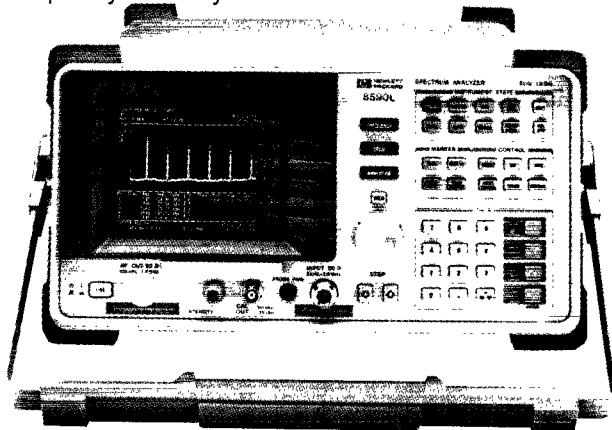


- Low-cost general purpose spectrum analysis with frequency accuracy



### HP 8590L and 8592L Specifications

(Specifications apply to either analyzer unless otherwise noted.)

#### Frequency

##### Frequency Range

###### HP 8590L

**50 Ω:** 9 kHz to 1.8 GHz  
**75 Ω (Opt 001):** 1 MHz to 1.8 GHz

###### HP 8592L:

9 kHz to 22 GHz

###### HP 8592L (Opt 026/027)

Band	LO harmonic=N	Center frequency
0	1	9 kHz to 2.9 GHz
1	1	2.75 to 6.5 GHz
2	2	6.0 to 12.8 GHz
3	3	12.4 to 19.4 GHz
4	4	19.1 to 22.0 GHz
4	4 (Opt 026/027)	19.1 to 26.5 GHz

#### Frequency Reference

**Aging:**  $\pm 2 \times 10^{-6}$ /year

**Temperature stability:**  $\pm 5 \times 10^{-6}$

**Initial achievable accuracy:**  $\pm 0.5 \times 10^{-6}$

**Frequency Readout Accuracy** (start, stop, center, marker):  $\pm$  (freq readout  $\times$  freq ref error + span accuracy + 1% of span + 20% of RBW + 100 Hz  $\times$  N)

#### Marker Count Accuracy

**Span  $\leq 10$  MHz  $\times$  N:**  $\pm$  (marker freq  $\times$  freq ref error + counter resolution + 100 Hz  $\times$  N)

**Span  $> 10$  MHz  $\times$  N:**  $\pm$  (marker freq  $\times$  freq ref error + counter resolution + 1 kHz  $\times$  N)

**Counter resolution:** Span  $\leq 10$  MHz  $\times$  N, selectable from 10 Hz to 100 kHz; span  $> 10$  MHz  $\times$  N, selectable from 100 Hz to 100 kHz

#### Frequency Span

##### Range

**HP 8590L:** 0 Hz (zero span), 10 kHz to 1.8 GHz

**HP 8592L:** 0 Hz, [50 kHz  $\times$  N] to 19.25 GHz

**Resolution:** Four digits

##### Accuracy:

**HP 8590L:**  $\pm 3\%$  of span

**HP 8592L:** Span  $\leq 10$  MHz  $\times$  N!  $\pm 5\%$  of span  
 Span  $> 10$  MHz  $\times$  N!  $\pm 3\%$  of span

#### Sweep Time

**Range:** 20 ms to 100 s

**Accuracy:**  $\pm 3\%$

**Sweep trigger:** Free run, single, line, video, external

**Resolution Bandwidth** (characteristic): 1 kHz to 3 MHz (3 dB) in 1, 3, 10 sequence  $\pm 20\%$  accuracy; 9 kHz and 120 kHz (6 dB) EMI bandwidths

**Video Bandwidth Range:** 30 Hz to 1 MHz in 1, 3, 10 sequence

#### Stability

**Noise sidebands** (1 kHz RBW, 30 Hz VBW and sample detector):  $\leq -95$  dBc/Hz + 20 log N at  $> 30$  kHz offset from CW signal

**System-related sidebands:**  $\leq -65$  dBc + 20 log N at  $> 30$  kHz offset from CW signal

**Comb Generator Frequency** (HP 8592L): 100 MHz fundamental frequency

**Accuracy:**  $\pm 0.007\%$

#### Amplitude

##### Amplitude Range

**HP 8590L, 8592L:** Displayed average noise level to +30 dBm

**HP 8590L Opt 001:** Displayed average noise level to +75 dBmV

**Maximum Safe Input Level** (input attenuator  $\geq 10$  dB)

##### Average Continuous Power

**HP 8590L, 8592L:** +30 dBm (1 W)

**HP 8590L Opt 001:** +75 dBmV (0.4 W)

##### Peak Pulse Power

**HP 8590L:** +30 dBm (1 W); +75 dBmV (0.4 W) (Opt 001)

**HP 8592L:** +50 dBm (100 W) for  $< 10 \mu$ s pulse width and  $< 1\%$  duty cycle, input atten  $\geq 30$  dB

#### DC

**HP 8590L:** 25 Vdc; 100 Vdc (Opt 001)

**HP 8592L:** 0 Vdc

**Gain Compression** ( $> 10$  MHz):  $\leq 0.5$  dB (total power at input mixer = -10 dBm)

**Displayed Average Noise Level** (input terminated, 0 dB atten, 1 kHz RBW, 30 Hz VBW, sample detector)

**HP 8590L:**  $\leq -115$  to  $\leq -113$  dBm;  $\leq -63$  to  $\leq -61$  dBmV (Opt 001)

**HP 8592L:**  $\leq -112$  to  $\leq -92$  dBm;  $\leq -112$  to  $\leq -87$  dBm (Opt 026)

#### Spurious Responses

##### Second harmonic distortion

**HP 8590L:** ( $> 5$  MHz)  $< -70$  dBc for -45 dBm tone at input mixer

##### HP 8592L

**10 MHz to 2.9 GHz:**  $< -70$  dBc for -40 dBm tone at input mixer

**$> 2.75$  GHz:**  $< -100$  dBc for -10 dBm tone at input mixer (or below DANL)

##### Third-order intermodulation distortion

###### HP 8590L

**Distortion  $> 5$  MHz:**  $< -70$  dBc for two -30 dBm tones at input mixer and  $> 50$  kHz separation

**Other input-related:**  $< -65$  dBc at  $\geq 30$  kHz offset, for -20 dBm tone at input mixer

###### HP 8592L

**Distortion  $> 10$  MHz:**  $< -70$  dBc for two -30 dBm tones at input mixer and  $> 50$  kHz separation

**Other input-related:**  $< -65$  dBc at  $\geq 30$  kHz offset, for -20 dBm tone at input mixer,  $\leq 18$  GHz;  $< -60$  dBc for -20 dBm tone at input mixer,  $\leq 22$  GHz

#### Display Range

**Log scale:** 0 to -70 dB from ref level is calibrated; 0.1, 0.2, 0.5 dB/div and 1 to 20 dB/div in 1 dB steps; 8 div displayed

**Linear scale:** 8 divisions

**Scale units:** dBm, dBmV, dBμV, V, W

**Marker readout resolution:** 0.05 dB for log scale; 0.05% of reference level for linear

#### Reference Level

**Range:** Same as amplitude range

**Resolution:** 0.01 dB for log scale; 0.12% of ref level for linear

**Accuracy:**  $\pm 0.3$  dB @ -20 dBm

**0 dBm to -59.9 dBm:**  $\pm (0.3 \text{ dB} + 0.01 \times \text{dB from } -20 \text{ dBm})$

#### Frequency Response

(10 dB input attenuation)

**Absolute** (referenced to 300 MHz CAL OUT)

**HP 8590L:**  $\pm 1.5$  dB

**HP 8592L** (preselector peaked in band  $> 0$ ):  $\pm 1.5$  to  $\pm 5.0$  dB

**Relative:** Referred to midpoint between highest and lowest frequency response deviations

**HP 8590L:**  $\pm 1.0$  dB

**HP 8592L** (preselector peaked in band  $> 0$ ):  $\pm 1.0$  to  $\pm 2.0$  dB

#### Calibrator Output Amplitude:

-20 dBm  $\pm 0.4$  dB

**HP 8590L Opt 001:** +28.75 dBmV  $\pm 0.4$  dB

#### Resolution Bandwidth Switching Uncertainty

(ref to 3 kHz RBW, at ref level):  $\pm 0.4$  dB for 3 kHz to 3 MHz RBW;  $\pm 0.5$  dB for 1 kHz

#### Log to Linear Switching:

$\pm 0.25$  dB at ref level

#### Display Scale Fidelity

**Log incremental accuracy:**  $\pm 0.4$  dB/4 dB, 0 to -60 dB from ref level

**Log maximum cumulative:**  $\pm (0.4 \text{ dB} + 0.01 \times \text{dB from ref level})$ , 0 to -70 dB from ref level

**Linear accuracy:**  $\pm 3\%$  of ref level

#### General

Same as for HP 8590 E-series.

Built-in tracking generator (see page 278)

