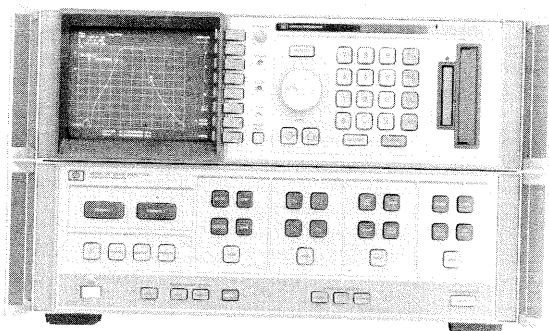


- 45 MHz to 110 GHz frequency range
- "Real Time" error-corrected measurements
- 60 dB effective directivity and source match

- 80 dB to 100 dB dynamic range
- 0.001 dB, 0.01 degree, 0.01 nanosecond measurement resolution
- Time domain analysis



HP 8510B

Description

The HP 8510 series microwave vector network analyzers provide a complete solution for characterizing the linear behavior of either active or passive networks over the 45 MHz to 40 GHz frequency range. A complete system comprises the HP 8510B network analyzer, an S-parameter test set, and a compatible RF source. For millimeter-wave measurement needs, complete systems operating to 110 GHz can be configured.

Measurement results can be displayed on one of two independent, yet identical, channels. The channels may be displayed individually, or simultaneously, with results presented in either log/linear magnitude, phase, or group delay format on rectangular or polar coordinates. Direct measurement of impedance is possible with the Smith chart format. The value and frequency of the data can be read with one of five independent markers. The entire measurement trace can be copied directly to a plotter, such as the HP 7440A, 7475A, or 7550A without the need of an external computer. Also, a list of the trace values can be sent to a printer such as the HP 2225A.

Powerful measurement enhancement functions are also available. Data averaging can be employed to narrow the effective receiver IF bandwidth, extending dynamic range and increasing signal-to-noise ratio. Trace smoothing aids in the interpretation of measurement results and is used to control the aperture of group delay measurements. The equivalent of an electronic line stretcher is available with the electrical delay function.

Built-in storage provides the capability to save and recall up to eight different front panel states, eight separate calibrations, and eight separate measurements in nonvolatile memory. Extension of the internal storage capacity is possible via the built-in tape cassette unit or an external disc drive.

High Performance

Along with the capability to completely characterize a microwave network with a single connection over the extremely broad 45 MHz to 40 GHz frequency range, the HP 8510 system offers wide dynamic range. Depending on the test set used, 80 dB to 100 dB of dynamic range is available. The precision IF processing and detection system contributes as little as ± 0.05 dB and ± 0.5 degree measurement uncertainty at a level of 50 dB below the reference. Meaningful resolutions of 0.001 dB, 0.01 degree, and 0.01 nanosecond are easily available.

"Real Time" Error Correction

The HP 8510's built-in, high speed computer provides the capability to characterize and effectively remove the impact of systematic errors through accuracy enhancement techniques. Effective directivity and source match can be improved to as much as 60 dB. The data processing speed of the system is such that a fully error-corrected, 401 point trace of data is updated in under one second. This virtual "real time" display of error-corrected data means that you can easily adjust your test device while it's being measured, with the assurance that you are viewing the data at the highest possible accuracy.

Time Domain Analysis

The HP 8510 (with option 010) has the capability of displaying the time domain response of a network, obtained by computing the Inverse Fourier Transform of the frequency domain response. The time domain response displays the reflection coefficient of the network versus time, which displays the magnitude and location of each individual discontinuity, or else the transmission coefficient versus time, which displays each individual transmission path.

RF Sources

The recommended system source for the HP 8510B is the HP 8360 synthesized sweeper. It provides 1 Hz frequency resolution, phase-locked narrowband sweeps, and fully synthesized start frequencies for broadband ramp sweeps. All HP 8360-series synthesized sweepers are compatible with the HP 8510B. However, the HP 83621A (20 GHz) and 83631A (26 GHz) models are optimized for HP 8510B system operation. Both the HP 8340-series synthesized sweeper and HP 8350B-series sweep oscillators are also compatible with the HP 8510B.

System Rack

HP 85043A System Rack Kit

The HP 85043A system rack stands 123.7 cm (48.7") high, 60 cm (23.6") wide, and 80 cm (31.5") deep. Complete with support rails and AC power distribution (suitable for 50 to 60 Hz, and 110-240 Vac), it includes rack mounting hardware for all instruments. Therman design is such that no rack fan is needed.

System Software

HP 85161A Measurement Automation Software

The HP 85161A Measurement Automation Software provides a more simplified and flexible user interface to the HP 8510B system. The program leads the operator through the measurement sequence one step at a time, from system setup and calibration, to device measurement and hardcopy output. Complete measurement configurations can be saved to disc for later recall. Also, data printout formats can be customized by the operator.

The HP 85161A software is designed for use with HP 9000 Series 200 or 300 computers and the BASIC operating system (3.0 or higher).

Ordering Information

HP 8510B Network Analyzer

Option 010 Time Domain Capability

Option W30 2 Years Additional Hardware Service

HP 85043A System Rack Kit

HP 85161A Measurement Automation Software

Option 630 3 1/2" disc media

Option 655 5 1/4" disc media