



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:**

HP 346A/B: 10 MHz to 18 GHz

HP 346C: 10 MHz to 26.5 GHz

**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

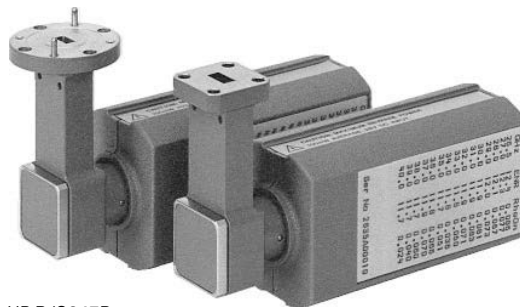
This coaxial noise source features coverage from 1 to 50 GHz with the 2.4-mm coaxial connector. ENR is nominally 20 dB at 1 GHz and 7 dB at 50 GHz. Contact Hewlett-Packard for technical specifications.

### 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:**

HP R347B: 26.5 to 40 GHz

HP 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)

**Maximum 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

**HP 8970B Noise Figure Meter**

**Opt 020** 2047 MHz Upper Frequency

**Opt 907** Front-Panel Handle Kit (5061-9689)

**Opt 908** Rackmounting Flange Kit (5061-9677)

**Opt 909** Both Options 907 and 908 (5061-9683)

**Opt 915** Service Manual (08970-90023)

**Opt 916** Additional Operating Manual (08970-90048)

**Opt 700** External Mate Translator

**Opt W30** Extended Repair Service

**Opt W32** Calibration Service

**HP 8971C Noise Figure Test Set**

**Opt 001** Add L.O. Power Amplifier

**Opt 002** Delete RF Preamp

**Opt 907** Front-Panel Handle Kit (5062-3988)

**HP 8970S Noise Figure Measurement System**

**HP 8970V Noise Figure Measurement System**

(10 MHz to 20 GHz)

**Opt W30** Extended Repair Service

**Opt W32** Calibration Service

**HP 346A Noise Source**

**Opt 001** Type-N (male) Connector

**Opt 002** APC-7 Connector

**Opt 004** Type-N (female) Connector

**Opt 910** Extra Operating Manual

**Opt W30** Extended Repair Service

**Opt W32** Calibration Service

**HP 346B Noise Source**

**Opt 001** Type-N (male) Connector

**Opt 002** APC-7 Connector

**Opt 004** Type-N (female) Connector

**Opt H01** High ENR

**Opt H42** DBS Noise Source

**Opt 910** Extra Operating Manual

**Opt W30** Extended Repair Service

**Opt W32** Calibration Service

**HP 346C Noise Source**

**Opt 910** Extra Operating Manual

**Opt W30** Extended Repair Service

**Opt W32** Calibration Service

**HP 346C Opt K01 Noise Source**

**HP R347B Noise Source**

**HP Q347B Noise Source**

- HP 346A
- HP 346B
- HP 346C
- HP R347B
- HP Q347B