

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8563E

The Keysight (Agilent/HP) 8563E is a high-performance portable microwave spectrum analyzer providing continuous frequency coverage from 9 kHz to 26.5 GHz (or 30 Hz to 26.5 GHz with Option 006). Built to MIL-T-28800 specifications for harsh environments, it combines synthesized tuning, precision timebase, and wide dynamic range into a rugged form factor. The unit features fast digital resolution bandwidths down to 1 Hz, preselection from 2.75 GHz upwards, and built-in standard measurement functions including adjacent channel power and time-gated analysis.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488)
Display	CRT
Standard Measurements	Adjacent channel power, channel power, carrier power, occupied bandwidth, time-gated measurements
Warm-up Time	5 minutes (for frequency reference stability)

Physical

Operating Temperature	-10 to +55 °C
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Frequency Specifications

Frequency Range (Standard)	9 kHz to 26.5 GHz
Frequency Range (Option 006)	30 Hz to 26.5 GHz
Preselected Frequency Range	2.75 GHz to 26.5 GHz
Frequency Band Breakdown	0 to 2.9 GHz, 2.75 to 6.46 GHz, 5.86 to 13.0 GHz, 12.4 to 19.7 GHz, 19.1 to 26.5 GHz
Frequency Reference Aging Rate	$\pm 1 \times 10^{-7}$ / year
Frequency Reference Temperature Stability	$\pm 1 \times 10^{-8}$ (-10 to +55 °C)
Span Range	0 Hz (Zero Span), 100 Hz to 26.5 GHz
Sweep Time Range (Zero Span)	50 μ s to 6000 s
Sweep Time Range (Span > 0 Hz)	50 ms to 100 s
Sweep Time Accuracy	$\pm 10\%$
Resolution Bandwidth (RBW) Range	1 Hz to 2 MHz (1, 3, 10 sequence)
Digital Resolution Bandwidths	1, 3, 10, 30, 100 Hz
Video Bandwidth (VBW) Range	1 Hz to 3 MHz (1, 3, 10 sequence)
Frequency Counter Resolution	1 Hz

Amplitude Specifications

Amplitude Measurement Range	DANL to +30 dBm
Maximum Safe Input (Continuous Power)	+30 dBm (1 W)
Maximum Safe Input (DC Voltage)	0 Vdc
Displayed Average Noise Level (DANL)	≤ -149 dBm (10 MHz to 2.9 GHz, 1 Hz RBW)
1 dB Gain Compression Point	-5 dBm (10 MHz to 2.9 GHz)
Display Range (Log Scale)	10 to 100 dB (1 to 10 dB/div)
Display Range (Linear Scale)	10 divisions
Reference Level Range	-119.9 to +30 dBm
Input Attenuator Range	0 to 70 dB
Input Attenuator Step Size	10 dB

Dynamic Range and Spectral Purity

Phase Noise (at 10 kHz offset)	≤ -113 dBc/Hz (at 1 GHz)
Phase Noise (at 30 kHz offset)	≤ -113 dBc/Hz (at 1 GHz)
Third Order Intercept (TOI)	$> +15$ dBm (10 MHz to 2.9 GHz)
Residual Responses	≤ -90 dBm (≥ 200 kHz, 0 dB attenuation)

Inputs and Outputs

RF Input Connector	APC-3.5 mm (male)
RF Input Impedance	50 Ω (nominal)
External Reference Input	10 MHz
Sweep Output	0 to +10 V (nominal)
Video Output	0 to +1 V (nominal)

Environmental and Compliance

Shock and Vibration Profile	MIL-T-28800 rugged
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Inputs & Outputs

Calibrator Signal	300 MHz, -10 dBm
Calibration Output Connector	BNC (female)
Probe Power	+15 Vdc, -12.6 Vdc (150 mA max)
10 MHz Reference Output	> 0 dBm into 50 Ω , BNC (female)
External Trigger Input	TTL levels, rear panel BNC (female)
Earphone Output	1/8 inch (3.5 mm) front-panel jack

Sweep & Trigger

Sweep Trigger Modes	Free run, line, video, external
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Features

Audio Demodulation	AM / FM (with built-in speaker and headphone jack)
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Amplitude & Resolution

RBW Selectivity (Analog Filters)	< 15:1 (60 dB / 3 dB ratio for 300 Hz to 2 MHz)
RBW Selectivity (Digital Filters)	< 5:1 (60 dB / 3 dB ratio for 1 Hz to 100 Hz)
Log Scale Divisions	1, 2, 5, and 10 dB/div

Amplitude

Amplitude Detectors	Normal (Rosenfell), Positive Peak, Negative Peak, Sample
Amplitude Units	dBm, dBmV, dBμV, Volts, Watts

Options

Option 001	Second IF Output (310.7 MHz), rear panel BNC
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Environmental & Physical

Environmental Profile	Meets MIL-T-28800 Type III, Class 3, Style C
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Compliance

EMI / RFI Compliance	Meets CISPR 11 and MIL-STD-461C
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TECHNOLOGY

Superheterodyne Spectrum Analyzer

APPLICATIONS

Microwave Analysis, Phase Noise Measurement, Digital Radio, Field and Bench RF Testing

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