

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8590B

The Keysight (Agilent/HP) 8590B is a portable, high-performance RF spectrum analyzer designed for easy RF and microwave signal analysis over a 9 kHz to 1.8 GHz frequency range.

SPECIFICATIONS

General

Interfaces	GPIB (HP-IB) or RS-232 (option dependent)
Display	Monochrome CRT with internal graticule
Power Consumption	150 VA max
Warm-up Time	2 hours
Internal Storage Capacity	Up to 50 state or trace registers

Physical

Power Supply	86 to 127 V AC / 195 to 253 V AC, 47 to 66 Hz, < 150 VA
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	325 mm × 163 mm × 461 mm mm
Weight	13.6 kg kg

Frequency Specifications

Frequency Range	9 kHz to 1.8 GHz
Frequency Span Range	0 Hz (zero span), 50 kHz to 1.8 GHz
Frequency Readout Accuracy	±(5 MHz + 1% of span)
Resolution Bandwidth (RBW) Range	1 kHz to 3 MHz (1, 3, 10 sequence)
Video Bandwidth (VBW) Range	30 Hz to 1 MHz (1, 3, 10 sequence)

Amplitude Specifications

Amplitude Measurement Range	-115 dBm to +30 dBm
Maximum Safe RF Input Level (Continuous Power)	+30 dBm (1 W) continuous
Maximum Safe DC Input Voltage	25 V DC (50 Ω input)
Displayed Average Noise Level (DANL)	-115 dBm (at 1 kHz RBW, 0 dB attenuation)
Input Attenuator Range	0 to 70 dB in 10 dB steps
Reference Level Range	-115 dBm to +30 dBm
Display Scale Fidelity (Log)	±1.5 dB over 0 to -70 dB from reference level
Display Scale Fidelity (Linear)	±3% of reference level

Sweep and Triggering

Sweep Time Range (Span > 0 Hz)	20 ms to 100 s
Sweep Time Range (Zero Span)	20 μ s to 100 s
Sweep Trigger Sources	Free Run, Single, Line, Video, External

Inputs and Outputs

RF Input Connector Type	BNC Female, 50 Ω (standard) / 75 Ω (Option 001)
RF Input Impedance	50 Ω (standard), 75 Ω (Option 001)
Calibrator Output (Cal Out) Connector	BNC Female
Calibrator Output (Cal Out) Frequency	300 MHz
Calibrator Output (Cal Out) Amplitude	-20 dBm
1st LO Output Connector	BNC Female, 50 Ω
Sweep Output Connector	BNC Female
Auxiliary Video Output Connector	BNC Female
External Trigger Input Connector	BNC Female

Connectivity and Interfaces

Direct Print / Plot Output	Supported via HP-GL compatible printers and plotters
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Display, Control, and Memory

Trace Functions	Max Hold, Min Hold, Clear Write, View
Marker Functions	Marker to Center Frequency, Marker to Reference Level, Delta Marker, Peak Search

Environmental and Safety Compliance

Storage Temperature Range	-40 $^{\circ}$ C to +75 $^{\circ}$ C
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Power and Physical Characteristics

Form Factor	Portable / Benchtop
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Frequency

Frequency Drift	< 50 kHz / 5 minutes (after 2 hour warm-up)
Noise Sidebands	<-95 dBc/Hz @ 30 kHz offset
Standard Frequency Reference Aging Rate	$\pm 2.0 \times 10^{-6}$ / year
Standard Frequency Reference Temperature Stability	$\pm 5.0 \times 10^{-6}$
Precision Frequency Reference (Option 004) Aging Rate	$\pm 1.0 \times 10^{-7}$ / year
Precision Frequency Reference (Option 004) Temperature Stability	$\pm 1.0 \times 10^{-6}$

Amplitude

Gain Compression	< 0.5 dB for -10 dBm input (at 0 dB attenuation)
Second Harmonic Distortion	<-70 dBc for a -40 dBm input signal
Third-Order Intermodulation Distortion	<-70 dBc for two -30 dBm input signals
Frequency Response (Flatness)	±1.0 dB
Input Attenuator Step Size	10 dB
Log Scale Settings	1, 2, 5, 10 dB / division

Options

Option 001 Input Impedance	75 ohms (Option 001 dependent)
Option 001 RF Input Connector	BNC female (75 ohms) (Option 001 dependent)
Option 001 Frequency Range	1 MHz to 1.8 GHz (Option 001 dependent)
Option 010 Tracking Generator Frequency Range	100 kHz to 1.8 GHz (Option 010 dependent)
Option 010 Tracking Generator Output Level Range	-1 dBm to -66 dBm (Option 010 dependent)
Option 010 Tracking Generator Vernier Range	10 dB (Option 010 dependent)
Option 010 Tracking Generator Output Flatness	±1.5 dB (Option 010 dependent)
Option 101 Resolution Bandwidth	Adds 300 Hz RBW and fast sweep down to 20 µs
Option 021 Interface	Adds HP-IB (GPIB) interface for remote programming
Option 023 Interface	Adds RS-232 interface for remote programming

Sweep

Sweep Time Accuracy	±10%
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TECHNOLOGY

Superheterodyne Spectrum Analysis

APPLICATIONS

RF Analysis, Signal Testing, Lab Calibration, Spectrum Monitoring

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