

KEYSIGHT TECHNOLOGIES (AGILENT HP)

11970K

The Keysight (Agilent) 11970K is a high-performance, passive waveguide harmonic mixer designed to extend the frequency range of spectrum analyzers into the K-band (18 to 26.5 GHz). Featuring a dual-diode design, the 11970K achieves low conversion loss and an exceptionally flat frequency response without requiring external DC bias or tuning stubs.

SPECIFICATIONS

Physical

Power Supply	None (passive device)
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	51 × 51 × 82 mm mm
Weight	0.14 kg kg
Waveguide Size	WR-42

Frequency & Band Specifications

RF Input Frequency Range	18 to 26.5 GHz
LO Input Frequency Range	3.0 to 6.1 GHz
IF Output Frequency Range	DC to 1300 MHz
LO Harmonic Number (N)	6
Waveguide Band Designation	K-band

Electrical & Performance Parameters

Maximum Conversion Loss	24 dB
Flat Frequency Response	±1.9 dB
Typical Gain Compression	-3 dBm
Maximum CW RF Input Level	+20 dBm (100 mW)
Maximum Peak Pulse Power	+24 dBm (250 mW)
Optimum LO Drive Level	+14 to +18 dBm
Spectrum Analyzer Noise Floor (1 kHz BW)	-105 dBm

Port Impedance & VSWR

RF Input Port SWR	Typically 2.2:1
-------------------	-----------------

DC Bias & Control Requirements

External DC Bias Requirements	None (no bias required)
Tuning Adjustments	None (no tuning stubs required)

Physical Interfaces & Connectors

RF Input Connector Type	WR-42 Waveguide
Waveguide Flange Type	UG-595/U flange
LO Input Connector Type	SMA female
IF Output Connector Type	SMA female

General

Compatible Spectrum Analyzers	Keysight E4407B ESA-E, Agilent 8560 E-series, Agilent 8566B (with 11975A amplifier), Agilent 70000 MMS (with 70907A/B)
-------------------------------	--

Environmental

Storage Temperature Range	-40 to +75 °C
Environmental Compliance	Meets MIL-T-28800C, Type III, Class 3, Style C

Performance

Calibration Points	Individually calibrated at 100 MHz intervals across the band
--------------------	--

Limits

Maximum LO Input Level	+20 dBm (100 mW)
Maximum RF Input DC Voltage	0 V
Maximum LO Input DC Voltage	±0.2 V

LO Input

LO Input Impedance	50 Ω nominal
--------------------	--------------

IF Output

IF Output Impedance	50 Ω nominal
---------------------	--------------

Calibration

Calibration Accuracy	±2.0 dB
Calibration Point Interval	100 MHz

TECHNOLOGY

Dual-diode passive harmonic mixer

APPLICATIONS

Extending spectrum analyzer frequency range

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.