70 for 70 MHz IF output of the PSA spectrum analyzer provides design engineers with flexible test configurations for multiple standards and efficiency of asset management.

The Option H70 provides an analog 70 MHz IF signal to the rear panel the E4440A PSA by down converting the 321.4 MHz IF signal. The 70 MHz IF output, which is always "On" while the PSA is powered up, can be measured by a separate signal analyzer that is capable of measuring the broadband signal. The input frequency range can be defined by a PSA series spectrum analyzer, which provides an input frequency range of 6.7 GHz, 13.2 GHz and 26.5 GHz. You can choose the PSA model based on your current and future measurement requirements.

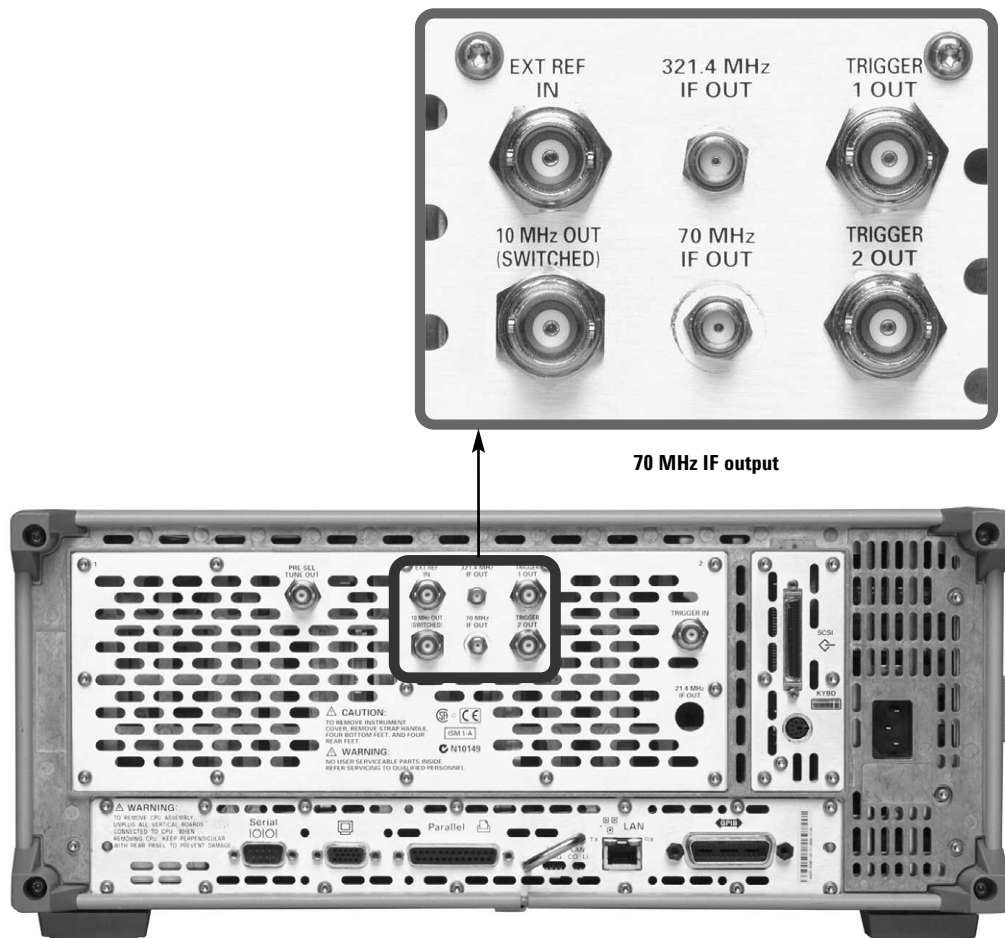


Figure 1. Rear panel of PSA with 70 MHz IF output

Test configuration for 802.11a WLAN

The test solution for 802.11a WLAN illustrates the use of Option H70. Using the PSA with Option H70 and the 89611A IF vector signal analyzer, Option H70 provides an IF output signal from the PSA that the VSA digitizes and stores. This stored value is available for analysis by the 89601A VSA software running on a user-supplied PC.

The 89601A vector signal analyzer software is the heart of the 89600 series vector signal analyzers. This software provides flexible tools that can demodulate and analyze the most advanced digitally modulated signals, including those not defined by an established standard. For more details of configuration and specification, see the *Agilent 89611A 70 MHz IF Vector Signal Analyzer Product Overview* (literature number 5988-4093EN).

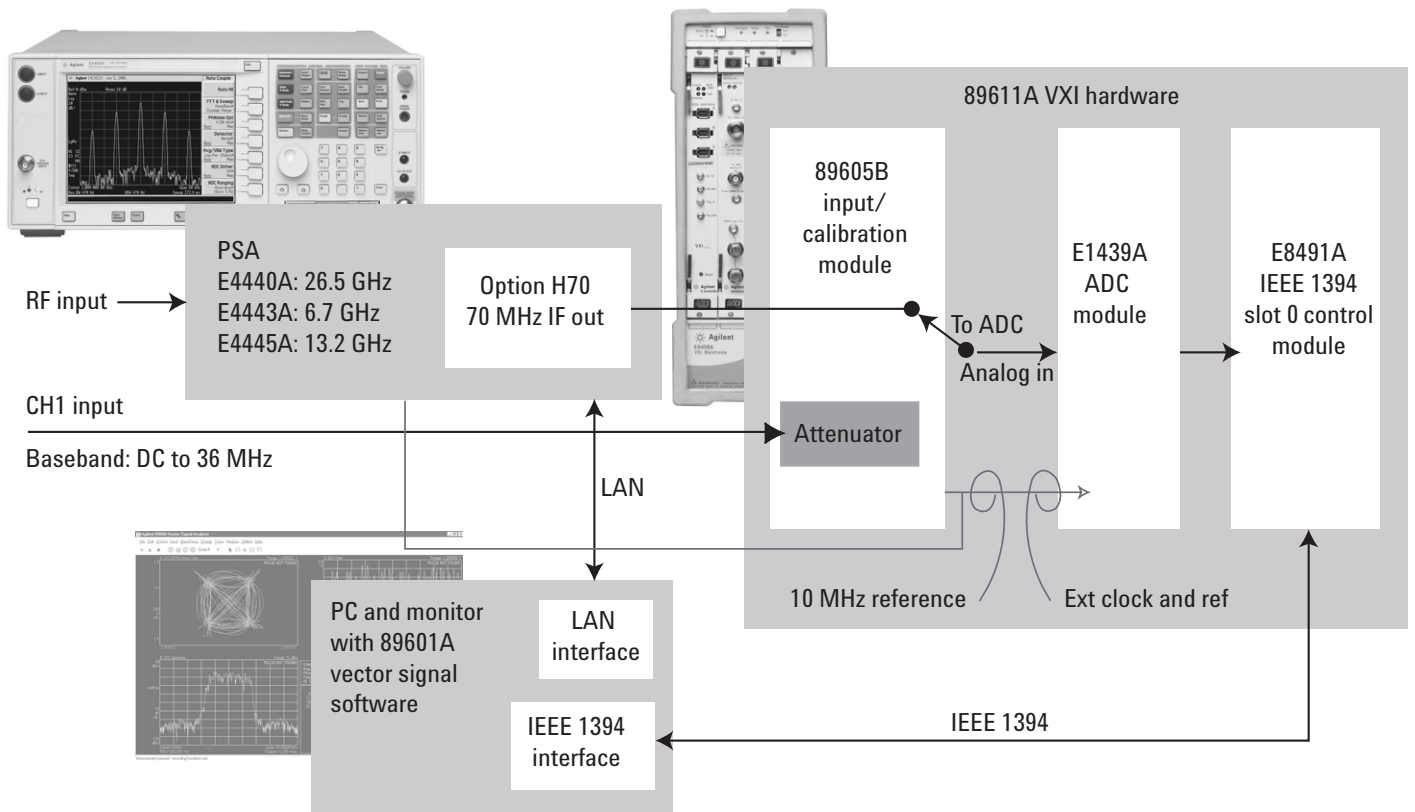


Figure 2. Test configuration for 802.11a WLAN using the PSA series analyzers with Option H70 and the 89611A IF vector signal analyzer.

Technical specification

Key specifications for the E4440A PSA

| | |
|-----------------------------|--|
| Frequency coverage | 3 Hz to 26.5 GHz |
| DANL | -153 dBm (10 MHz to 3 GHz) |
| Overall amplitude accuracy | ±0.65 dB (3 Hz to 3 GHz) |
| Frequency response | ±0.38 dB (3 Hz to 3 GHz) |
| Display scale fidelity | ±0.07 dB total (≤ -20 dBm) |
| TOI (mixer level -30 dBm) | +16 dBm (400 MHz to 1.7 GHz) +17 dBm (1.7 GHz to 2.7 GHz) +16 dBm (2.7 GHz to 3 GHz) |
| Noise sideband (CF = 1 GHz) | |
| 10 kHz offset | -114 dBc/Hz |
| 10 MHz offset | -157.5 dBc/Hz nominal |
| 1 dB gain compression at | +3 dBm, +7 dBm nominal |
| 200 MHz to 3 GHz | |
| Attenuator | 0 to 70 dB in 2 dB steps |

Option H70 nominal characteristics

Amplitude

| | |
|---|---|
| Conversion loss | -6 dB ± 2 dB (PSA attenuation 0 dB) ¹ |
| Flatness (with center frequency in the range of 5 – 6 GHz, BW = measurement bandwidth) | |
| ±5 MHz BW | ±0.5 dB |
| ±9 MHz BW | ±0.8 dB |

Frequency

| | |
|---------------------|------------------------------|
| IF frequency | 70 MHz |
| IF bandwidth | |
| At -1 dB BW | |
| Low band (< 3 GHz) | 30 MHz |
| High band (≥ 3 GHz) | 20 MHz – 30 MHz |
| At -3 dB BW | |
| Low band (< 3 GHz) | 40 MHz |
| High band (≥ 3 GHz) | 30 MHz – 60 MHz ² |

While performing the "Align All" routine on the PSA, the 70 MHz IF output will be corrupted due to the system's variable gain circuit stepping through the alignment routine. The ripple correction in the flatness routine will be non-existent in the 70 MHz IF output since the 70 MHz IF is ported to the rear panel before the IF signal is digitized and used for the flatness correction routine.

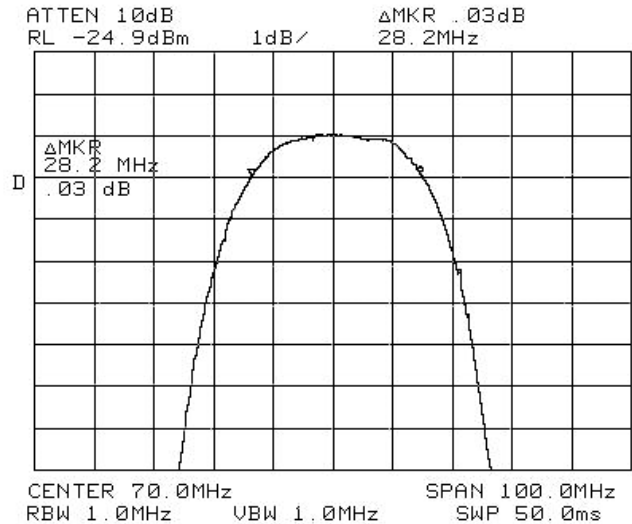


Figure 3. -1 dB BW at 5.7 GHz input signal, which shows 28.2 MHz BW

1. Attenuator setting: 0 dB. In high band, the preselector center routine must be performed to achieve the conversion loss. If applicable Option 1DS (100 kHz to 3 GHz preamp) is on, there will be a 28 dB to 30 dB of gain in the 70 MHz IF output at the rear panel of the PSA. With the preamp on, the conversion loss will be +22 dB.

2. Dependent on internal RF path. Typically, 40 MHz bandwidth increases as a function of the center frequency, up to approximately 70 MHz with a center frequency of 26 GHz.

Ordering information

E4440A PSA 3 Hz to 26.5 GHz
E4443A PSA 3 Hz to 6.7 GHz
E4445A PSA 3 Hz to 13.2 GHz

Option H70 70 MHz IF down converter
(special quotation required)
Option 226 Phase noise measurement personality
Option BAF W-CDMA measurement personality
Option 202 GSM with EDGE measurement personality
Option B78 cdma2000 measurement personality
Option BAC cdmaOne measurement personality
Option BAE NADC/PDC measurement personality
Option B7J Digital demodulation hardware
Option 1DS 100 kHz to 3 GHz preamplifier
Option BAB APC 3.5 connector
(replaces type "N" input connector)
Option 1CM Rack mount kit
Option 1CN Front handle kit
Option 1CP Rack mount with handles
Option 1CR Rack slide kit
Option 0B1 Extra manual set (includes CD-ROM)
Option UK6 Commercial calibration certificate with test data
Option W50 Five-year warranty (replaces three-year warranty)

Related literature

Agilent 89611A 70 MHz IF Vector Signal Analyzer
Product Overview, literature number 5988-4093EN

Agilent 89600 Series Vector Signal Analyzer
Product Note, literature number 5988-4094EN

Additional PSA product information is available at:
www.agilent.com/find/psa

To receive regularly scheduled e-mail updates about new products and new information, register at:

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Latin America:

(tel) (305) 269 7500

(fax) (305) 269 7599

Taiwan:

(tel) 080-004-7866

(fax) (886-2) 2545-6723

Other Asia Pacific Countries:

(tel) (65) 375-8100

(fax) (65) 836-0252

Email: tm_asia@agilent.com

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