

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8594E

The Keysight Technologies (formerly Agilent, HP) 8594E is a portable RF spectrum analyzer from the 8590E Series, designed for a wide range of measurement applications with its comprehensive features and optional capabilities. It offers a frequency range from 9 kHz to 2.9 GHz, making it suitable for various RF testing scenarios.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), RS-232, Printer (Centronics parallel), Video Out (BNC)
Display	Monochrome LCD (Color LCD optional)
Warm-up Time	30 minutes (for rated accuracy)

Physical

Power Supply	90 - 264 VAC, 47 - 440 Hz
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	320 mm (W) × 186 mm (H) × 427 mm (D) mm
Weight	15.5 kg (typical) kg

General Specifications

Model Number	8594E
Product Series	8590E Series
Instrument Type	Portable Spectrum Analyzer
Key Features	Easy-to-use, Measurement personalities, Four slot cardcage, Split screen display, One-button measurement routines, Advanced measurement functions, Dual interfaces
Measurement Applications	Cable TV/Broadcast, Component test, Electromagnetic compatibility (EMC), Lightwave, Wireless communications

Frequency Specifications

Frequency Range	9 kHz to 2.9 GHz
Frequency Reference Aging Rate	±2 ppm/year (standard)
Resolution Bandwidth (RBW) Range	1 kHz to 3 MHz (in 1-3-10 sequence), 10 Hz to 3 MHz (with Option 101)
Video Bandwidth (VBW) Range	1 Hz to 3 MHz (in 1-3-10 sequence)
Minimum Span	0 Hz (Zero Span)
Maximum Span	2.9 GHz (Full Span)
Phase Noise (10 kHz offset)	-95 dBc/Hz (at 1 GHz)

Amplitude Specifications

Amplitude Measurement Range	DANL to +30 dBm
Maximum Safe Input Level (Average)	+30 dBm
Maximum Safe Input Level (Peak)	+50 dBm (with ≥ 10 dB attenuation)
Input Attenuator Range	0 to 70 dB
Input Attenuator Step Size	10 dB
Displayed Average Noise Level (DANL) (Preamp Off)	-105 dBm (1 GHz, 100 Hz RBW)
Displayed Average Noise Level (DANL) (Preamp On)	-120 dBm (1 GHz, 100 Hz RBW, with Option 101)
Overall Amplitude Accuracy	± 2.0 dB (at 1 GHz)
Third Order Intercept (TOI)	+10 dBm (typical)

Sweep Specifications

Sweep Trigger Modes	Free Run, Video, External, Line
Sweep Trigger Source	Internal, External, Line, Video
Number of Sweep Points	401
Trace Detectors	Normal, Peak, Sample, Negative Peak
Trace Functions	Max Hold, Min Hold, View, Blank, Clear Write, Average

Marker Functions

Number of Markers	4
Marker Types	Normal, Delta, Peak Search, Next Peak, Band Power, Frequency Counter, Noise Marker, N dB Down

Input/Output

RF Input Connector Type	Type N female
RF Input Impedance	50 ohms
10 MHz Reference Output	BNC
External Trigger Input	BNC

Display Characteristics

Display Resolution	401 x 201 pixels
Display Size (Diagonal)	7 inches
Number of Traces	4
Trace Memory Depth	4 traces

Power Requirements

AC Input Voltage Range	90 to 264 VAC
AC Input Frequency Range	47 to 440 Hz
Power Consumption (Operating)	250 VA (typical)

Environmental Conditions

Storage Temperature Range	-40 to 75 °C
Operating Humidity Range	5% to 95% RH, non-condensing at 40 °C
Operating Altitude	Up to 4,572 m (15,000 ft)

Physical Characteristics

Rack Mountable	Yes (with optional kit)
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Optional Features

Tracking Generator	Optional (e.g., Option 010)
Preamplifier	Optional (e.g., Option 101 for Narrow RBW and Preamp)
Measurement Personalities	Supported and Downloadable

Connectivity

Remote Control Interface	GPIO (IEEE 488.2 compatible)
Video Output	Composite Video (BNC)
Printer Interface	Centronics parallel

Control

Programming Language	SCPI (Standard Commands for Programmable Instruments)
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Sweep Characteristics

Minimum Sweep Time	20 ms (full span)
Maximum Sweep Time	1000 s

Calibration

Calibration Output Frequency	50 MHz
Calibration Output Amplitude	-20 dBm (nominal)

Compliance

Safety Compliance	IEC 1010-1 / EN 61010-1
EMC Compliance	EN 50082-1, EN 55011 Group 1 Class A

Frequency Characteristics

Frequency Counter Resolution	10 Hz / 100 Hz / 1 kHz
Frequency Counter Accuracy	"> ±(marker frequency x frequency reference accuracy + counter resolution)

Amplitude Characteristics

Amplitude Flatness	±1.0 dB (±0.5 dB with Opt. 004/007 preamplifier)
Image Rejection	>70 dB
Non-Harmonic Spurious	<-90 dBc (input signal < -30 dBm)
1 dB Compression Point	+7 dBm (Input Attenuator ≥10 dB); -10 dBm (Preamp On)

Resolution Bandwidth

RBW Shape Factor (60 dB/3 dB)	<11:1
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Display & Controls

Reference Level Resolution	0.1 dB
Log Scale Resolution	10, 5, 2, 1, 0.5, 0.2, 0.1 dB/div

Memory

Setup Storage	10 setups
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TECHNOLOGY

RF Spectrum Analysis

APPLICATIONS

RF Test and Measurement, Wireless Communications, Cable TV/Broadcast, Component Test, EMC, Lightwave

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