

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E4422B

The Keysight (Agilent) E4422B is an ESG-A Series analog RF signal generator offering a frequency range of 250 kHz to 4.0 GHz. Designed for demanding receiver test, component test, and local oscillator applications, it delivers excellent frequency and level control, superior level accuracy, wide analog modulation capabilities, and flexible upgrade paths.

SPECIFICATIONS

Frequency

Minimum Frequency	250 kHz Hz
Maximum Frequency	4 GHz Hz
Frequency Resolution	0.01 Hz

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	-136 to +13 dBm

Modulation

Modulation	AM, FM, Phase Modulation (Φ M), Pulse Modulation
Sweep Modes	Step sweep (frequency, power, and list)

General

Reference Oscillator	10 MHz
Interfaces	GPIO, RS-232

Frequency Specifications

Frequency Range	250 kHz to 4.0 GHz
Frequency Switching Speed (Analog)	< 45 ms (typically < 30 ms)
External Reference Input Frequency	1, 2, 5, 10 MHz ($\pm$ 10 ppm)

Amplitude & Output Power

Amplitude Resolution	0.02 dB
RF Output Impedance	50 ohms

Spectral Purity

Harmonics (output $\leq$ +4 dBm)	<-30 dBc
SSB Phase Noise (at 500 MHz, 20 kHz offset)	<-122 dBc/Hz
SSB Phase Noise (at 1 GHz, 20 kHz offset)	<-116 dBc/Hz
SSB Phase Noise (at 2 GHz, 20 kHz offset)	<-110 dBc/Hz
SSB Phase Noise (at 3 GHz, 20 kHz offset)	<-104 dBc/Hz
SSB Phase Noise (at 4 GHz, 20 kHz offset)	<-104 dBc/Hz

Amplitude Modulation (AM)

AM Frequency Response (3 dB bandwidth, ALC on)	10 Hz to 10 kHz
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Pulse Modulation

Pulse Modulation On/Off Ratio	> 80 dB
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Sweep Capabilities

Number of Sweep Points (Step Sweep)	2 to 401 points
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Connectivity & Auxiliary Interfaces

RF Output Connector Type	Type-N female
GPIB Interface Port	IEEE-488.2
RS-232 Interface Port	9-pin D-sub
Reference Input Connector	BNC female
Reference Output Connector	BNC female
Sweep / Trigger Output Connector	BNC female

Power & Physical Specifications

Power Supply Voltage	90 to 254 VAC
Power Supply Frequency	50, 60, or 400 Hz

Environmental & Compliance

Operating Temperature Range	0 to 55 °C
Storage Temperature Range	-40 to 71 °C
Operating Altitude	up to 4600 meters
Recommended Calibration Cycle	24 months

Internal Modulation Generator

Internal Modulation Waveforms	Sine, triangle, square, ramp, noise
Internal Modulation Frequency Range (Sine)	0.1 Hz to 50 kHz
Internal Modulation Frequency Range (Triangle/Square/Ramp)	0.1 Hz to 10 kHz
Internal Modulation Frequency Resolution	0.1 Hz
Internal Modulation Frequency Accuracy	Same as reference oscillator

Options & Configurations

Option 1EM Connector Configuration	Moves all front panel connectors to the rear panel
Option 1CP Rackmount Kit	Rackmount kit with handles

Internal Modulation Source

LF Output Impedance	50 ohms (nominal)
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Amplitude

Level Accuracy (<= 2 GHz, -120 to +7 dBm)	±0.5 dB
Level Accuracy (> 2 to 4 GHz, -120 to +7 dBm)	±0.9 dB
Level Accuracy (<= 2 GHz, -127 to -120 dBm)	±0.9 dB
Level Accuracy (> 2 to 4 GHz, -127 to -120 dBm)	±1.5 dB

Phase Modulation

Maximum Phase Deviation (normal bandwidth mode, > 250 to 500 MHz)	45 rad
Maximum Phase Deviation (normal bandwidth mode, > 500 MHz to 1 GHz)	90 rad
Maximum Phase Deviation (normal bandwidth mode, > 1 to 2 GHz)	180 rad
Maximum Phase Deviation (normal bandwidth mode, > 2 to 4 GHz)	360 rad
Maximum Phase Deviation (high bandwidth mode, <= 250 MHz)	9 rad
Maximum Phase Deviation (high bandwidth mode, > 250 to 500 MHz)	4.5 rad
Maximum Phase Deviation (high bandwidth mode, > 500 MHz to 1 GHz)	9 rad
Maximum Phase Deviation (high bandwidth mode, > 1 to 2 GHz)	18 rad
Maximum Phase Deviation (high bandwidth mode, > 2 to 4 GHz)	36 rad

Option UNB Specs

Option UNB Maximum Output Power (3 GHz to 4 GHz)	+13 dBm
Attenuator Type (Standard)	Electronic
Attenuator Type (Option UNB)	Mechanical

TECHNOLOGY

Analog RF Signal Generator

APPLICATIONS

Receiver test, component test, and local oscillator applications

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.