

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8561A

The Keysight Agilent HP 8561A is a high-performance portable RF spectrum analyzer designed for analyzing signals over a frequency range of 1 kHz to 6.5 GHz. Known for its durability and laboratory-grade performance in a portable form factor, the 8561A is ideal for field service, manufacturing, and research and development environments. It features outstanding frequency accuracy, dynamic range, and spectral purity.

SPECIFICATIONS

General

Interfaces	HP-IB (GPIB)
Display	Monochrome CRT

Physical

Power Supply	90 to 140 V AC (47 to 440 Hz), 195 to 250 V AC (47 to 66 Hz); <170 W power consumption
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	337 mm × 187 mm × 461 mm mm

Frequency Specifications

Frequency Range	1 kHz to 6.5 GHz
Frequency Span Range	0 Hz, 100 Hz to 6.5 GHz
Counter Resolution	10 Hz to 1 MHz (selectable)
Residual FM	< 10 Hz p-p in 20 ms
Spectral Purity	< (-100 + 20 Log n) dBc/Hz at 30 kHz offset

Bandwidth (RBW/VBW)

Resolution Bandwidth (RBW) Range	10 Hz to 1 MHz (in 1, 3, 10 sequence), and 2 MHz
Video Bandwidth (VBW) Range	1 Hz to 3 MHz

Amplitude & Measurement Range

Amplitude Range	displayed average noise level to +30 dBm
Dynamic Range	125 dB
Maximum Safe Input RF Power	+30 dBm (1 Watt)
Input Attenuator Range	0 to 70 dB
Input Attenuator Steps	10 dB

Inputs, Outputs & Connectivity

RF Input Connector Type	Type-N, female
RF Input Impedance	50 ohms (nominal)

Sweep & Trigger Specifications

Sweep Time Range (Span > 0 Hz)	50 ms to 100 s
Sweep Time Range (Zero Span)	50 μ s to 100 s

Physical & Environmental Specifications

Storage Temperature Range	-40 to +75 °C
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Signal Outputs

Calibrator Output Frequency	300 MHz
Calibrator Output Amplitude	-20 dBm

Performance

Displayed Average Noise Level (DANL)	$\leq$ -130 dBm (10 MHz to 2.9 GHz, 10 Hz RBW)
Phase Noise	$\leq$ -100 dBc/Hz @ 30 kHz offset (1 GHz carrier)
1 dB Gain Compression	$\geq$ -5 dBm (10 MHz to 2.9 GHz at mixer)
Second Harmonic Distortion	$\leq$ -70 dBc (10 MHz to 2.9 GHz, -40 dBm mixer level)
First IF Frequency	3.9107 GHz (for 1 kHz to 2.9 GHz band)
Second IF Frequency	310.7 MHz
Third IF Frequency	10.7 MHz
RBW Shape Factor (60 dB to 3 dB ratio)	$<$ 15:1 (for 300 Hz to 2 MHz RBW); $<$ 5:1 (for 10 Hz to 100 Hz RBW)
Log Scale Display Divisions	10 divisions (1, 2, 5, 10 dB/division)
Demodulation	AM and FM (internal speaker and phone jack)

Triggering

Sweep Trigger Modes	Free Run, Line, Single, Video, External
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Inputs & Outputs

IF Output (310.7 MHz)	BNC female, -20 to -10 dBm (nominal)
Video Output	BNC female, 0 to 1 V (nominal, open circuit)
Sweep Output	BNC female, 0 to 10 V (nominal, ramp)
External Reference Input	10 MHz, BNC female, -2 to +10 dBm

Environmental

Ruggedness Compliance	Designed to meet MIL-T-28800D, Type III, Class 3, Style C
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TECHNOLOGY

Superheterodyne Spectrum Analysis

APPLICATIONS

RF testing, spectral analysis, transmitter troubleshooting, field maintenance

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