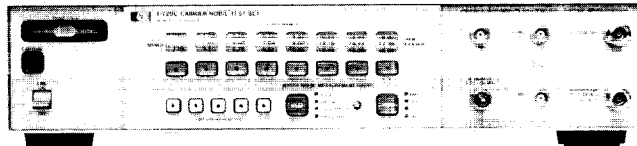


- 10 MHz to 18 GHz
- Phase noise and AM noise measurements
- Low system noise floor

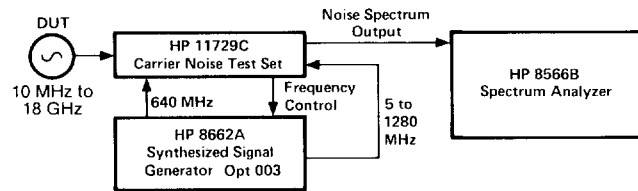


HP 11729C

HP 11729C Carrier Noise Test Set Versatile Phase and AM Noise Measurements

The HP 11729C, combined with an HP 8662A Synthesized Signal Generator and a baseband spectrum analyzer, provides a broadband measurement system for phase noise and AM noise measurements on microwave oscillators, 10 MHz to 18 GHz. The HP 11729C may be ordered with either full frequency coverage, or in a number of bands to specifically match the application. The HP 11729C supports both the phase detector and frequency discriminator phase noise measurement techniques, as well as AM noise measurements, at offsets from the carrier <1 Hz to 10 MHz. The HP 11729C also supports pulsed AM and phase noise measurements.

The HP 11729C Carrier Noise Test Set is a fully programmable instrument. All functions can be automatically controlled via the HP Interface Bus. With an appropriate programmable baseband spectrum analyzer, the HP 11729C can be integrated into your own automatic system. By adding the HP 11729C and an HP 8662A or HP 8663A to the HP 3048A Phase Noise Measurement System, specified phase noise measurements can be made to 18 GHz with a state-of-the-art noise floor.



Complete carrier noise characterization system can be assembled from standard instruments.

Typical System Noise

The HP 11729C/8662A combination includes the critical low noise microwave reference signal (which determines the system noise floor). The HP 11729C also features a new Surface-Acoustic-Wave (SAW) filter which can be configured into an internal SAW oscillator. This built-in oscillator allows the HP 11729C to be used as a low-cost frequency discriminator system for measurements on free-running oscillators. This discriminator mode uses the HP 11729C in a "stand-alone" configuration, combined with a simple length of external delay line (such as RG 223 cable) and an available baseband analyzer.

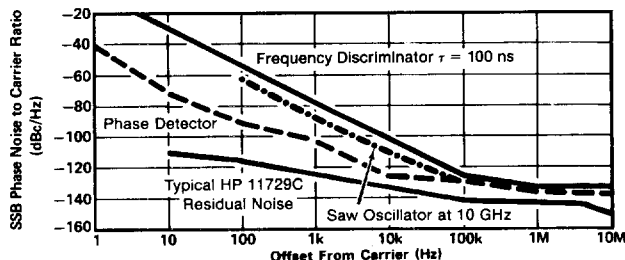


Figure 1. Typical HP 11729C/8662A and HP 11729C self-oscillator mode system sensitivity using the phase detector and frequency discriminator methods at X-Band. Typical HP 11729C residual noise.

Abbreviated HP 11729C/8662A Specifications

Frequency range: 10 MHz to 18 GHz in 8 bands.

Absolute system noise floor, phase detector method:

System noise is specified only when the HP 11729C is used with an HP 8662A or HP 8663A Option 003. See the HP 11729C data sheet for more information.

Test Signal Requirements

Amplitude: +7 dBm minimum to +18 dBm maximum (typically useable to -15 dBm with noise floor degradation).

HP 11729C Outputs

IF output

Bandwidth: 5 to 1280 MHz.

Level: +7 dBm minimum.

Noise spectrum outputs

1) Noise spectrum output <1 MHz: dc coupled, 600Ω nominal.

2) Noise spectrum output <10 MHz: 10 Hz to 10 MHz, 50Ω nominal, nominal 40 dB of gain over <1 MHz output.

3) Auxiliary noise spectrum output: dc coupled, 600Ω nominal.

Phase Lock Loop Function

Frequency control outputs

To crystal oscillator: ±10V.

To dc FM: ±1V.

Lock bandwidth factor: nominal 1, 10, 100, 1k, 10k selectable.

Remote Programming

All front panel functions are HP-IB programmable. In addition, the HP 11729C can output current settings and out-of-lock indication.

AM Noise Detection (Option 130)

Frequency: 10 MHz to 18 GHz.

Input level: 0 dBm minimum to +18 dBm maximum.

AM noise floor (at +10 dBm input level, dBc/Hz):

Offset from Carrier (Hz)	Typical	Specified
1k	-147	-138
10k	-152	-145
100k	-161	-155
1M	-165	-160

General

Operating temperature range: 0° to +55°C.

Power: 100, 120, 220, 240 V, +5%, -10%; 48 to 66 Hz; <75 VA max.

Weight: net, 10.4 kg (23 lb); shipping, 13.6 kg (30 lb).

Size: 425 W x 99 H x 551 mm D (21.7" x 16.8" x 3.9"). 1 MW x 3 1/2 H x 20 D System II module.

Ordering Information

HP 11729C Carrier Noise Test Set (10 MHz to 18 GHz)

Price

\$23,980

Note: Each of options 003 to 027 (only one may be ordered) also includes 0.005 to 1.28 GHz coverage

Opt 003 (1.28 to 3.2 GHz) - \$8,500

Opt 007 (3.2 to 5.76 GHz) - \$8,500

Opt 011 (5.76 to 8.32 GHz) - \$8,500

Opt 015 (8.32 to 10.88 GHz) - \$8,500

Opt 019 (10.88 to 13.44 GHz) - \$8,500

Opt 023 (13.44 to 16.0 GHz) - \$8,500

Opt 027 (16.0 to 18.0 GHz) - \$8,500

Opt 130 AM noise detection + \$1,750

Opt 140 Rear panel connectors + \$500

Opt 907 Front panel handle kit (5061-9688) + \$55

Opt 908 Rack mounting flange kit (5061-9674) + \$35

Opt 909 Front panel handle plus rack mounting flange kit (5061-9675) + \$80

Opt 910 2 sets operation and service manuals (11729-90017) + \$35