

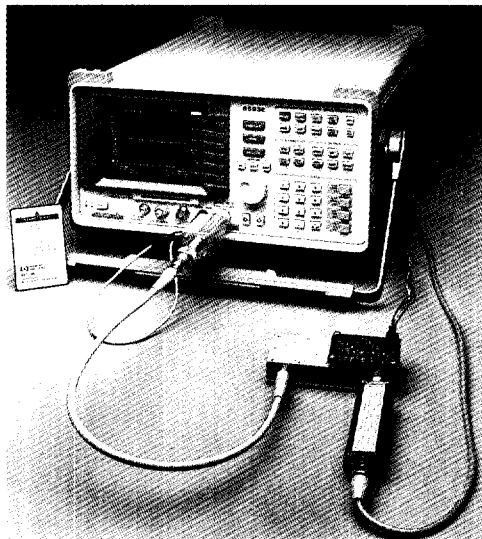
# SIGNAL ANALYZERS

## Accessories for Noise Figure and Scalar Measurements

HP 85630A, 85640A, 85644A, 85645A, 85714A, 85719A

285

- Noise-figure measurement personality
- High-performance tracking sources



HP 85719A

### Accessories for Noise-Figure Measurements

The HP 85719A noise-figure measurement personality adds unique capability to an HP 8590 E-series spectrum analyzer with Option 119 noise-figure card. Combined with the HP 346B noise source and HP 87405A preamplifier, the measurement personality and spectrum analyzer provide displayed swept noise-figure and gain measurements from 10 MHz to 2.9 GHz. Features include one-point measurement capability for quick results, noise-figure and spectrum analyzer mode-switching for stray signal detection, selectable measurement bandwidths to directly measure narrowband devices, and a repeatability calculator to determine measurement time and repeatability tradeoffs.

The noise-figure personality makes use of many features found in the spectrum analyzer. For example, the save/recall functions and the memory-card reader are used to store measurement data, states, displays, and ENR data tables. Marker functions make it easy to read noise-figure and gain measurements for the entire sweep, and a menu-driven interface makes the entire system easy to use.

### Accessories for Scalar Network Analysis

A variety of accessories are designed to enhance HP spectrum analyzers by adding scalar measurement capability. These powerful solutions allow you to meet both your scalar-network analysis and spectrum analysis needs.

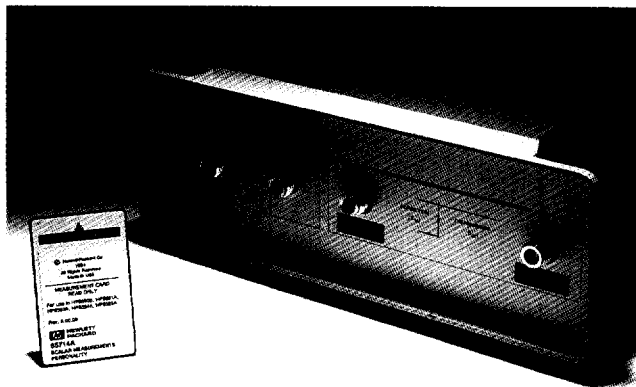
### HP 85644A and HP 85645A Tracking Sources

Two tracking sources add high-performance scalar-network analysis capability to HP spectrum analyzers. The HP 85644A has a frequency range of 300 kHz to 6.5 GHz; the HP 85645A, 300 kHz to 26.5 GHz. Both have leveled output power of up to 10 dBm and up to 140 dB of dynamic range. They are housed in a portable, rugged package for bench and field use; a System II cabinet is also available.

Because these sources can track many hosts, including spectrum analyzers and sweepers, they are suited to a number of applications. High dynamic range allows you to measure components and subsystems with the most demanding specifications. Synthesized offset tracking, typically greater than 1 GHz, lets you characterize frequency translation devices. Measure TOI faster than ever, with no gaps in frequency, using two tracking sources to make the measurement in a swept mode. For EMC testing, use the tracking sources for shield effectiveness and susceptibility measurements.

To generate continuous-wave signals, use an HP 85644A or HP 85645A as a portable, standalone source with frequency accuracy typically better than  $\pm 5$  MHz. Synthesized frequency is obtained by locking the source to the LO of an HP spectrum analyzer.

- Scalar measurement personality
- Scalar test set for transmission/reflection measurements



HP 85630A and HP 85714A

The tracking sources are compatible with the following spectrum analyzers: HP 8566A/B, HP 8560 series, HP 71209A, and HP 8593E, 8595E, and 8596E with Option 009. The tracking sources are compatible with the following sweepers: HP 8340A/B, HP 8341B, and HP 8350 series RF plug-ins.

### HP 85640A Portable Tracking Generator

This portable tracking generator provides the HP 8560 series spectrum analyzers with scalar measurement capability from 300 kHz to 2.9 GHz. See page 291.

### HP 85714A Scalar Measurement Personality

### HP 85630A Scalar Transmission/Reflection Test Set

The HP 85714A is a downloadable program that enhances an HP 8590 Series spectrum analyzer and tracking generator for transmission measurements. With the addition of the HP 85630A scalar test set, it provides the user interface for a powerful yet economical transmission/reflection measurement system.

The scalar measurement personality adds a number of useful features to the scalar/spectrum analyzer system. These include guided OPEN/SHORT and THRU calibration, pass/fail limit line testing, an enhanced 120 dB display for high-dynamic-range measurements, a tabular display format, and one-button measurements for 3 or 6 dB bandwidth, insertion loss/gain, shape factor, Q, and center frequency measurements.

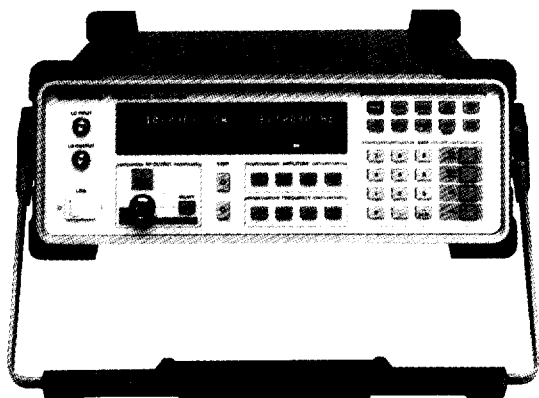
The scalar test set allows you to view transmission and reflection data simultaneously on the screen, so you can make adjustments on a device under test while monitoring the results. You can also make calibrated transmission and reflection measurements on a device using a single setup, without the usual need to recalibrate and reconfigure as with spectrum-analyzer-only systems.

Other capabilities provided by the test set include a reflection coefficient measurement marker, VSWR measurement markers, return loss measurement, automatic switching between transmission and reflection mode, and source attenuation.

### Ordering Information

	Price
<b>HP 85630A</b> Scalar Transmission/Reflection Measurement Test Set	\$5,250
<b>HP 85640A</b> Portable Tracking Generator	\$8,470
<b>HP 85644A</b> Tracking Source	\$19,000
<b>HP 85645A</b> Tracking Source	\$31,600
<b>HP 85714A</b> Scalar Measurement Personality	\$1,005
<b>HP 85719A</b> Noise Figure Measurement Personality	\$1,685
<b>HP 8590</b> E-Series Spectrum Analyzers	
<b>Opt 119</b> Noise Figure Card	\$1,685
<b>HP 346B</b> Noise Source	\$1,735
<b>HP 87405A</b> Preamplifier	\$1,760

For the most current prices and product information, contact your local Hewlett-Packard sales office—see page 691.



HP 85644A

### HP 85644A and 85645A Tracking Sources

Two portable tracking sources add versatile, high-performance scalar network analysis capability to a variety of HP spectrum analyzers. The HP 85644A has a frequency range of 300 kHz to 6.5 GHz; the HP 85645A, 300 kHz to 26.5 GHz. Features include:

- Levelled output range of +10 to -80 dBm
- Offset tracking, typically >1 GHz
- Up to 140 dB dynamic range
- Swept intermodulation-distortion measurement capability
- Rugged, portable package or optional system cabinet

Compatible spectrum analyzers are the HP 8566A/B; the HP 8560 Series; the HP 71209A; and the HP 8593E, 8595E, 8596E Option 009. Compatible sweepers are the HP 83590 series, HP 8340, and 8341.

### HP 85640A Portable Tracking Generator

This portable, rugged tracking generator adds scalar analysis capability from 300 kHz to 2.9 GHz to an HP 8560 series portable spectrum analyzer. Measure gain, frequency response, compression, flatness, and return loss on components and subsystems. A built-in attenuator gives output power of -80 to 0 dBm. Together, the spectrum analyzer and tracking generator have a dynamic range greater than 100 dB.

### HP 8444A Option 059 Tracking Generator

Used with the HP 8568B and 8567A RF spectrum analyzers, this model adds stimulus response-response capability for a minimal cost. It allows swept-frequency testing of components and subsystems. Frequency range is 500 kHz to 1.5 GHz.

### HP 85902A Burst Carrier Trigger

For performing transmitter tests, this accessory provides a TTL time reference that allows an HP 8590 A/E series or 8560 E series spectrum analyzer to trigger reliably off the RF signal. It has an input range of 60 dB and a separate built-in preamplifier for greater sensitivity. The HP 85902A works with all digital communication formats: NADC-TDMA, E-TDMA, JDC, GSM, DCS-1800, CT2-CAI, DECT, and PHS. Frequency range is 10 to 2000 MHz.

### HP 85671A Phase Noise Measurement Utility

Characterize the phase noise of VCOs and varactor oscillators easily using this downloadable program with an HP 8560 series portable spectrum analyzer. It provides fast measurements of phase noise versus log offset frequency. Results are displayed graphically and can be stored in the analyzer, printed, or plotted.

### HP 8447 Series RF Amplifiers

These amplifiers, with a frequency range of 9 kHz to 1.3 GHz, have low noise, and wide bandwidths, and improve spectrum analyzer sensitivity and noise figure while providing input isolation. See page 352.

### HP 8449B Preamplifier

This high-gain, low-noise preamplifier has a frequency range of 1 to 26.5 GHz. It increases the sensitivity of any microwave spectrum analyzer for detection and analysis of very low-level signals. Its improved sensitivity can reduce measurement time. See page 353.

### HP 87405A Preamplifier

The HP 87405A preamplifier has a frequency range of 0.01 to 3 GHz, reliable gain, and low noise figure to improve overall system performance and reduce systematic errors. Compact size, 22 to 27 dB

gain, 6.5 dB noise figure, and convenient probe-power bias connection make this preamplifier ideal for use with a number of instruments, including the HP 8590 E series spectrum analyzers.

### HP 85901A Portable AC Power Source

This easy-to-carry power source can be used as a standalone battery for over 1 hour of operation at 100 W continuous load, or can be connected to an external 12 Vdc source for longer use. It shuts off automatically when the charge gets low, and can be recharged in six hours or less. Over-voltage, short-circuit, and overload protection on the inverter output are built in. Also included are over-voltage protection on the inverter input and over-charge and over-discharge protection on the internal battery.

### HP 11867A and 11693A Limiters

Protect the input circuits of spectrum analyzers, counters, amplifiers, and other instruments from high power levels with minimal effect on measurement performance. The HP 11867A RF limiter (dc to 1.8 GHz) reflects signals up to 10 W average power and 100 W peak power. Insertion loss is less than 0.75 dB. The HP 11693A microwave limiter (100 MHz to 12.4 GHz, usable to 18 GHz) guards against input signals over 1 mW up to 1 W average power and 10 W peak power.

### HP 11694A 75 $\Omega$ Matching Transformer

From 3 to 500 MHz, this transformer allows measurements in 75  $\Omega$  systems while retaining amplitude calibration with a 50  $\Omega$  spectrum analyzer input. VSWRs are less than 1.2; insertion loss is less than 0.75 dB.

### HP 86205A and 86207A RF Bridges

These bridges combine the directivity and broadband frequency range of directional bridges with the low insertion loss and flat coupling factor of directional couplers. Directivity is 40 dB and the wide RF frequency ranges are 300 kHz to 6 GHz for the 50 $\Omega$  HP 86205A and 300 kHz to 3 GHz for the 75 $\Omega$  HP 86207A. Low insertion loss is nominally  $\pm 1.5$  dB. Frequency response of the coupled arm is within  $\pm 0.2$  dB of the nominal 16 dB value. The RF bridges are ideal for use with spectrum analyzers, scalar network analyzers, and vector network analyzers.

### HP 41800A Active Probe

This probe offers high input impedance from 5 Hz to 500 MHz. It works with many HP spectrum analyzers to evaluate the quality of circuits by measuring spurious level, harmonics, and noise. Low input capacitance offers probing with negligible circuit loading for precise, in-circuit measurements of audio, video, HF, and VHF bands. See page 340.

### HP 85024A High-Frequency Probe

In-circuit measurements are easy with this 300 kHz to 3 GHz probe. Input capacitance of 0.7 pF shunted by 1 M $\Omega$  resistance permits high-frequency probing without adverse loading of the circuit under test. Excellent frequency response and unity gain guarantee highly accurate swept measurements. High sensitivity and low distortion levels allow measurements taking advantage of full analyzer dynamic range. See page 319.

### Ordering Information

	Price
HP 85902A Burst Signal Trigger	\$1,530
HP 85671A Phase Noise Measurement Utility	\$765
HP 85644A Tracking Source	\$19,000
HP 85645A Tracking Source	\$31,600
HP 85640A Portable Tracking Generator	\$8,470
HP 8444A Opt 059 Tracking Generator	\$8,465
HP 8447A Preamplifier (100 kHz to 400 MHz)	\$1,630
HP 8447D Preamplifier (100 kHz to 1.3 GHz)	\$1,735
HP 8447E Power Amplifier (100 kHz to 1.3 GHz)	\$1,965
HP 8447F Preamplifier-Power Amplifier (100 kHz to 1.3 GHz)	\$2,990
HP 8449B Preamplifier	\$8,160
HP 87405A Preamplifier	\$1,760
HP 85901A Portable AC Power Source	\$1,290
HP 11867A RF Limiter	\$515
HP 11693A Microwave Limiter	\$710
HP 41800A Active Probe	\$1,740
HP 11694A 75 $\Omega$ Matching Transformer	\$209
HP 85024A High-Frequency Probe	\$2,550
HP 86205A RF Bridge (50 $\Omega$ )	\$1,325
HP 86207A RF Bridge (75 $\Omega$ )	\$1,325

For the most current prices and product information, contact your local Hewlett-Packard sales office—see page 691.



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