NOISE FIGURE METERS

Noise Sources

HP 346 A/B/C, R/Q347B



HP 346A, 346B, 346C

HP 346A/B/C Broadband Noise Sources

The ideal companion to HP's noise figure meter and systems is the HP 346 family of noise sources. Since they are broadband (10 MHz to either 18 or 26.5 GHz), they eliminate the necessity for several sources at different frequency bands. Each source has individually-calibrated ENR values at specific frequencies. The calibration is printed on its label (see illustration) for easy loading into the HP 8970B. The low SWR of each noise source reduces a major source of measurement uncertainty—reflections of test signals. In addition, the variety of available connectors reduces the need for degrading accuracy with connector adapters.

The HP 346 family of noise sources are designed for a broad range of measurement applications. The HP 346C covers the broadest frequency range—10 MHz to 26.5 GHz. The HP 346B's high ENR, low SWR, and variety of connectors make it a general-purpose noise source. The HP 346A is designed especially for accurate characterization of input-impedance-sensitive devices (like GaAsFETs and many UHF amplifiers). Its very small change in reflection coefficient (<0.01) from ON to OFF minimizes errors when measuring noise figure and gain as a function of input impedance.

HP 346A/B/C Partial Specifications

(See Technical Data Sheet for complete specifications.)
Frequency Range: 10 MHz to 18 GHz for HP 346A/B;
10 MHz to 26.5 GHz for HP 346C
Excess Noise Ratio (ENR) limits: HP 346A: 5 to 7 dB;
HP 346B: 14 to 16 dB; HP 346C: 12 to 16 dB (10 MHz to 12 GHz) and
14 to 17 dB (12.0 to 26.5 GHz)
Maximum SWR (reflection coefficient) On and Off:
HP 346A/B: 10 to 30 MHz – 1.3 (0.13); 30 to 5000 MHz – 1.15 (0.07);
5 to 18 GHz – 1.25 (0.11)
HP 346C: 10 MHz to 18 GHz – 1.25 (0.11); 18 to 26.5 GHz – 1.35 (0.15).
Power Required: 28 ±1 Vdc
Size: 21 mm W x 140 mm H x 30 mm D (0.8 in x 5.5 in x 1.2 in)
Weight: Net, 0.108 kg (3.5 oz); shipping, 0.5 kg (1 lb)
Standard Connector: APC-3.5 (male)

HP 346C Option K01 Broadband Noise Source

This coaxial noise source features coverage from 1 to 50 GHz with the 2.4-mm coaxial connector. ENR is nominally 20 dB at 1 GHz and 7 dB at 50 GHz. Contact Hewlett-Packard for technical specifications.

HP 346B Option H01 High ENR Noise Source

The HP 346B Option H01 has high ENR (21 dB typical), suitable for measuring high noise figure devices. Contact Hewlett-Packard for technical specifications.

HP 346B Option H42 DBS Noise Source

The 346B Option H42 was developed especially to test low noise block converters (LNB) used for Direct Broadcast Satellite (DBS). WR75 waveguide output, 5 dB ENR, low ENR calibration uncertainty, and low SWR improve the noise figure measurement accuracy of DBS LNBs. Contact HP for technical specifications.



HP R/Q347B

HP R347B and Q347B Noise Sources Partial Specifications

(See Technical Data Sheet for complete specifications.)
Frequency Range: R347B: 26.5 to 40 GHz
Q347B: 33 to 50 GHz
Excess Noise Ratio (ENR) Range:
HP R347B: 10 to 13 dB
HP Q347B: 10 to 13 dB (33 to 42 GHz); 6 to 12.5 dB (42 to 50 GHz)
Max. SWR (reflection coefficient):
HP R347B: <1.42 (0.17)
HP Q347B: <1.57 (0.22)

Key Literature

HP 346A/B/C Broadband Noise Sources Technical Data,
p/n 5953-6452

Ordering Information

	Price
HP 8970B Noise Figure Meter	$14,800
Opt 020 2047 MHz Upper Frequency	+$2,040
Opt 907 Front-Panel Handle Kit (5061-9689)	+$56
Opt 908 Rackmounting Flange Kit (5061-9677)	+$33
Opt 909 Both Options 907 and 908 (5061-9683)	+$82
Opt 915 Service Manual (08970-90023)	+$36
Opt 916 Additional Operating Manual (08970-90048)	+$31
Opt 700 External Mate Translator	+$8,000
Opt W30 Extended Repair Service	+$140
Opt W32 Calibration Service	+$905
HP 8971C Noise Figure Test Set	$23,950
Opt 001 Add L.O. Power Amplifier	+$5,610
Opt 002 Delete RF Preamplifier	–$3,000
Opt 907 Front-Panel Handle Kit (5062-3988)	+$44
HP 8970S Noise Figure Measurement System	P.O.A.[1]
HP 8970V Noise Figure Measurement System (10 MHz to 20 GHz)	$59,000
Opt W30 Extended Repair Service	+$1,200
Opt W32 Calibration Service	+$4,050
HP 346A Noise Source	$1,835
Opt 001 Type-N (male) Connector	$0
Opt 002 APC-7 Connector	+$26
Opt 004 Type-N (female) Connector	$0
Opt 910 Extra Operating Manual	+$2
Opt W30 Extended Repair Service	+$55
Opt W32 Calibration Service	+$425
HP 346B Noise Source	$1,735
Opt 001 Type-N (male) Connector	$0
Opt 002 APC-7 Connector	+$26
Opt 004 Type-N (female) Connector	$0
Opt H01 High ENR	call HP
Opt H42 DBS Noise Source	call HP
Opt 910 Extra Operating Manual	+$2
Opt W30 Extended Repair Service	+$55
Opt W32 Calibration Service	+$425
HP 346C Noise Source	$2,320
Opt 910 Extra Operating Manual	+$2
Opt W30 Extended Repair Service	+$55
Opt W32 Calibration Service	+$425
HP 346C Opt K01 Noise Source	$3,600
HP R347B Noise Source	$2,855
HP Q347B Noise Source	$3,470