

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8514B

The Keysight (Agilent HP) 8514B is an S-parameter test set designed for the HP 8510 series vector network analyzers, covering a frequency range from 45 MHz to 20 GHz. It features a built-in solid-state electronic switch for fast, continuous sweeps, and a separate reference channel for each incident port to support full two-port calibrations. It also allows the application of external DC bias directly to the center conductors of the 3.5 mm test ports.

SPECIFICATIONS

General

Interfaces	HP 8510 Test Set Interconnect (proprietary multi-pin interface)
Display	None (controlled by and displays on HP 8510 series network analyzer)

Physical

Power Supply	AC line power
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425 mm × 133 mm × 508 mm mm
Weight	15.0 kg
Form Factor	3U Rackmount

RF Performance

Frequency Range	45 MHz to 20 GHz
Nominal Impedance	50 Ω
Number of Test Ports	2
Reference Channels	Separate reference channel for each incident port
RF Switch Type	Mechanical transfer switch

Connectors

Test Port Connectors	3.5 mm (male)
RF Input Connector	3.5 mm (female), rear panel
Receiver IF Outputs	None (routed through Test Set Interconnect)

DC Bias

DC Bias Inputs	2 × BNC (female), rear panel
Maximum DC Bias Voltage	40 V
Maximum DC Bias Current	500 mA
DC Bias Fusing	500 mA fast-acting, rear-panel accessible

Uncorrected System Performance

Directivity (0.045 to 8 GHz)	≥ 30 dB (uncorrected)
Directivity (8 to 20 GHz)	≥ 24 dB (uncorrected)
Source Match (0.045 to 8 GHz)	≥ 17 dB (uncorrected)
Source Match (8 to 20 GHz)	≥ 15 dB (uncorrected)
Load Match (0.045 to 8 GHz)	≥ 17 dB (uncorrected)
Load Match (8 to 20 GHz)	≥ 15 dB (uncorrected)
Port-to-Port Isolation (0.045 to 8 GHz)	≥ 110 dB
Port-to-Port Isolation (8 to 20 GHz)	≥ 100 dB

System Compatibility & Control

Compatible Network Analyzers	HP 8510A, HP 8510B, HP 8510C
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Rear Panel Connectors

Interconnect Connector	25-pin D-sub (female) for connection to HP 8510 mainframe
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Power Requirements

Power Source	AC line power
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RF Specifications

Maximum Safe RF Input Power	+20 dBm
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Options

Option 002 Step Attenuators	0 to 90 dB in 10 dB steps (option dependent)
Option 001	Adds IF switching capability for multi-test set configurations

Performance

Nominal Port 1/2 Output Power (Standard)	-2 dBm (0.045 to 8 GHz), -7 dBm (8 to 20 GHz) at +10 dBm RF input
Nominal Port 1/2 Output Power (Option 002)	-7 dBm (0.045 to 8 GHz), -14 dBm (8 to 20 GHz) at +10 dBm RF input

Environmental

Storage Temperature	-40 °C to +75 °C
Operating Humidity	Up to 95% RH at +40 °C (non-condensing)
Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,240 m (50,000 ft)

TECHNOLOGY

RF & Microwave S-Parameter Test Set

APPLICATIONS

S-Parameter Measurement & Vector Network Analysis

