

KEYSIGHT TECHNOLOGIES (AGILENT HP)

N9020A-526

The Keysight Technologies (Agilent) N9020A-526 is a 10 Hz to 26.5 GHz configuration of the MXA signal analyzer series. Known for delivering rapid spectrum and signal analysis, it combines high dynamic range and absolute amplitude accuracy with an open Windows XP operating system, making it a standard choice for wireless development and manufacturing testing.

SPECIFICATIONS

General

Display	8.4-inch (213 mm) diagonal color LCD touchscreen, 1024 x 768 (XGA) resolution
Internal Data Storage	Removable Solid State Drive (SSD)

Physical

Power Supply	100 to 120 V AC (50/60/400 Hz), 220 to 240 V AC (50/60 Hz); < 260 W nominal
Dimensions (W×H×D)	426 mm W × 177 mm H × 368 mm D mm
Weight	16 kg nominal kg

Frequency

Frequency Range	10 Hz to 26.5 GHz
Frequency Reference Accuracy	$\pm[(\text{time since last adjustment} \times \text{aging rate}) + \text{temperature stability} + \text{calibration accuracy}]$
Aging Rate (Standard)	$\pm 1 \times 10^{-6}/\text{year}$
Aging Rate (Option PFR)	$\pm 1 \times 10^{-7}/\text{year}$
Temperature Stability (Option PFR)	$\pm 1.5 \times 10^{-8}$
Frequency Span Range	0 Hz (zero span), 10 Hz to 26.5 GHz
Span Accuracy	$\pm(0.25\% \times \text{span} + 2 \times \text{span} / (\text{sweep points} - 1))$
Sweep Time Range (Span > 0 Hz)	1 us to 6000 s
Sweep Time Range (Zero Span)	1 us to 6000 s
Sweep Trigger Sources	Free Run, Line, Video, External 1, External 2, RF Burst, Periodic Timer
Marker Frequency Counter Accuracy	$\pm(\text{marker frequency} \times \text{frequency reference accuracy} + \text{counter resolution})$
Marker Frequency Counter Resolution	0.001 Hz
Sweep Time Accuracy (Span > 0 Hz)	$\pm 0.01\%$ (nominal)
Sweep Time Accuracy (Zero Span)	$\pm 0.01\%$ (nominal)
Sweep Points Range	1 to 40001

Bandwidth & Filters

Resolution Bandwidth (RBW) Range	1 Hz to 3 MHz (in 10% steps), 4, 5, 6, 8 MHz
RBW Selectivity (Shape Factor)	4.1:1 (nominal, Gaussian filter)
Video Bandwidth (VBW) Range	1 Hz to 3 MHz (in 10% steps), 4, 5, 6, 8 MHz, and Wide Open

Amplitude

Amplitude Measurement Range	DANL to +30 dBm
Maximum Safe RF Input Level	+30 dBm (1 W) with ≥ 10 dB attenuation
DC Input Voltage Limit (DC Coupled)	± 0.2 V
1 dB Gain Compression Point (at 1 GHz)	+13 dBm (nominal)
DANL (Preamp Off, at 1 GHz)	-151 dBm/Hz (-154 dBm/Hz typical)
DANL (Preamp Off, at 26.5 GHz)	-137 dBm/Hz (-143 dBm/Hz typical)
DANL (Preamp On Option P26, at 1 GHz)	-162 dBm/Hz (-164 dBm/Hz typical)
DANL (Preamp On Option P26, at 26.5 GHz)	-152 dBm/Hz (-156 dBm/Hz typical)
Input Attenuator Range (Mechanical)	0 to 70 dB, in 2 dB steps
W-CDMA ACLR Dynamic Range	73 dB (78 dB typical with noise correction on)
Input VSWR (10 MHz to 3.6 GHz)	1.2:1 (nominal)
Input VSWR (3.6 GHz to 26.5 GHz)	1.6:1 (nominal)
Scale Fidelity	± 0.15 dB total for 0 to -80 dBm at input
Reference Level Range	-170 to +30 dBm in 0.01 dB steps
Electronic Attenuator (Option EA3) Step Size	1 dB
Electronic Attenuator (Option EA3) Range	0 to 24 dB

Spectral Purity

SSB Phase Noise (1 GHz carrier, 10 kHz offset)	-114 dBc/Hz (-117 dBc/Hz typical)
SSB Phase Noise (1 GHz carrier, 100 kHz offset)	-115 dBc/Hz (-117 dBc/Hz typical)
SSB Phase Noise (1 GHz carrier, 1 MHz offset)	-135 dBc/Hz (-137 dBc/Hz typical)
Third-Order Intercept (TOI) at 1 GHz	+16 dBm (+19 dBm typical)
Second Harmonic Distortion (SHI) at 1 GHz	+45 dBm (nominal)
Residual FM	< 0.25 Hz p-p in 20 ms (nominal, band 0)
Spurious Responses	-80 dBc (typical) at 1 GHz
Residual Responses	-100 dBm

Vector Analysis

Optional Analysis Bandwidth Configurations	40 MHz (Option B40)
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Inputs & Outputs

RF Input Connector	3.5 mm female, 50 ohm nominal
External Reference Input	10 MHz, BNC female, -5 to +10 dBm
Internal Reference Output	10 MHz, BNC female, >= 0 dBm
External Trigger Input	BNC female, > 10 kohm
External Trigger Output	BNC female, 50 ohm nominal
LAN Interface Port	1000Base-T, RJ-45
GPIO Interface	IEEE-488 bus connector
External Display Interface	VGA (15-pin D-sub)
Audio Output Jack	3.5 mm miniature jack (front panel)
RF Input Coupling	DC coupled
Nominal Input Impedance	50 ohms

System & Software

Internal Operating System	Windows XP Professional
SCPI Language Compatibility	Standard SCPI commands, Agilent PSA/ESA emulation
Standard Measurement Functions	Channel Power, Adjacent Channel Power (ACP), Occupied Bandwidth (OBW), Multi-Carrier ACP, Power Stat CCDF, Spectrum Emission Mask (SEM), Spurious Emissions
Phase Noise Measurement Application	Supported (Option N9068A)
Noise Figure Measurement Application	Supported (Option N9069A)
Cellular Measurement Applications	LTE, W-CDMA/HSPA/HSPA+, GSM/EDGE/EDGE Evolution, cdma2000, 1xEV-DO
Wireless Connectivity Applications	WLAN (802.11a/b/g/n), Mobile WiMAX, Bluetooth

Environmental

Storage Temperature Range	-40 to +70 °C
Operating Humidity Range	Relative humidity 95% at 40 °C (non-condensing)
Maximum Operating Altitude	4,600 meters (15,000 feet)
EMC Compliance Standards	Complies with European EMC Directive 2004/108/EC, IEC/EN 61326-1
Safety Standards	Complies with European Low Voltage Directive 2006/95/EC, IEC/EN 61010-1
Storage Altitude	15,240 m
Operating Shock	30 g (half-sine, 11 ms duration)
Operating Random Vibration	0.21 g rms (5 Hz to 500 Hz)
Non-Operating Random Vibration	2.09 g rms (5 Hz to 500 Hz)

Hardware Options

Preamplifier Option (Option P26)	100 kHz to 26.5 GHz
Precision Frequency Reference (Option PFR)	Provides high stability aging rate and temperature stability
Electronic Attenuator Option (Option EA3)	0 to 24 dB in 1 dB steps (up to 3.6 GHz)

Power Requirements

Power Consumption (Active)	260 W (nominal)
Power Consumption (Maximum)	450 W
Power Consumption (Standby)	20 W
AC Input Voltage Range	100 to 120 V AC (50/60/400 Hz), 220 to 240 V AC (50/60 Hz)

Measurement Speed

Local Measurement Update Rate	≥ 50 sweeps/s (nominal)
Remote Measurement and GPIB Transfer Rate	≥ 45 sweeps/s (nominal)
Marker Peak Search Time	≤ 5 ms (nominal)

Display & Controls

Display Resolution	1024 x 768 pixels (XGA)
Display Size	8.4-inch (213 mm) diagonal
Trace Detectors	Normal, Peak, Sample, Negative Peak, Average (Log/RMS/Voltage)
Number of Displayed Traces	6

Input & Output Ports

Analog Out Connector (Option YAS)	BNC female
SNS Noise Source Drive Port	3-pin connector

General & Standards

Warm-up Time	45 minutes
Calibration Cycle	1 year
Environmental Compliance	MIL-PRF-28800F Class 3

Options & Enhancements

Microwave Preselector Bypass Option	Option MPB (3.6 GHz to 26.5 GHz)
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Performance

Preselector Filter Bandwidth	Typically > 35 MHz (above 3.6 GHz)
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TECHNOLOGY

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APPLICATIONS

RF/Microwave signal testing, spectrum analysis, wireless communications development and manufacturing

