

SIGNAL ANALYZERS

Spectrum/Network Analyzer, 10 Hz to 150 MHz (cont'd)

HP 3588A, 3589A

Full-Scale Absolute Accuracy:

(Applies over entire 0° to 55° C temperature range.)

Accuracy is specified for manual frequency or for sweeps in which sweep time is increased by a factor of four. Add ±0.1 dB for auto-coupled sweep times.

	10 Hz	100 Hz	30 kHz	300 kHz	40 MHz	150 MHz
50 Ω Input	± 2.5 dB	± 1.0 dB	± 0.5 dB	± 0.4 dB	± 0.5 dB	
50 Ω Typical	± 1 dB	± 0.5 dB	± 0.2 dB			
75 Ω Input	± 2.5 dB	± 1.0 dB	± 0.8 dB			
1 MΩ Input	± 2.5 dB	± 1.0 dB	± 0.6 dB			

Scale Fidelity (linearity) maximum cumulative error of log scale. Levels are relative to the specified range.

Level	Incremental	Typical
0 to -30 dB	<0.05 dB	0.02 dB
-30 to -40 dB	<0.1 dB	0.03 dB
-40 to -50 dB	<0.3 dB	0.05 dB
-50 to -60 dB	<0.5 dB	0.10 dB
-60 to -70 dB	<0.7 dB	0.10 dB
-70 to -80 dB	—	0.25 dB
-80 to -90 dB	—	0.25 dB
-90 to -100 dB	—	0.40 dB
-100 to -110 dB	—	0.70 dB
-110 to -120 dB	—	4.00 dB

Sweep Characteristics

Linear Sweep Spectrum: The oversweep mode and digital IF filters of the HP 3589A provide sweep times 4 to 40 times faster than those of analog swept analyzers, without increased error.

Narrowband Zoom: Measurement speed >7 measurements/s (for spans ≥10 kHz)

Gated Sweep:

(HP 3589A Opt 1D6 only; not available in narrowband zoom mode.)

Gate length and trigger delay:

RBW (Hz)	Gate length minimum (ms)	Gate length maximum (ms)	Edge trigger default delay (ms)
17000	0.02	131	0.13
9100	0.04	131	0.2
4600	0.08	131	0.38

(For other bandwidths, see HP 3589A Technical Data Sheet.)

Network Measurements (HP 3589A only)

Frequency

Linear Sweep: For span and RBW, see swept spectrum mode

Log Sweep: Start/stop frequency: 10 Hz to 150 MHz

Amplitude

Dynamic Range

Sensitivity: Dynamic range limitation due to noise level and internal crosstalk between the source and receiver.

Impedance	10 Hz to 30 KHz	30 kHz to 40 MHz	40 MHz to 150 MHz
50/75 Ω	80 dB	100 dB	100 dB
50/75 Ω typical	85 dB	110 dB	110 dB
1 MΩ	75 dB	100 dB	—

Accuracy—Ratio Amplitude and Phase

Dynamic Accuracy: At stable temperature following a two-hour warmup, and within 5 minutes of normalization. (Typical within one minute of normalization.)

Level (dB)	Accuracy (dB)	Accuracy (deg)	Typical (dB)	Typical (deg)
0 to -5	<0.05	<1.0	<0.05	0.2
-5 to -30	<0.10	<1.5	0.10	0.5
-30 to -40	<0.15	<2.0	0.10	1.0
-40 to -50	<0.35	<3.0	0.10	1.0
-50 to -60	<0.55	<4.0	0.15	1.5
-60 to -70	<0.75	<6.0	0.15	2.5
-70 to -80	—	—	0.30	—
-80 to -90	—	—	0.30	—
-90 to -100	—	—	0.45	—

Group Delay (not available with log sweep)

Aperture Frequency: 0.5% to 16% of span in 2x steps

Accuracy: Dynamic phase acc./(360° aperture frequency) ±1 ns

Sweep Characteristics

Linear, log, and gated sweeps are available; see technical data sheet.

General Characteristics

Temperature (operating): 5° to 50° C; **Storage:** -20° to 60° C

Calibration Interval: 1 year

Power

115 Vac operation: 90 to 132 Vrms, 47 to 440 Hz

230 Vac operation: 198 to 264 Vrms, 47 to 66 Hz

Max. power dissipation: 450 VA

Weight: Net, 28 kg (62 lb); shipping, 38 kg (81 lb)

Size: 425.5 mm W × 222 mm H × 630 mm D (16.75 in × 8.75 in × 24.8 in)

External Keyboard: Compatible with PC-style 101 key

HP 35689A/B S-Parameter Test Sets

Frequency Range: 100 kHz to 150 MHz

Test Port Impedance: HP 35689A, 50 Ω; HP 35689B, 75 Ω

Directivity: >40 dB

Spectrum Port Insertion Loss: <0.5 dB typical (HP 35689A)

Power

115 Vac operation: 90 to 132 Vrms, 47 to 66 Hz

230 Vac operation: 198 to 264 Vrms, 47 to 66 Hz

Weight: Net, 7.8 kg (17 lb); shipping, 11.5 kg (25 lb)

Size: 426 mm W × 90 mm H × 584 mm D (16.75 in × 3.5 in × 22.75 in)

Ordering Information

Item	Price
HP 3588A Spectrum Analyzer	\$19,800
Opt 001 High-Stab. Freq. Reference	\$850
Opt 003 Add 2 MB Memory	\$1,500
Opt 1C2 HP Instrument BASIC	\$500
HP 3589A Spectrum/Network Analyzer	\$21,750
Opt 1D5 High-Stab. Freq. Reference	\$850
Opt 1D6 Time-Gated Spectrum Analysis	\$1,500
Opt 1C1 Add 2 MB Memory	\$1,500
Opt 1C2 HP Instrument BASIC	\$500
Opt 1D7 50 Ω to 75 Ω Minimum Loss Pads	\$900
Opt PC-Style 101-Key Keyboard	\$170
(Available keyboard versions include US, German, Spanish, French, UK, Italian, and Swedish)	
HP 35689A 50 Ω S-Parameter Test Set	\$3,650
HP 35689B 75 Ω S-Parameter Test Set	\$4,000