

KEYSIGHT TECHNOLOGIES (AGILENT HP)

N8974A

The Keysight N8974A (formerly Agilent) is a high-performance, 10 MHz to 6.7 GHz Noise Figure Analyzer from the NFA Series. Designed for fast, accurate, and repeatable noise figure and gain measurements, it features a dedicated second GPIB port for local oscillator (LO) control, six user-selectable measurement bandwidths, and compatibility with Smart Noise Sources (SNS) to simplify complex setups and deliver highly reliable results.

SPECIFICATIONS

General

Interfaces	GPIB (2 ports: System and dedicated LO control), LAN, RS-232, Centronics Parallel, VGA out
Display	6.7-inch color LCD, 640 x 480 VGA resolution

Physical

Power Supply	90 to 260 V AC, 47 to 63 Hz, 150 VA maximum
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	426 mm W × 177 mm H × 437 mm D mm
Weight	15.5 kg kg

Frequency Characteristics

Frequency Range	10 MHz to 6.7 GHz
Tuning Resolution	1 Hz
Frequency Reference Aging Rate	$\pm 1 \times 10^{-7}$ per year
Frequency Reference Temperature Stability	$\pm 1 \times 10^{-6}$ (0 to 55 °C)
External Reference Input Frequency	10 MHz (nominal)
External Reference Input Power Level	-15 dBm to +10 dBm

Noise Figure & Gain Measurement Performance

Noise Figure Measurement Range	0 to 30 dB
Noise Figure Instrument Uncertainty (10 MHz to 3.0 GHz)	±0.05 dB
Noise Figure Instrument Uncertainty (3.0 GHz to 6.7 GHz)	±0.10 dB
Noise Figure Resolution	0.01 dB
Gain Measurement Range	-20 to +40 dB
Gain Instrument Uncertainty (10 MHz to 3.0 GHz)	±0.17 dB
Gain Instrument Uncertainty (3.0 GHz to 6.7 GHz)	±0.25 dB
Gain Resolution	0.01 dB
Y-Factor Resolution	0.01 dB

RF Input & Port Characteristics

RF Input Connector Type	APC 3.5 (m)
RF Input Impedance	50 Ω nominal
RF Input VSWR (10 MHz to 3.0 GHz)	< 1.5:1
RF Input VSWR (3.0 GHz to 6.7 GHz)	< 1.8:1
Maximum Safe DC Input Voltage	±20 Vdc
Maximum Safe RF Input Power	+15 dBm continuous

Intermediate Frequency (IF) & Bandwidths

Selected IF Bandwidths	4 MHz, 2 MHz, 1 MHz, 400 kHz, 250 kHz, 100 kHz
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Measurement & Sweep Capabilities

Supported Device Types (DUT)	Amplifier, Downconverter, Upconverter
Measurement Modes	Amplifier, Downconverter (fixed/variable LO), Upconverter (fixed/variable LO)
Sweep Points Range	2 to 401 points
Averaging Range	1 to 1024 (user selectable)
User Calibration Types	1-stage (Amplifier), 2-stage (Frequency Converter)
Local Oscillator (LO) Control	Dedicated second GPIB port for external LO sweep synchronization

Noise Source Compatibility & Drive

Noise Source Drive Voltage	28 V ±0.1 V (pulsed)
Noise Source Drive Port	BNC female (front panel)
Smart Noise Source (SNS) Compatibility	Compatible with Agilent/Keysight N4000A series SNS
ENR Table Storage Capacity	Up to 30 tables internally

Display & User Interface

Trace Formats	Graphic, Table, Meter
Number of Measurement Traces	2 simultaneous traces
Marker Functions	4 markers with normal and delta modes
Limit Line Testing Capabilities	Upper and lower limit lines with pass/fail notification

System, Memory & I/O Interfaces

Internal Data Storage Capacity	3.5-inch floppy disk drive (1.44 MB) and internal non-volatile flash RAM
External Trigger Input Port	BNC female
Remote Programming Language	SCPI

Physical & Environmental Specifications

Operating Humidity Range	Up to 95% RH at 40 °C (non-condensing)
Warm-up Time	1 hour

Compliance & Certifications

Recommended Calibration Cycle	1 year
Standard Warranty	1 year

Frequency Reference (Option 1D5)

Option 1D5 Frequency Reference Aging Rate	$< \pm 1 \times 10^{-7}$ per year
Option 1D5 Frequency Reference Temperature Stability	$< \pm 1.5 \times 10^{-8}$

Rear Panel Connections

Dedicated LO GPIB Port	IEEE-488 interface dedicated to external local oscillator control
VGA Output Port	15-pin D-sub, female
Serial Interface Port	9-pin D-sub male, RS-232 compatible
Parallel Interface Port	25-pin D-sub female, Centronics compatible

Storage & Media

Floppy Disk Drive	3.5-inch MS-DOS compatible, 1.44 MB
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General & Environmental

Maximum AC Power Consumption	150 VA
Operating Altitude Limit	Up to 3,000 meters (9,842 feet)
Storage Altitude Limit	Up to 15,240 meters (50,000 feet)
Acoustic Noise Emission	< 42 dBA (low fan speed), < 50 dBA (high fan speed)
Safety Compliance Standards	Conforms to EN 61010-1 / IEC 1010-1, CSA C22.2 No. 1010.1
EMC Compliance Standards	Conforms to EN 55011 / CISPR 11 Group 1 Class A

Performance

Instrument Noise Figure (10 MHz to 3.0 GHz)	< 10 dB
Instrument Noise Figure (3.0 GHz to 6.7 GHz)	< 13 dB

Inputs & Outputs

Rear Panel IF Output Frequency	21.4 MHz
Rear Panel IF Output Impedance	50 Ω (nominal)
Rear Panel 10 MHz Reference Output Power	≥ 0 dBm (nominal)
Rear Panel 10 MHz Reference Output Connector	BNC female
Trigger Output Level	TTL compatible, nominal 0 to 5 V
Smart Noise Source (SNS) Connector	11-pin multi-port

Power

AC Input Voltage Range	90 to 250 V AC
AC Power Line Frequency	50 to 60 Hz (at 90 to 250 V AC), 400 Hz (at 90 to 132 V AC)

TECHNOLOGY

Noise Figure Analysis

APPLICATIONS

Amplifier and frequency translating device characterization

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