

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E4435B

The Keysight (Agilent) E4435B is a 2 GHz RF vector signal generator from the ESG-DP Series. It offers excellent spectral purity and advanced digital modulation capabilities, making it a highly reliable and versatile standard for general-purpose research and development, troubleshooting, and manufacturing applications.

SPECIFICATIONS

Frequency

Minimum Frequency	250 kHz Hz
Maximum Frequency	2 GHz Hz
Frequency Resolution	0.01 Hz
Residual FM	< 1 Hz RMS (at 1 GHz carrier, 300 Hz - 3 kHz bandwidth, CCITT)
Number of Frequency Bands	4 bands (250 kHz to 250 MHz, 250 to 500 MHz, 500 to 1000 MHz, 1000 to 2000 MHz)

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	-136 to +13 dBm
Phase Noise	<-134 dBc/Hz at 20 kHz offset, 1 GHz carrier

Modulation

Modulation	AM, FM, Phase Modulation, Pulse Modulation, Custom Digital Modulation (FSK, MSK, PSK, QAM)
Sweep Modes	Step sweep (frequency and power), List sweep (frequency and power)
External Modulation Inputs	EXT 1 (AC/DC coupled), EXT 2 (AC/DC coupled)
External Modulation Input Sensitivity	1 Vpeak for indicated deviation
I/Q Input Impedance	50 ohms

General

Reference Oscillator	High-stability ovenized crystal oscillator (OCXO)
Interfaces	GPIB, RS-232
Display	LCD graphic display
Recommended Calibration Cycle	24 months

Physical

Power Supply	90 to 254 VAC, 47 to 440 Hz
Dimensions (W×H×D)	133 mm H × 426 mm W × 432 mm D mm
Weight	13.5 kg kg

Frequency Specifications

Frequency Range	250 kHz to 2 GHz
Frequency Switching Speed	< 9 ms (typical)
Temperature Stability	< 1×10^{-8} (0 to 55 °C)
External Reference Input Frequency	1, 2, 5, 10 MHz (± 10 ppm)
External Reference Input Level	-3.5 to +20 dBm

Output Power and Amplitude

Amplitude Range	-136 to +13 dBm
Amplitude Resolution	0.02 dB
Output Impedance	50 ohms nominal
Voltage Standing Wave Ratio (VSWR)	< 1.5:1
Maximum Reverse Power	50 W (DC to 2 GHz)

Spectral Purity

SSB Phase Noise at 20 kHz Offset	<-134 dBc/Hz (at 1 GHz carrier)
Harmonics	<-30 dBc (at levels < +4 dBm)

Analog Modulation

FM Rate (3 dB Bandwidth)	DC to 100 kHz (DC-coupled), 20 Hz to 100 kHz (AC-coupled)
FM Distortion	< 1% (at 100 kHz deviation, 1 kHz rate)
AM Depth Range	0 to 100%
AM Rate (3 dB Bandwidth)	DC to 10 kHz (DC-coupled), 10 Hz to 10 kHz (AC-coupled)
AM Distortion	< 1.5% (at 30% depth, 1 kHz rate)
Phase Modulation (Φ M) Maximum Deviation	N x 90 rad
Phase Modulation Rate	DC to 100 kHz
Pulse Modulation On/Off Ratio	> 80 dB
Pulse Rise/Fall Time	< 150 ns
Minimum Pulse Width	2 μ s

Vector and Digital Modulation

I/Q Modulation Bandwidth	10 MHz (External I or Q, 1 dB BW)
Baseband Generator Sample Rate	40 MHz (with dual ARB option)
Baseband Generator Resolution	14-bit
Baseband Waveform Playback Memory	1 Msample (4 MB)
Baseband Waveform Storage Memory	1 Msample (4 MB)

Sweep Capabilities

Dwell Time Range	2 ms to 60 s
Number of Step Points	2 to 401 (step sweep)

Connectivity and Interfaces

RF Output Connector Type	Type-N female
GPIB Interface	IEEE-488.2
RS-232 Interface	DB-9 male
I/Q Input Connectors	BNC female (front panel)
10 MHz Reference Input/Output	BNC female (rear panel)

Physical and Environmental

Operating Temperature Range	0 to 55 °C
Storage Temperature Range	-40 to 71 °C
Relative Humidity Range	Up to 95% at 40 °C
Power Requirements	90 to 254 VAC, 47 to 440 Hz
Power Consumption	< 250 W

Compliance and Safety

Electromagnetic Compatibility (EMC)	Conforms to EN 55011 Class A, EN 50082-1
Safety Standards Compliance	CSA C22.2 No. 1010.1, EN 61010-1

Internal Modulation Source (LF Generator)

LF Generator Waveforms	Sine, square, triangle, ramp, noise, dual-sine, swept-sine
LF Generator Frequency Range (Sine)	0.1 Hz - 50 kHz
LF Generator Frequency Range (Other Waveforms)	0.1 Hz - 10 kHz (square, triangle, ramp)
LF Generator Frequency Resolution	0.1 Hz
LF Generator Output Impedance	50 Ω (nominal)

Phase

Phase Offset Resolution	0.1°
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Modulation Inputs

External Modulation Input Impedance	50 Ω or 600 Ω (nominal, selectable)
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Sweep & Trigger

Sweep Trigger Modes	Auto, External, Single, GPIB
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Memory

Save/Recall Registers	100 registers (10 sequences of 10 registers)
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Environmental

Maximum Operating Altitude	4,600 m (15,000 ft)
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User Interface

Display Resolution	320 x 240 pixels
Display Type	Monochrome LCD with backlighting

RF Output

Attenuator Type	Electronic
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Control & Programming

Command Emulation Compatibility	HP 8648A/B/C/D, HP 8656B, HP 8657A/B/D
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Low Frequency (LF) Generator

LF Generator Frequency Accuracy	Same as reference oscillator
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Connectivity

Auxiliary I/O Connector	37-pin D-sub
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Sweep

Sweep Trigger Sources	Free run, Trigger key, External, GPIB/bus
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TECHNOLOGY

RF Vector Signal Generator

APPLICATIONS

General-purpose R&D, manufacturing, and RF troubleshooting

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