

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8517B

The Keysight (Agilent HP) 8517B is an S-parameter test set designed for the 8510 Series microwave network analyzer system. Operating over a wide frequency range of 45 MHz to 50 GHz, it features a four-channel architecture with separate reference channels for each incident port and incorporates a fast electronic RF switch. It provides integrated external bias tees for active device testing, and options for built-in step attenuators or a high dynamic range configuration.

SPECIFICATIONS

General

Interfaces	8510 Test Set Interconnect (controlled by 8510 VNA system)
Display	None (status LEDs only)

Physical

Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425 mm × 133 mm × 508 mm mm
Weight	16 kg kg

Frequency and Port Configuration

Frequency Range	45 MHz to 50 GHz
Number of Ports	2
Test Port Connector Type	2.4 mm (male)
Impedance	50 Ω
RF Switch Type	Built-in electronic switch
Reference Channel Architecture	Separate reference channel for each incident port (4-channel)
RF Input Connector Type	2.4 mm (female) (rear panel)
LO Input Connector Type	2.4 mm (female) (rear panel)

Measurement Performance & Accuracy

Uncorrected Directivity (0.045 to 2 GHz)	>33 dB
Uncorrected Directivity (2 to 20 GHz)	>23 dB
Uncorrected Directivity (20 to 40 GHz)	>16 dB
Uncorrected Directivity (40 to 50 GHz)	>14 dB
Uncorrected Source Match (0.045 to 2 GHz)	>14 dB
Uncorrected Source Match (2 to 20 GHz)	>15 dB
Uncorrected Source Match (20 to 40 GHz)	>12 dB
Uncorrected Source Match (40 to 50 GHz)	>10 dB
Uncorrected Load Match (0.045 to 2 GHz)	>14 dB
Uncorrected Load Match (2 to 20 GHz)	>15 dB
Uncorrected Load Match (20 to 40 GHz)	>12 dB
Uncorrected Load Match (40 to 50 GHz)	>10 dB

Signal Control & Leveling

Test Port Attenuator Range	60 dB (with Option 005)
Test Port Attenuator Step Size	10 dB (with Option 005)
High Dynamic Range Configuration	Available as Option 007
External Bias Tee Max Voltage	40 V
External Bias Tee Max Current	500 mA

System Connectivity & Interfaces

Test Set Interconnect Port	Rear-panel multi-pin connector
Bias Port Connectors	BNC (female) (rear panel)

Physical & Mechanical Specifications

Form Factor	Cabinet / Rackmount
Rack Unit Height	3U

Power and Environmental Requirements

Cooling Method	Internal fan
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System Dynamic Range (with HP 8510C)

Dynamic Range (0.045 to 2 GHz)	73 dB (standard) / 71 dB (Option 005) @ 10 Hz IF BW
Dynamic Range (2 to 20 GHz)	80 dB (standard) / 78 dB (Option 005) @ 10 Hz IF BW
Dynamic Range (20 to 40 GHz)	71 dB (standard) / 68 dB (Option 005) @ 10 Hz IF BW
Dynamic Range (40 to 50 GHz)	Dynamic Range (40 to 50 GHz) = 71 dB (standard) / 69 dB (Option 005) @ 10 Hz IF BW

Test Port Output Power

Nominal Port Power (0.045 to 2 GHz)	-9 dBm (standard) / -11 dBm (Option 005)
Nominal Port Power (2 to 20 GHz)	-9 dBm (standard) / -11 dBm (Option 005)
Nominal Port Power (20 to 40 GHz)	-14 dBm (standard) / -17 dBm (Option 005)
Nominal Port Power (40 to 50 GHz)	-19 dBm (standard) / -21 dBm (Option 005)

Receiver Performance (with HP 8510C)

Receiver Noise Floor (0.045 to 2 GHz)	-90 dBm @ 10 Hz IF BW
Receiver Noise Floor (2 to 20 GHz)	-95 dBm @ 10 Hz IF BW
Receiver Noise Floor (20 to 40 GHz)	-95 dBm @ 10 Hz IF BW
Receiver Noise Floor (40 to 50 GHz)	-90 dBm @ 10 Hz IF BW

System Performance (with HP 8510C)

System Isolation (0.045 to 2 GHz)	100 dB
System Isolation (2 to 20 GHz)	110 dB
System Isolation (20 to 40 GHz)	100 dB
System Isolation (40 to 50 GHz)	90 dB

Power Requirements

Line Voltage	100 / 120 / 220 / 240 VAC $\pm 10\%$
Line Frequency	47 to 66 Hz
Power Consumption	130 VA maximum

Environmental

Storage Temperature Range	-40 °C to +75 °C
Operating Altitude	Up to 4,500 m
Non-Operating Altitude	Up to 15,240 m

Inputs & Outputs

RF Input Power Range	+10 dBm to +17 dBm
LO Input Power Range	+10 dBm to +17 dBm

Accessories

Recommended Calibration Kit	HP 85056A or HP 85056D (2.4 mm)
Recommended Verification Kit	HP 85057B (2.4 mm)

TECHNOLOGY

Microwave S-Parameter Measurement

APPLICATIONS

S-parameter measurement of multiport microwave components and active devices

