

KEYSIGHT TECHNOLOGIES (AGILENT HP)

N5161A

The Keysight Technologies N5161A (formerly Agilent) MXG ATE Analog RF Signal Generator is designed specifically for automated test equipment environments, offering the same high-performance, reliability, and 2RU form factor as the N5181A but optimized for rack integration. By removing the front-panel display and relocating all connectors to the rear panel, it ensures secure, tamper-resistant operation and streamlined cable management. With a frequency range up to 3 GHz or 6 GHz, rapid SCPI switching times, and standard electronic attenuators, the N5161A is ideal for high-throughput manufacturing and production environments.

SPECIFICATIONS

Frequency

Minimum Frequency	100 kHz Hz
Maximum Frequency	1 GHz / 3 GHz / 6 GHz (option dependent) Hz
Frequency Resolution	0.01 Hz
Option 501 Frequency Range	100 kHz to 1 GHz
Frequency Aging (Standard)	±1.0 ppm/year
Frequency Aging (Option UNX)	±0.05 ppm/year
Phase Offset Resolution	0.1 degrees
Reference Oscillator Temperature Stability (Standard)	±1 ppm (0 to 55 °C)
Reference Oscillator Temperature Stability (Option UNX)	<= ±0.01 ppm (0 to 55 °C)

Output

Maximum Output Power	+23 dBm @ 1 GHz (with Option 1EA) dBm
Output Power Range	-110 to +13 dBm (standard), expandable to -110 to +23 dBm with Option 1EA @ 1 GHz
Phase Noise	<= -121 dBc/Hz (typical) at 1 GHz and 20 kHz offset

Modulation

Modulation	AM, FM, Phase (øM), and Pulse
Sweep Modes	Digital step sweep, list sweep (simultaneous switching of frequency and power)
LF Generator Waveforms	Sine, square, triangle, ramp, noise
LF Generator Frequency Range	0.1 Hz to 2 MHz (Sine)
Pulse Modulation Minimum Pulse Width (Option UNU)	500 ns
Pulse Modulation Minimum Pulse Width (Option UNW)	80 ns
Pulse Generator Resolution	10 ns
FM Deviation Range	N × 10 MHz max (Option UNT)
AM Depth Range	0 to 100% (Option UNT)
Phase Modulation Deviation Range	N × 10 rad max (Option UNT, normal bandwidth)

General

Reference Oscillator	Internal aging rate < ±1 ppm/year (standard) or < ±0.05 ppm/year (Option UNX)
Interfaces	100BaseT LAN, USB 2.0, GPIB
Display	None (front-panel display removed for ATE configuration)

Physical

Power Supply	100 to 240 VAC, 50 to 60 Hz
Dimensions (W×H×D)	88 mm H x 426 mm W x 489 mm D (2RU) mm
Weight	< 12.5 kg kg
Front Panel Indicators	Status LEDs (LXI, LAN, Standby/On, Error, Sweep, RF On)

Frequency Specifications

Frequency Switching Speed (SCPI)	<= 5 ms (standard), <= 1.15 ms (with Option UNZ)
Frequency Switching Speed (List Mode)	<= 5 ms (standard), <= 900 µs (with Option UNZ)
Internal Reference Frequency	10 MHz
External Reference Input Frequency	10 MHz (standard) or 1 to 50 MHz (with Option 1ER)
External Reference Input Amplitude	-3 to +20 dBm (typical)

Hardware and Software Options

Option 503 Frequency Range	100 kHz to 3 GHz
Option 506 Frequency Range	100 kHz to 6 GHz
Option 1EA High Power	Provides up to +23 dBm output power @ 1 GHz
Option UNX Ultra-Low Phase Noise	Provides enhanced phase noise performance
Option 1ER Flexible Reference Input	Allows external reference inputs from 1 to 50 MHz in 1 Hz steps

Amplitude Specifications

Output Voltage SWR	< 1.4 (typical for carrier frequencies < 3 GHz)
Attenuator Type	Electronic (standard)

Spectral Purity

Sub-harmonics	None (< 3 GHz), <-75 dBc (3 to 4.5 GHz), <-65 dBc (4.5 to 6 GHz)
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Analog Modulation

Pulse Modulation On/Off Ratio	> 80 dB (typical)
Pulse Modulation Rise/Fall Time	< 10 ns (typical)

System Connectivity and Interfaces

Connector Placement	All RF and I/O connectors relocated to rear panel for rack configuration
LXI Class Compliance	Class-C compliant
Command Compatibility	SCPI, IVI-COM, backwards compatible with ESG, PSG, and 8648

Physical and Environmental Specifications

Downtime / Serviceability	< 2 hours using field-replaceable assemblies
Operating Temperature Range	0 to 55 °C
Storage Temperature Range	-40 to 70 °C
Operating Humidity Range	Up to 95% relative humidity at 40 °C (non-condensing)
Operating Altitude	Up to 4,600 meters (15,000 feet)
Rack Unit Height	2RU

Compliance and Standards

Calibration Cycle	3 years recommended
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Performance

Level Resolution	0.01 dB
Maximum Reverse DC Voltage	50 VDC
Amplitude Switching Speed (SCPI)	≤ 5 ms (typical)
Amplitude Switching Speed (List Mode)	≤ 5 ms (typical)

Inputs & Outputs

RF Output Impedance	50 Ω (nominal)
External Modulation Input Impedance	50 Ω, 600 Ω, or 100 kΩ nominal (selectable)
External Modulation Input Sensitivity	±1 V peak for indicated deviation or depth

Sweep

List/Step Sweep Number of Points	2 to 65535
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TECHNOLOGY

RF Signal Generation

APPLICATIONS

Automated Test Equipment (ATE)

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