Test Equipment Solutions Datasheet

Test Equipment Solutions Ltd specialise in the second user sale, rental and distribution of quality test & measurement (T&M) equipment. We stock all major equipment types such as spectrum analyzers, signal generators, oscilloscopes, power meters, logic analysers etc from all the major suppliers such as Agilent, Tektronix, Anritsu and Rohde & Schwarz.

We are focused at the professional end of the marketplace, primarily working with customers for whom high performance, quality and service are key, whilst realising the cost savings that second user equipment offers. As such, we fully test & refurbish equipment in our in-house, traceable Lab. Items are supplied with manuals, accessories and typically a full no-quibble 2 year warranty. Our staff have extensive backgrounds in T&M, totalling over 150 years of combined experience, which enables us to deliver industry-leading service and support. We endeavour to be customer focused in every way right down to the detail, such as offering free delivery on sales, covering the cost of warranty returns BOTH ways (plus supplying a loan unit, if available) and supplying a free business tool with every order.

As well as the headline benefit of cost saving, second user offers shorter lead times, higher reliability and multivendor solutions. Rental, of course, is ideal for shorter term needs and offers fast delivery, flexibility, try-before-you-buy, zero capital expenditure, lower risk and off balance sheet accounting. Both second user and rental improve the key business measure of Return On Capital Employed.

We are based near Heathrow Airport in the UK from where we supply test equipment worldwide. Our facility incorporates Sales, Support, Admin, Logistics and our own in-house Lab.

All products supplied by Test Equipment Solutions include:

- No-quibble parts & labour warranty (we provide transport for UK mainland addresses).
- Free loan equipment during warranty repair, if available.
- Full electrical, mechanical and safety refurbishment in our in-house Lab.
- Certificate of Conformance (calibration available on request).
- Manuals and accessories required for normal operation.
- Free insured delivery to your UK mainland address (sales).
- Support from our team of seasoned Test & Measurement engineers.
- ISO9001 quality assurance.

Test equipment Solutions Ltd
Unit 8 Elder Way
Waterside Drive
Langley
Berkshire
SL3 6EP

T: +44 (0)1753 596000
F: +44 (0)1753 596001

Email: info@TestEquipmentHQ.com
Web: www.TestEquipmentHQ.com

HP 8590D and 8592D Specifications

(Specifications apply to either analyzer unless otherwise noted.)

Frequency

Frequency Range

HP 8590D

50 Ω: 9 kHz to 1.8 GHz

75 Ω (Opt 001): 1 MHz to 1.8 GHz

HP 8592D: 9 kHz to 22 GHz

HP 8592D Opt 026: 9 kHz to 26.5 GHz

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)	19.1 to 26.5 GHz

Frequency Reference (HP 8590D Opt 013)

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)

HP 8590D: ±(5 MHz + 1% of freq span)

HP 8590D Opt 013: ±(freq readout × freq ref error + span accuracy + 1% of span + 20% of RBW + 100 Hz)

HP 8592D: ±[(5 × N) MHz + 0.01% of center freq + 2% of freq span]

Marker Count Accuracy (HP 8590D Opt 013)

Span ≤10 MHz: ±(marker freq × freq ref error + counter resolution + 100 Hz)

Span >10 MHz: ±(marker freq × freq ref error + counter resolution + 1 kHz)

Counter resolution: Span ≤ 10 MHz, selectable from 10 Hz to 100 kHz; span > 10 MHz, selectable from 100 Hz to 100 kHz

Frequency Span

Range

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

HP 8592D: 0 Hz, [50 × N] kHz to 19.25 GHz

Resolution: Four digits

Accuracy: ±3% of span

Sweep Time

Range: 20 ms to 100 s

Accuracy: ±3%

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

Resolution Bandwidth (characteristic): 1 kHz to 3 MHz (3 dB) in 1, 3, 10 sequence ±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): ≤ −95 dBc/Hz + 20 log N at > 30 kHz offset from CW signal

System-related sidebands: ≤ −65 dBc + 20 log N at > 30 kHz offset from CW signal

Comb Generator Frequency (HP 8592D): 100 MHz fundamental freq

Accuracy: ±0.007%

Amplitude

Amplitude Range

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

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

Maximum Safe Input Level (input attenuator ≥ 10 dB)

Average Continuous Power

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

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

Peak Pulse Power

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

HP 8592D: +50 dBm (100 W) for < 10 μs pulse width and < 1% duty cycle, input atten ≥ 30 dB

dc

HP 8590D: 25 Vdc; 100 Vdc (Opt 001)

HP 8592D: 0 Vdc

Gain Compression (> 10 MHz): ≤ 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)

HP 8590D: ≤ −115 to ≤ −113 dBm; ≤ −63 to ≤ −61 dBmV (Opt 001)

HP 8592D: ≤ −112 to ≤ −92 dBm; ≤ −112 to ≤ −87 dBm (Opt 026)

Spurious Responses

Second harmonic distortion (> 5 MHz)

HP 8590D: < −70 dBc for −45 dBm tone at input mixer

HP 8592D

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

HP 8590D

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

Other input-related: < −65 dBc at ≥ 30 kHz offset, for −20 dBm tone at input mixer

HP 8592D

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

Other input-related: < −65 dBc at ≥ 30 kHz offset, for −20 dBm tone at input mixer, ≤ 18 GHz; < −60 dBc for −20 dBm tone at input mixer, ≤ 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; 0.5% 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: ±0.3 dB @ −20 dBm

0 dBm to −59.9 dBm: ±(0.3 dB + 0.01 × dB from −20 dBm)

Frequency Response (10 dB input attenuation)

Absolute (referenced to 300 MHz CAL OUT)

HP 8590D: ±1.5 dB

HP 8592D (preselector peaked in band > 0): ±1.5 to ±5.0 dB

Relative: ±1.0 dB, referred to midpoint between highest and lowest frequency response deviations

HP 8590D: ±1.0 dB

HP 8592D (preselector peaked in band > 0): ±1.0 to ±2.0 dB

Calibrator Output Amplitude: −20 dBm ±0.4 dB

HP 8590D Opt 001: +28.75 dBmV ±0.4 dB

Resolution Bandwidth Switching Uncertainty (ref to 3 kHz RBW, at ref level): ±0.4 dB for 3 kHz to 3 MHz RBW; ±0.5 dB for 1 kHz

Log to Linear Switching: ±0.25 dB at ref level

Display Scale Fidelity

Log incremental accuracy: ±0.4 dB/4 dB, 0 to −60 dB from ref level

Log maximum cumulative: ±(0.4 dB + 0.01 × dB from ref level), 0 to −70 dB from ref level

Linear accuracy: ±3% of ref level

General

Temperature Range

Operating: 0° to +55° C

Storage: −40° to +75° C

EMI Compatibility: CISPR Pub. 11 (1990) Group 1, Class A

Audible Noise: <37.5 dBA pressure and <5.0 Bels power (ISODP7779)

Power Requirements

On (line 1): 86 to 127 or 195 to 250 V rms, 47 to 66 Hz; 103 to 126 V rms, 400 Hz ±10%; power consumption < 300 VA: < 100 W

Standby (line 0): Power consumption < 7 W