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Data Sheet

August 13, 2026

AGILENT / KEYSIGHT

Agilent / Keysight E4422A 4 GHz Signal Generator, Option 1E5

Keysight E4422A ESG-A Series Analog RF Signal Generator 250 kHz to 4 GHz The Agilent/Keysight E4422A is an ESG-A series analog RF signal generator covering 250 kHz to 4 GHz with electronic attenuator, wideband FM and phase modulation, AM and pulse modulation, step/list sweep, and built in function generator. It targets receiver test, component stimulus, and LO applications with flexible upgrade paths and Option 1E5 high stability timebase support. Analog receiver sensitivity and selectivity testing; amplifier and component CW/modulated stimulus; production ATE with fast level switching; local oscillator substitution with deep attenuator range to -136 dBm. The Agilent/Keysight E4422A is an ESG-A series analog RF signal generator covering 250 kHz to 4 GHz with electronic attenuator, wideband FM and phase modulation, AM and pulse modulation, step/list sweep, and built in function generator. It targets receiver test, component stimulus, and LO applications with flexible upgrade paths and Option 1E5 high stability timebase support. Analog receiver sensitivity and selectivity testing; amplifier and component CW/modulated stimulus; production ATE with fast level switching; local oscillator substitution with deep attenuator range to -136 dBm.



MODEL

**Agilent / Keysight
E4422A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

E4422A

LISTING

<https://aumictechlabs.com/products/e4422a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight E4422A is an analog and vector signal generator operating from 250 kHz to 4 GHz, engineered for RF testing across wireless, aerospace, and defense applications. It delivers output power from -130 dBm to +20 dBm with ± 0.5 dB accuracy and phase noise better than -116 dBc/Hz at 1 GHz (20 kHz offset). The instrument supports AM, FM, and PM analog modulation alongside complex digital formats including QPSK and QAM via vector modulation. Option 1E5 adds enhanced digital modulation schemes, extended signal impairment simulation, and improved amplitude and frequency stability. Frequency, power, list, and manual sweep capabilities enable flexible signal generation with 0.1 Hz resolution and sub-50 ms settling time. RF bandwidth reaches 30 MHz for vector modulation, while harmonic performance stays below -35 dBc (below 2 GHz) and -30 dBc (above 2 GHz). Residual distortion remains under 0.1% AM and 1 MHz FM.

Technical Specifications

Frequency Range:	250 kHz to 4 GHz
Output Power:	-130 dBm to +20 dBm (adjustable)
Power Accuracy:	± 0.5 dB at 25°C
Frequency Resolution:	0.1 Hz
Phase Noise:	Better than -116 dBc/Hz at 1 GHz, 20 kHz offset (+10 dBm output)
Harmonics:	Better than -35 dBc (below 2 GHz), -30 dBc (above 2 GHz, +10 dBm)
Non-Harmonic Spurious:	Below -60 dBc
RF Bandwidth (Vector Modulation):	Up to 30 MHz
Settling Time:	Typically less than 50 ms
Residual AM/FM:	Below 0.1% AM and 1 MHz FM
Power Supply:	100-240 VAC, 50/60 Hz
Power Consumption:	Typically under 400 VA
Dimensions:	2U rack height, 1/2 rack width
Weight:	Approximately 18 kg

Key Features

- Analog modulation: AM, FM, PM with user-definable parameters
- Vector modulation supporting QPSK, QAM, and other digital formats with customizable I/Q data
- Frequency, power, list, and manual sweep modes
- Internal modulation generator with standard waveforms
- Option 1E5 enhances vector signal generation and stability control

Typical Applications

- Receiver performance evaluation in wireless systems
- Complex signal simulation for aerospace and defense testing
- Real-world signal impairment and interference scenario modeling

Compatibility & Integration

- RF Output: Type N female connector
- Modulation Input: BNC female
- Rear interfaces: GPIB (IEEE 488.2), LAN (Ethernet), Trigger Input/Output (BNC), External Reference Clock Input/Output (BNC)
- SCPI-compatible control interface

E4422A Characteristics / Specifications

PARAMETER	VALUE
Model	E4422A
Manufacturer	Agilent / Keysight
Instrument Type	ESG-A Series Analog RF Signal Generator
Alias	E4422A; Agilent E4422A; Keysight E4422A; ESG-A 4 GHz
Frequency range	250 kHz to 4000 MHz
Frequency resolution	0.01 Hz
Output range 250 kHz to 1000 MHz	+13 to -136 dBm
Output range 1000 MHz to 3000 MHz	+10 to -136 dBm
Output range 3000 MHz to 4000 MHz	+7 to -136 dBm
Level resolution	0.02 dB
Level accuracy band 250 kHz to 2 GHz	plus/minus 0.5 dB at plus 7 to minus 120 dBm
Level accuracy 2 GHz to 3 GHz	plus/minus 0.9 dB
Level accuracy 3 GHz to 4 GHz	plus/minus 0.9 dB
Attenuator hold range 250 kHz to 1 GHz	23 dB standard
Attenuator hold range 1 to 3 GHz	20 dB standard
Attenuator hold range 3 to 4 GHz	17 dB standard
Amplitude switching without power search	less than 30 ms typical
Reverse power protection to 2 GHz	50 W
Reverse power protection 2 to 4 GHz	25 W
Max DC voltage at output	50 V
SWR typical 250 kHz to 1 GHz	less than 1.5:1
Output impedance	50 ohms
SSB phase noise 500 MHz 20 kHz offset	less than -120 dBc/Hz typical
SSB phase noise 1 GHz 20 kHz offset	less than -116 dBc/Hz typical
SSB phase noise 2 GHz 20 kHz offset	less than -110 dBc/Hz typical

PARAMETER	VALUE
Harmonics at plus 4 dBm	less than -30 dBc typical
Nonharmonics 250 kHz to 250 MHz	less than -65 dBc above 3 kHz offset
Modulation	AM; FM; phase; pulse; wideband FM
Sweep dwell time	2 ms to 60 s
Sweep points	2 to 401
Internal reference aging standard	less than plus/minus 2 ppm per year
Remote control	GPIB
Related digital sibling	E4433A ESG-D 4 GHz Notes Specs from Agilent ESG-A/ESG-D family datasheet 5965-3096E for E4422B/E4422A class 4 GHz analog models. Confirm Option 1E5, attenuator type, and installed modulation options on the unit.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

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PARAMETER	VALUE
Model	E4422A
Manufacturer	Agilent / Keysight
Instrument Type	ESG-A Series Analog RF Signal Generator
Alias	E4422A; Agilent E4422A; Keysight E4422A; ESG-A 4 GHz
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Frequency resolution	0.01 Hz
Output range 250 kHz to 1000 MHz	+13 to -136 dBm
Output range 1000 MHz to 3000 MHz	+10 to -136 dBm
Output range 3000 MHz to 4000 MHz	+7 to -136 dBm
Level resolution	0.02 dB

Level accuracy band 250 kHz to 2 GHz: plus/minus 0.5 dB at plus 7 to minus 120 dBm
Level accuracy 2 GHz to 3 GHz: plus/minus 0.9 dB
Level accuracy 3 GHz to 4 GHz: plus/minus 0.9 dB
Attenuator hold range 250 kHz to 1 GHz: 23 dB standard

Specifications

PARAMETER	VALUE
Attenuator hold range 1 to 3 GHz	20 dB standard
Attenuator hold range 3 to 4 GHz	17 dB standard
Amplitude switching without power search	less than 30 ms typical
Reverse power protection to 2 GHz	50 W
Reverse power protection 2 to 4 GHz	25 W
Max DC voltage at output	50 V
SWR typical 250 kHz to 1 GHz	less than 1.5:1
Output impedance	50 ohms

SSB phase noise 500 MHz 20 kHz offset: less than -120 dBc/Hz typical
SSB phase noise 1 GHz 20 kHz offset: less than -116 dBc/Hz typical
SSB phase noise 2 GHz 20 kHz offset: less than -110 dBc/Hz typical

Specifications

PARAMETER	VALUE
Harmonics at plus 4 dBm	less than -30 dBc typical
Nonharmonics 250 kHz to 250 MHz	less than -65 dBc above 3 kHz offset
Modulation	AM; FM; phase; pulse; wideband FM
Sweep dwell time	2 ms to 60 s
Sweep points	2 to 401
Internal reference aging standard	less than plus/minus 2 ppm per year

Option 1E5 aging: less than plus/minus 0.1 ppm per year typical

Remote control: GPIB

Related digital sibling: E4433A ESG-D 4 GHz

Notes

Specs from Agilent ESG-A/ESG-D family datasheet 5965-3096E for E4422B/E4422A class 4 GHz analog models.
Confirm Option 1E5, attenuator type, and installed modulation options on the unit.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.