

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8510C

The Keysight (formerly Agilent/HP) 8510C is a high-performance modular vector network analyzer designed for precision broadband measurements. Highly configurable, the 8510C system requires an external source and S-parameter test set, allowing it to measure magnitude, phase, and group delay of two-port networks from 45 MHz up to 110 GHz depending on the selected hardware. It features a color display, robust error-correction capabilities including TRL and LRM calibration, and optional time-domain transformation.

SPECIFICATIONS

General

Interfaces	HP-IB (GPIB), RS-232
Trigger Modes	Free run, hold, single, external

Frequency Characteristics

Frequency Range (Overall)	45 MHz to 110 GHz (configuration dependent)
Frequency Range (2.4 mm Coax)	45 MHz to 50 GHz
Frequency Range (1.0 mm Coax)	45 MHz to 110 GHz

Measurement Capabilities and Features

System Architecture	Modular (Requires external source and S-parameter test set)
Measured Parameters	Magnitude, phase, and group delay (S-parameters of two-port networks)
Measurement Resolution (Magnitude)	0.001 dB
Calibration Types	Thru-Reflect-Line (TRL), Line-Reflect-Match (LRM)
Error Correction	Real-time error-corrected measurements

Time Domain (Optional)

Time Domain Capability	Optional (Impulse or step waveform via inverse Fourier transform)
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Interfaces and Connectivity

Storage Interface	Internal 3.5-inch disk drive
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Performance

Number of Measurement Points	51, 101, 201, 401, or 801 per trace
Averaging Factor	1 to 4096 (sweep-to-sweep averaging, in powers of 2)
Measurement Channels	2 independent channels
Nominal Impedance	50 Ω

Sweep & Source Control

Sweep Modes	Ramp sweep, step sweep, single point, frequency list
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Display & Analysis

Data Presentation Formats	Log magnitude, linear magnitude, phase, polar, Smith chart, inverted Smith chart, group delay, SWR, real, imaginary
Trace Math	Vector division or subtraction of current data and memory (Data/Memory, Data-Memory)

Measurement Features

Markers	5 independent markers per channel plus 1 reference marker
Limit Testing	Arbitrary limit lines with pass/fail testing
Electrical Delay / Phase Offset	Adjustable electrical delay and phase offset for measurement plane extension

Calibration & Error Correction

Calibration Kits	Pre-defined models for standard kits and fully user-definable custom standards
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Storage

Internal Mass Storage	3.5-inch floppy disk drive (DOS formatted)
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TECHNOLOGY

Vector Network Analysis

APPLICATIONS

High-frequency component characterization, on-wafer probing, in-fixture testing, broadband two-port network analysis

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