

# NETWORK/SPECTRUM ANALYZERS

## RF Network/Spectrum/Impedance Analyzer, 100 kHz to 1.8 GHz/2 Hz to 1.8 GHz (cont'd)

### HP 4396A

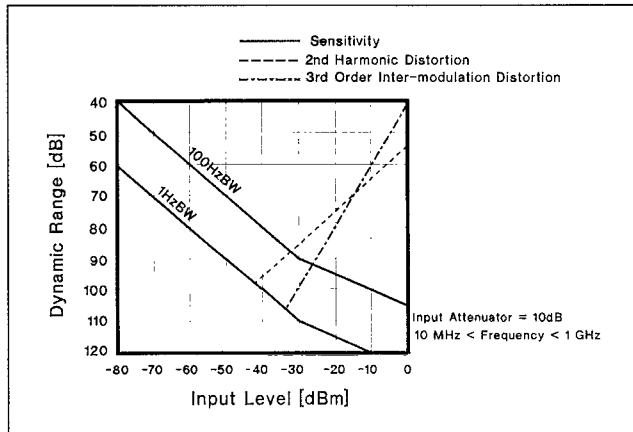


Figure 6: Nominal Dynamic Range

#### Level Accuracy

**Calibrator accuracy:**  $< \pm 0.4$  dB

**Frequency response:**

$< \pm 0.5$  dB ( $\geq 10$  MHz)

$< \pm 1.5$  dB ( $< 10$  MHz)

**Amplitude fidelity:** Log (RBW  $\leq 3$  kHz, ref level - attn = -10 to -50 dBm):

Range from ref level (dB)	Fidelity (dB)	Typ fidelity (dB)
0 to -30	0.05	0.02
-30 to -40	0.07	0.03
-40 to -50	0.12	0.05
-50 to -60	0.4	0.12
-60 to -70	1.2	0.4
-70 to -80	4.0	1.0

#### Sweep Characteristics

**Sweep time (typical):**

RBW	Span	Time
3 MHz	1.8 GHz	40 ms
1 MHz	1 GHz	60 ms
100 kHz	100 MHz	100 ms
10 kHz	10 MHz	400 ms
1 kHz	1 MHz	650 ms
100 Hz	100 kHz	1.3 s
10 Hz	10 kHz	1.5 s
1 Hz	1 kHz	10 s

#### Impedance Measurement (Option 010)

**Measurement Parameters:**  $|Z|$ ,  $\theta_z$ ,  $|Y|$ ,  $\theta_y$ , R, X, G, B, Cp, Cs, Lp, Ls, Rp, Rs, D, Q,  $|\Gamma|$ ,  $\theta_\gamma$ ,  $\Gamma_x$ ,  $\Gamma_y$

**Frequency Range:** 100 kHz to 1.8 GHz

**Impedance Range:** 2  $\Omega$  to 5 k $\Omega$  (@ 10% accuracy)

**Measurement Port:** APC-7 on the HP 43961A Test Kit

**Source Level at DUT:** -66 to +14 dBm

**DC Bias:**  $\pm 40$  V (20 mA maximum). (A 2 k $\Omega$   $\pm 5\%$  internal resistor is used for dc bias current limitation. An external dc bias source is required.) Connector: BNC (f) on HP 43961A

**Calibration:** OPEN(0 S)/SHORT (0  $\Omega$ )/LOAD(50  $\Omega$ ) calibration, OPEN/SHORT/LOAD compensation on test fixtures, port extension compensation

**Accuracy (Supplemental Performance Characteristic):** 3% basic accuracy at 23 $^\circ \pm 5^\circ$  C, after OPEN/SHORT/LOAD calibration

#### General Characteristics

**Operating Temperature/Humidity:** 0 $^\circ$  to 55 $^\circ$  C, 15% < RH < 95%

**Storage Temperature:** -40 $^\circ$  to 65 $^\circ$  C

**Power Requirement:** 100/120/220/240 V  $\pm 10\%$ , 47 to 66 Hz, 500 VA max

**Weight:** 27.2 kg (60 lb) typical

**Size:** 425 mm W  $\times$  235 mm H  $\times$  553 mm D

#### Accessories

HP 85046A/B S Parameter Test Sets

HP 87512A/B Transmission/Reflection Test Kits

HP 11850C 50  $\Omega$  3-Way Power Splitter

HP 11850D 75  $\Omega$  3-Way Power Splitter

HP 11667A 50  $\Omega$  2-Way Power Splitter

HP 86205A 50  $\Omega$  RF Bridge

HP 86207A 75  $\Omega$  RF Bridge

HP 85031B Precision 7 mm Calibration Kit

HP 85032B 50  $\Omega$  Type N Calibration Kit

HP 85033C Precision 3.5 mm Calibration Kit

HP 85036B 75  $\Omega$  Type N Calibration Kit

HP 11853A 50  $\Omega$  Type N Accessory Kit

HP 11854A 50  $\Omega$  BNC Accessory Kit

HP 11855A 75  $\Omega$  Type N Accessory Kit

HP 11856A 75  $\Omega$  BNC Accessory Kit

HP 11851B 50  $\Omega$  Type N RF Cable Kit

HP 11857B 75  $\Omega$  Type N Test Port Extension Cables

HP 11857D 50  $\Omega$  7 mm Test Port Extension Cables

HP 41800A 5 Hz to 500 MHz Active Probe

HP 54701A 2.5 GHz High-Impedance Probe (HP 1143A required)

HP 85024A 300 MHz to 3 GHz High Frequency Probe

HP 1141A Differential Probe (HP 1142A required)

HP 11945A Close Field Probe Set

#### Key Literature

HP 4396A 1.86 GHz Network/Spectrum Analyzer Data Sheet, p/n 5091-5189E.

HP 4396A Option 010 Impedance Measurement Function and HP 43961A RF Test Kit, Product Overview, p/n 5962-7971E.

#### Ordering Information

HP 4396A RF Network/Spectrum Analyzer

**Opt 1C2** HP IBASIC

**Opt 1D5** High Stability Frequency Reference

**Opt 1D6** Time-Gated Spectrum Analysis

**Opt 1D7** 50  $\Omega$  to 75  $\Omega$  Spectrum Input Impedance

Conversion

**Opt 00M** RGB Output

**Opt 010** Impedance Measurement Function

(Requires HP 43961A)

HP 43961A RF Impedance Test Kit (add test fixtures listed below)

HP 16191A Side Electrode SMD fixture (dc to 2 GHz)

HP 16192A Parallel Electrode SMD fixture (dc to 2 GHz)

HP 16193A Small Side Electrode SMD fixture (dc to 2 GHz)

HP 16092A Spring Clip fixture (dc to 500 MHz)