KEYSIGHT TECHNOLOGIES (AGILENT HP)

8566B

The Keysight (Agilent/HP) 8566B is a legendary high-performance spectrum analyzer spanning a frequency range from 100 Hz to 22 GHz, with extension capabilities up to 325 GHz via external mixers. Renowned for its exceptional frequency stability, synthesizer accuracy, and high sensitivity, the 8566B is designed for both benchtop research and automated test equipment (ATE) system applications.

SPECIFICATIONS

General

Interfaces	HP-IB (GPIB) standard
Display	Built-in CRT (part of HP 85662A IF-Display section) with digital vector graphics
System Components	HP 85660B RF Section and HP 85662A IF-Display Section

Physical

Power Supply	100 / 120 / 220 / 240 VAC (+11% / -10%), 48 to 66 Hz (Option 400 adds 400 Hz), 650 VA maximum
Operating Temperature	0 to 55 °C °C

Frequency Specifications

Frequency Range (Internal Mixer)	100 Hz to 22 GHz (preselected 2.0 GHz to 22 GHz)
Frequency Reference Aging Rate	< 1 × 10^-9 per day (after 30 days of continuous operation)
Frequency Span Range	0 Hz (zero span), 100 Hz to 22 GHz

Bandwidth (RBW/VBW)

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

Amplitude and Noise Specifications

Amplitude Measurement Range	-134 dBm to +30 dBm
Maximum Safe Input Level (Continuous Wave AC)	+30 dBm (1 Watt) with ≥ 10 dB input attenuation
Maximum Safe Input Level (DC Voltage)	0 VDC (DC coupled input)
Displayed Average Noise Level (DANL) @ 1 GHz	< -134 dBm (10 Hz RBW, 0 dB attenuation)
Input Attenuator Range	0 dB to 70 dB
Input Attenuator Step Size	10 dB
1 dB Compression Point (100 Hz to 5.8 GHz)	-10 dBm at input mixer
1 dB Compression Point (2.0 GHz to 22 GHz)	-5 dBm at input mixer
Second Harmonic Distortion (2.0 GHz to 22 GHz)	< -100 dBc (for -10 dBm mixer level, preselected)
Input SWR (VSWR) 5.8 GHz to 22 GHz	< 1.9:1 (with ≥ 10 dB attenuation)
Scale Fidelity (Linear)	±3% of reference level

Sweep and Triggering

Sweep Time Range (Span > 0 Hz)	20 ms to 1500 s

Inputs and Outputs (Front and Rear Panel)

RF Input Impedance	50 Ω
Calibrator Output Amplitude and Frequency	-10 dBm, 100 MHz
External Mixer Port (IF Input)	SMA female, 321.4 MHz
1st LO Output Port	SMA female, 2 to 6.2 GHz
IF Output Frequency and Impedance	21.4 MHz (50 Ω) and 321.4 MHz (50 Ω)
Display Outputs	X, Y, Z BNC outputs (rear panel) for external monitors

Power and Physical Specifications

Chassis Form Factor	System configuration comprises 85660B RF Section and 85662A IF-Display Section

Factory Options and Configurations

Option 400	Power Line Frequency Adaptation (allows 400 Hz operation)
Option 908	Rackmount Flange Kit

Frequency

Internal YIG-Tuned Preselector Range	2.0 GHz to 22.0 GHz
1st LO Frequency Range	2.0 GHz to 6.2 GHz

Interfaces

Direct Plot Capability	Supports direct hardcopy output to HP-IB plotters (e.g., HP 7470A, HP 7475A) without a computer

Options

Option 462 Description	Provides 6 dB resolution bandwidths (9 kHz and 120 kHz) for EMI measurements

Performance

LO Emission at RF Input	<-80 dBm (100 Hz to 2.5 GHz); <-10 dBm (2.0 to 22 GHz) with 0 dB RF attenuation
Maximum Safe Pulsed RF Input	+50 dBm (100 W) for pulse width < 10 µs and duty cycle < 1% (with ≥10 dB RF attenuation)
Image and Multiple Spurious Responses	<-70 dBc (2.0 to 18.6 GHz); <-60 dBc (18.6 to 22.0 GHz)

Display

On-Screen Dynamic Range	90 dB
Log Scale Display Range	1, 2, 5, 10 dB/division

Inputs & Outputs

Probe Power	+15 Vdc, -12.6 Vdc; 150 mA max

TECHNOLOGY

Superheterodyne Spectrum Analyzer with YIG-tuned Preselection

APPLICATIONS

RF and Microwave Spectrum Analysis, Electromagnetic Compatibility (EMC) Testing, Broadband Signal Surveillance