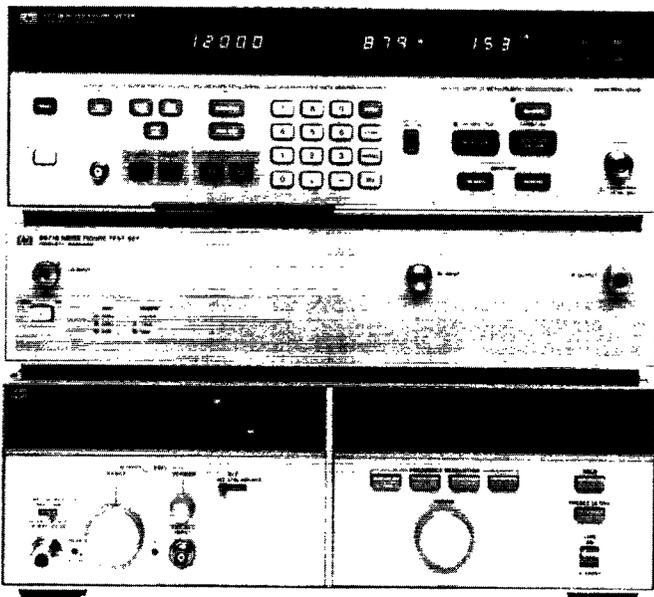


# NOISE FIGURE METER

## Noise Figure Measurement System

Models 8970S/T, 8971B



HP 8970 S/T

### HP 8970S/T Microwave Noise Figure Measurement Systems

Until now, there was no standardized way to make a microwave noise figure measurement, users had to design and support their own microwave system, and measurements crossing from RF to microwave were difficult because they required multiple system configurations.

Hewlett Packard's answer to these problems is the HP 8970S and HP 8970T noise figure measurement systems. Each system consists of the HP 8970B Noise Figure Meter, the HP 8971B Noise Figure Test Set, and a synthesized local oscillator. (The recommended LOs for the 8970S are listed in the 8970S Partial Specifications; the HP 8970T uses the HP 8671B Synthesized CW Generator as its local oscillator.)

The HP 8970S/T system eliminates the tedious job of designing the measurement system and selecting components. The HP 8970B acts as the controller to the system so all system operation is transparent to you, the user. To insure specified performance, the HP 8970S/T systems are given specifications just like an RF noise figure meter (i.e. HP 8970B).

#### HP 8970S/T Partial Specifications

(See 8970S technical data sheet for complete specifications)

**Frequency range:** 10 MHz to 18 GHz.

**Noise figure measurement range:** 0 to 30 dB.

**Noise figure instrumentation uncertainty:**  $\pm 0.25$  dB (for a 14 to 16 dB ENR noise source in a 0 to 55°C environment).

**Gain instrumentation uncertainty:**  $\pm 0.45$  dB.

**Noise figure (max):** 10 to 1600 MHz: 12 dB + .003 dB/MHz

1.6 to 2.4 GHz: 24 dB

2.4 to 12 GHz: 22 dB

12 to 15 GHz: 24 dB

15 to 18 GHz: 28 dB

**Input SWR:** 10 to 1600 MHz: 1.7

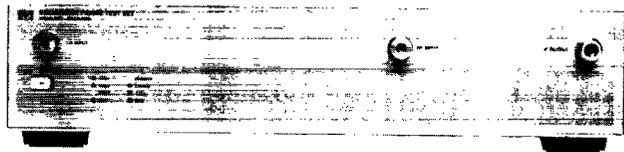
1.6 to 2.4 MHz: 2

2.4 to 18 GHz: 2

**Gain/noise figure repeatability:** .2 dB.

**Recommended local oscillators:** HP 8671B, 8672A, 8673B/C/E, 8340B, and 8341B.

- 10 MHz to 18GHz
- Fully specified system
- Removes double-sideband inaccuracies
- As easy to operate as the 8970A or B



HP 8971B

#### HP 8971B Noise Figure Test Set

The HP 8971B Noise Figure Test Set brings the simplicity of double sideband measurements and the accuracy of single sideband measurements together in one package. Careful design and high performance components, including a stable YIG filter, allow broadband single-sideband measurements from 10 MHz to 18 GHz with a single calibration and sweep.

Measurement modes in the HP 8970B allow for double down-conversion using the HP 8971B as the second down-converter. These new modes can be used for millimeter-wave measurements of amplifiers and transistors and measurements of receivers and mixers with IFs above 1.6 GHz.

HP recommends using an isolator and preamplifier between the test device and measurement system. This reduces two of the largest sources of noise figure measurement uncertainty - mismatch uncertainty and second stage noise figure.

#### HP 8971B Partial Specifications

(See 8970S technical data sheet for complete specifications)

**Frequency range:** 10 MHz to 18 GHz.

**Gain/noise figure repeatability:**  $\pm 0.2$  dB.

**Input SWR:** 1.5 (10 MHz to 1.6 GHz)

2 (1.6 to 2.4 GHz)

2 (2.4 to 18 GHz)

**Image and odd-harmonic rejection:** 20 dB.

**Accessories supplied:**

1 LO-to-HP 8971B cable - SMA(f), 300 mm

1 HP 8971B-to-HP 8970B cable - N(m), 190 mm

1 N(m)-to-SMA(m) adapter

2 HP-IB cables - .5 m