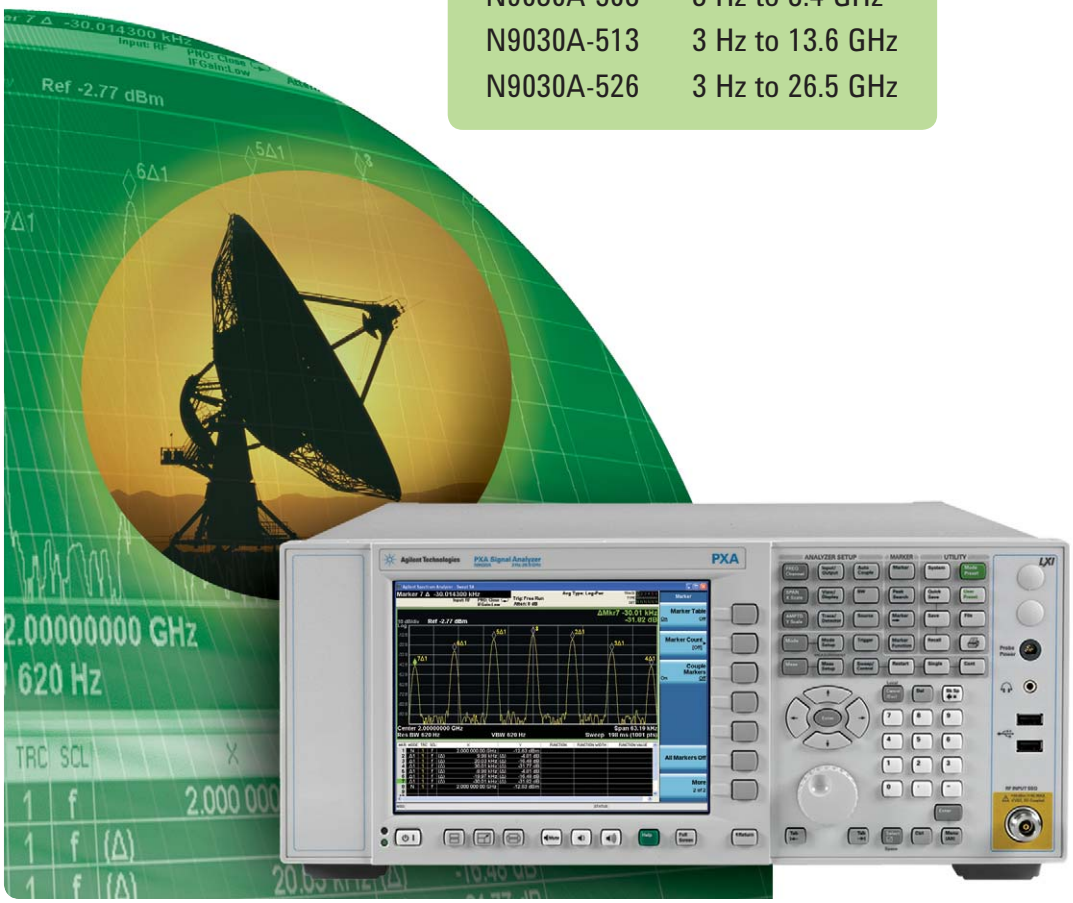
Agilent
PXA Signal Analyzer
N9030A

Data Sheet

LXI class C certified

Available frequency ranges

N9030A-503	3 Hz to 3.6 GHz
N9030A-508	3 Hz to 8.4 GHz
N9030A-513	3 Hz to 13.6 GHz
N9030A-526	3 Hz to 26.5 GHz



Agilent Technologies

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Agilent's future-ready PXA signal analyzer is the evolutionary replacement for your current high-performance analyzer. It helps you sustain past achievements, enhance current designs and accelerate future innovations.

Its performance, flexibility, capability and compatibility enable you to address demanding applications in aerospace, defense, commercial communications and more.

- Reveal new levels of signal detail with outstanding RF performance
- Increase test throughput and protect your system investments
- Refresh legacy systems with a highly compatible replacement

Definitions and Conditions

Specifications describe the performance of parameters covered by the product warranty and apply to temperature ranges 0 to 55 °C for the solid-state drive (Option SSD), or 5 to 50 °C for the hard disk drive (standard), unless otherwise noted.

95th percentile values indicate the breadth of the population (approx. 2 σ) of performance tolerances expected to be met in 95 percent of the cases with a 95 percent confidence, for any ambient temperature in the range of 20 to 30 °C. In addition to the statistical observations of a sample of instruments, these values include the effects of the uncertainties of external calibration references. These values are not warranted. These values are updated occasionally if a significant change in the statistically observed behavior of production instruments is observed.

Typical describes additional product performance information that is not covered by the product warranty. It is performance beyond specifications that 80 percent of the units exhibit with a 95 percent confidence level over the temperature range 20 to 30 °C. Typical performance does not include measurement uncertainty.

Nominal values indicate expected performance, or describe product performance that is useful in the application of the product, but is not covered by the product warranty.

The analyzer will meet its specifications when:

- The analyzer is within its calibration cycle.
- Under auto couple control, except that Auto Sweep Time Rules = Accy.
- For signal frequencies < 10 MHz, DC coupling applied.
- The analyzer has been stored at an ambient temperature within the allowed operating range for at least two hours before being turned on, if it had previously been stored at a temperature range inside the allowed storage range but outside the allowed operating range.
- The analyzer has been turned on at least 30 minutes with Auto Align set to normal, or if Auto Align is set to off or partial, alignments must have been run recently enough to prevent an Alert message. If the Alert condition is changed from Time and Temperature to one of the disabled duration choices, the analyzer may fail to meet specifications without informing the user.

This PXA signal analyzer data sheet is a summary of the complete specifications and conditions. The complete PXA Signal Analyzer Specification Guide can be obtained from the web at: **www.agilent.com/find/pxa_specifications**

Frequency and Time Specifications

Frequency range	DC coupled	AC coupled
Option 503	3 Hz to 3.6 GHz	10 MHz to 3.6 GHz
Option 508	3 Hz to 8.4 GHz	10 MHz to 8.4 GHz
Option 513	3 Hz to 13.6 GHz	10 MHz to 13.6 GHz
Option 526	3 Hz to 26.5 GHz	10 MHz to 26.5 GHz

Band	LO Multiple (N)	DC coupled
0	1	3 Hz to 3.6 GHz
1	1	3.5 to 8.4 GHz
2	2	8.3 to 13.6 GHz
3	2	13.5 to 17.1 GHz
4	4	17 to 26.5 GHz

Precision frequency reference	
Accuracy	± [(time since last adjustment x aging rate) + temperature stability + calibration accuracy]
Aging rate	± 1 x 10^{-7}/year ± 1.5 x 10^{-7}/2 years
Temperature stability	
20 to 30 °C Full temperature range	± 1.5 x 10^{-8} ± 5 x 10^{-8}
Achievable initial calibration accuracy	± 4 x 10^{-8}
Example frequency reference accuracy one year after last adjustment 20 to 30 °C	= ± (1x1x10^{-7} + 1.5 x 10^{-8} + 4 x 10^{-8}) = ± 1.55 x 10^{-7}
Residual FM Center frequency = 1 GHz 10 Hz RBW, 10 Hz VBW	≤ (0.25 Hz x N) p-p in 20 ms nominal See band table above for N (LO Multiple)

Frequency readout accuracy (start, stop, center, marker)
± (marker frequency x frequency reference accuracy + 0.10% x span + 5% x RBW + 2 Hz + 0.5 x horizontal resolution*)
* Horizontal resolution is span/(sweep points – 1)

Marker frequency counter	
Accuracy	± (marker frequency x frequency reference accuracy + 0.100 Hz)
Delta counter accuracy	± (delta frequency x frequency reference accuracy + 0.141 Hz)
Counter resolution	0.001 Hz

Frequency and Time Specifications (continued)

Frequency span (FFT and swept mode)

Range	0 Hz (zero span), 10 Hz to maximum frequency of instrument	
Resolution	2 Hz	
Accuracy		
Swept	± (0.1% x span + horizontal resolution)	
FFT	± (0.1% x span + horizontal resolution)	

Sweep time and triggering

Range	Span = 0 Hz	1 µs to 6000 s
	Span ≥ 10 Hz	1 ms to 4000 s
Accuracy	Span ≥ 10 Hz, swept	± 0.01% nominal
	Span ≥ 10 Hz, FFT	± 40% nominal
	Span = 0 Hz	± 0.01% nominal
Sweep trigger	Free run, line, video, external 1, external 2, RF burst, periodic timer	
Trigger delay	Span = 0 Hz or FFT	–150 to +500 ms
	Span ≥ 10 Hz, swept	0 to 500 ms
	Resolution	0.1 µs

Time gating

Gate methods:	Gated LO; Gated video; Gated FFT
Gate length range (except method = FFT):	1 µs to 5.0 s
Gate delay range:	0 to 100.0 s
Gate delay jitter:	33.3 ns p-p nominal

Sweep (trace) point range

All spans	1 to 40,001

Resolution bandwidth (RBW)

Range (–3.01 dB bandwidth)	1 Hz to 3 MHz (10% steps), 4, 5, 6, 8 MHz	
Bandwidth accuracy (power)	RBW range	
	1 Hz to 100 kHz	± 0.5% (± 0.022 dB)
	110 kHz to 1.0 MHz (< 3.6 GHz CF)	± 1.0% (± 0.044 dB)
	1.1 to 2.0 MHz (< 3.6 GHz CF)	± 0.07 dB nominal
	2.2 to 3 MHz (< 3.6 GHz CF)	± 0.10 dB nominal
	4 to 8 MHz (< 3.6 GHz CF)	± 0.20 dB nominal
Bandwidth accuracy (–3.01 dB)	RBW range	
	1 Hz to 1.3 MHz	± 2% nominal
Selectivity (–60 dB/–3 dB)		4.1:1 nominal
EMI bandwidths (CISPR compliant)	200 Hz, 9 kHz, 120 kHz, 1 MHz	(Opt EMC required)
EMI bandwidths (MIL STD 461E compliant)	10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz	(Opt EMC required)

Frequency and Time Specifications (continued)

Analysis bandwidth[1]	
Maximum bandwidth	
Standard	10 MHz
Option B25	25 MHz
Option B40	40 MHz
Option B1X	140 MHz

Video bandwidth (VBW)	
Range	1 Hz to 3 MHz (10% steps), 4, 5, 6, 8 MHz and wide open (labeled 50 MHz)
Accuracy	± 6% nominal (in swept mode and zero span)

Measurement speed[2]	
Local measurement and display update rate	10 ms (100/s) nominal
Remote measurement and LAN transfer rate	10 ms (100/s) nominal
Marker peak search	2.5 ms nominal
Center frequency tune and transfer (RF)	43 ms nominal
Center frequency tune and transfer (µW)	69 ms nominal
Measurement/mode switching	40 ms nominal

1. *Analysis bandwidth is the instantaneous bandwidth available around a center frequency over which the input signal can be digitized for further analysis or processing in the time, frequency, or modulation domain.*
2. *Sweep points = 101*

Amplitude Accuracy and Range Specifications

Amplitude range		
Measurement range	Displayed average noise level (DANL) to maximum safe input level	
Input attenuator range (3 Hz to 26.5 GHz)	0 to 70 dB in 2 dB steps	

Electronic attenuator (Option EA3)	
Frequency range	3 Hz to 3.6 GHz
Attenuation range	
Electronic attenuator range	0 to 24 dB, 1 dB steps
Full attenuation range (mechanical + electronic)	0 to 94 dB, 1 dB steps

Maximum safe input level		
Average total power	+30 dBm (1 W)	With or without preamp
Peak pulse power ≤ 10 µs pulse width, ≤ 1% duty cycle and input attenuation ≥ 30 dB	+50 dBm (100 W)	
DC volts		
DC coupled	± 0.2 Vdc	
AC coupled	± 70 Vdc	

Display range	
Log scale	0.1 to 1 dB/division in 0.1 dB steps, 1 to 20 dB/division in 1 dB steps (10 display divisions)
Linear scale	10 divisions
Scale units	dBm, dBmV, dBµV, dBmA, dBµA, V, W, A

Amplitude Accuracy and Range Specifications (continued)

Frequency response

(10 dB input attenuation, 20 to 30 °C, preselector centering applied at 3.6 GHz and above)			95th percentile (~2 σ)
	3 Hz to 10 MHz	± 0.46 dB	± 0.19 dB
	10 MHz to 3.6 GHz	± 0.35 dB	± 0.16 dB
	3.5 to 8.4 GHz	± 1.5 dB	± 0.39 dB
	8.3 to 13.6 GHz	± 2.0 dB	± 0.45 dB
	13.5 to 22.0 GHz	± 2.0 dB	± 0.62 dB
	22.0 to 26.5 GHz	± 2.5 dB	± 0.82 dB
Preamp on (Option P03, P08, P13, P26)	9 to 100 kHz		± 0.36 dB
attenuation 0 dB	100 kHz to 50 MHz	± 0.68 dB	± 0.26 dB
	50 MHz to 3.6 GHz	± 0.55 dB	± 0.28 dB
	3.5 to 8.4 GHz	± 2.0 dB	± 0.64 dB
	8.3 to 13.6 GHz	± 2.3 dB	± 0.76 dB
	13.5 to 17.1 GHz	± 2.5 dB	± 0.95 dB
	17.0 to 22.0 GHz	± 3.0 dB	± 1.41 dB
	22.0 to 26.5 GHz	± 3.5 dB	± 1.61 dB

Input attenuation switching uncertainty

Relative to 10 dB and preamp off			
At 50 MHz (reference frequency)	attenuation 12 to 40 dB	± 0.14 dB	± 0.03 dB typical
	attenuation 2 to 8 dB	± 0.18 dB	± 0.05 dB typical
	attenuation 0 dB		± 0.05 dB nominal
attenuation > 2 dB			
3 Hz to 3.6 GHz			± 0.3 dB nominal
3.5 to 8.4 GHz			± 0.5 dB nominal
8.3 to 13.6 GHz			± 0.7 dB nominal
13.5 to 26.5 GHz			± 0.7 dB nominal

Total absolute amplitude accuracy

(10 dB attenuation, 20 to 30 °C, 1 Hz ≤ RBW ≤ 1 MHz, input signal –10 to –50 dBm, all settings auto-coupled except Auto Swp Time = Accy, any reference level, any scale, σ = nominal standard deviation)

	At 50 MHz	± 0.24 dB
	At all frequencies	± (0.24 dB + frequency response)
	10 MHz to 3.6 GHz	± 0.19 dB (95th percentile approx. 2 σ)
Preamp on (Option P03, P08, P13, P26)	At all frequencies	± (0.36 dB + frequency response)

Input voltage standing wave ratio (VSWR) (≥ 10 dB input attenuation)

	50 MHz	< 1.07:1 nominal
	10 MHz to 3.6 GHz	< 1.2:1 nominal
	3.6 to 8.4 GHz	< 1.5:1 nominal
	8.4 to 13.6 GHz	< 1.6:1 nominal
	13.6 to 26.5 GHz	< 1.9:1 nominal
Preamp on (Option P03. P08, P13, P26)	10 MHz to 3.6 GHz	< 1.7:1 nominal
	3.6 to 8.4 GHz	< 1.8:1 nominal
	8.4 to 13.6 GHz	< 2.0:1 nominal
	13.6 to 26.5 GHz	< 2.0:1 nominal

Amplitude Accuracy and Range Specifications (continued)

Resolution bandwidth switching uncertainty (referenced to 30 kHz RBW)	
1 Hz to 1.5 MHz RBW	± 0.03 dB
1.6 MHz to 2.7 MHz RBW	± 0.05 dB
3 MHz RBW	± 0.10 dB
4, 5, 6, 8 MHz RBW	± 0.30 dB

Reference level	
Range	
Log scale	–170 to +30 dBm in 0.01 dB steps
Linear scale	707 pV to 7.07 V with 0.11% (0.01 dB) resolution
Accuracy	0 dB

Display scale switching uncertainty	
Switching between linear and log	0 dB
Log scale/div switching	0 dB

Display scale fidelity		
Between –10 dBm and –18 dBm input mixer level	± 0.10 dB	± 0.04 dB typical
below –18 dBm input mixer level	± 0.07 dB	± 0.02 dB typical

Trace detectors
Normal, peak, sample, negative peak, log power average, RMS average, and voltage average

Preamplifier		
Frequency range[1]	Option P03 Option P08 Option P13 Option P26	9 kHz to 3.6 GHz 9 kHz to 8.4 GHz 9 kHz to 13.6 GHz 9 kHz to 26.5 GHz
Gain	9 kHz to 3.6 GHz 3.6 to 26.5 GHz	+20 dB nominal +35 dB nominal
Noise figure	9 kHz to 3.6 GHz 3.6 to 8.4 GHz 8.4 to 13.6 GHz 13.6 to 26.5 GHz	8 to 12 dB nominal (proportional to frequency) 9 dB nominal 10 dB nominal 15 dB nominal

1. Below 100 kHz, only 95th percentile (approx. 2 σ) value for frequency response is provided.

Dynamic Range Specifications

1 dB gain compression (two-tone)

At 1 kHz RBW with 100 kHz tone spacing, 20 to 30 °C		Maximum power at input mixer	
	20 to 40 MHz	–3 dBm	0 dBm typical
	40 to 200 MHz	+1 dBm	+3 dBm typical
	200 MHz to 3.6 GHz	+3 dBm	+5 dBm typical
	3.6 to 16 GHz	+1 dBm	+4 dBm typical
	16 to 26.5 GHz	–1 dBm	+2 dBm typical
Preamp on (Option P03, P08, P13, P26)	10 MHz to 3.6 GHz		–14 dBm nominal
	3.6 to 26.5 GHz		
	Tone spacing 100 kHz to 20 MHz		– 28 dBm nominal
	Tone spacing > 70 MHz		– 10 dBm nominal

Displayed average noise level (DANL)

(Input terminated, sample or average detector, averaging type = Log, 0 dB input attenuation, IF Gain = High, 20 to 30 °C)

		Normal[1]/LNP enabled[2]	Normal[1]/LNP enabled[2]
Preamp off	3 Hz to 9 kHz		–100 dBm/NA typical
	9 to 100 kHz	–146 dBm/NA	–152 dBm/NA typical
	100 kHz to 1 MHz	–150 dBm/NA	–156 dBm/NA typical
	1 to 10 MHz	–155 dBm/NA	–158 dBm/NA typical
	10 MHz to 1.2 GHz	–155 dBm/NA	–157 dBm/NA typical
	1.2 to 2.1 GHz	–153 dBm/NA	–155 dBm/NA typical
	2.1 to 3.0 GHz	–152 dBm/NA	–154 dBm/NA typical
	3.0 to 3.6 GHz	–151 dBm/NA	–153 dBm/NA typical
	3.5 to 4.2 GHz	–147 dBm/–153 dBm	–150 dBm/–156 dBm typical
	4.2 to 8.4 GHz	–150 dBm/–155 dBm	–152 dBm/–157 dBm typical
	8.3 to 13.6 GHz	–149 dBm/–155 dBm	–151 dBm/–157 dBm typical
	13.5 to 16.9 GHz	–145 dBm/–152 dBm	–147 dBm/–155 dBm typical
	16.9 to 20.0 GHz	–143 dBm/–151 dBm	–145 dBm/–153 dBm typical
	20.0 to 26.5 GHz	–137 dBm/–150 dBm	–140 dBm/–152 dBm typical
Preamp on (Option P03, P08, P13, P26)	100 to 200 kHz	–157 dBm/NA	–160 dBm/NA typical
	200 to 500 kHz	–160 dBm/NA	–163 dBm/NA typical
	0.5 to 1 MHz	–164 dBm/NA	–166 dBm/NA typical
Option P03, P08, P13, P26	1 to 10 MHz	–164 dBm/NA	–167 dBm/NA typical
Option P03, P08, P13, P26	10 MHz to 2.1 GHz	–165 dBm/NA	–166 dBm/NA typical
Option P03, P08, P13, P26	2.1 to 3.6 GHz	–163 dBm/NA	–164 dBm/NA typical
Option P08, P13, P26[3]	3.5 to 8.4 GHz	–164 dBm/NA	–166 dBm/NA typical
Option P13, P26[3]	8.3 to 13.6 GHz	–163 dBm/NA	–165 dBm/NA typical
Option P26[3]	13.5 to 16.9 GHz	–161 dBm/NA	–162 dBm/NA typical
Option P26[3]	16.9 to 20.0 GHz	–159 dBm/NA	–161 dBm/NA typical
Option P26[3]	20.0 to 26.5 GHz	–155 dBm/NA	–157 dBm/NA typical

1. *with the NFE (Noise Floor Extension) "Off".*
2. *LNP (Low Noise Path) requires option LNP.*
3. *At higher frequency bands (beyond 3.6 GHz), Preamp "On" supersedes "LNP enabled". LNP cannot operate simultaneously with preamp.*

Dynamic Range Specifications (continued)

DANL with Noise Floor Extension (NFE) on

	95th Percentile	
Improvement for noise-like signals	Preamp Off	Preamp On
Band 0, f > 20 MHz	8.5 dB	8.5 dB
Band 1	4 dB	7 dB
Band 2	7.5 dB	7 dB
Band 3	7 dB	7.5 dB
Band 4	6 dB	6 dB

Examples of effective DANL Frequency 20 to 30 °C	Preamp Off	Preamp On
Mid-Band 0 (1.8 GHz)	–163 dBm	–172 dBm
Mid-Band 1 (5.95 GHz)	–158 dBm	–172 dBm
Mid-Band 2 (10.95 GHz)	–157 dBm	–170 dBm
Mid-Band 3 (15.3 GHz)	–153 dBm	–166 dBm
Mid-Band 4 (21.75 GHz)	–145 dBm	–162 dBm

Residues, images, and spurious responses

Residual responses (Input terminated and 0 dB attenuation)	200 kHz to 8.4 GHz Zero span or FFT or other frequencies	–100 dBm –100 dBm nominal		
	Tuned Freq (f)	Excitation Freq	Response	
Image responses	10 MHz to 26.5 GHz	f+45 MHz	–80 dBc	–118 dBc typical
Mixer level at -10 dBm	10 MHz to 3.6 GHz	f+10,245 MHz	–80 dBc	–112 dBc typical
	10 MHz to 3.6 GHz	f+645 MHz	–80 dBc	–101 dBc typical
	3.5 to 13.6 GHz	f+645 MHz	–78 dBc	–87 dBc typical
	13.5 to 17.1 GHz	f+645 MHz	–74 dBc	–84 dBc typical
	17.0 to 22 GHz	f+645 MHz	–70 dBc	–82 dBc typical
	22 to 26.5 GHz	f+645 MHz	–68 dBc	–79 dBc typical
Other spurious responses				
First RF order (f ≥ 10 MHz from carrier) Mixer level at –10 dBm	–80 dBc + 20log(N*)	Includes IF feedthrough, LO harmonic mixing responses		
Higher RF order (f ≥ 10 MHz from carrier) Mixer level at –40 dBm	–80 dBc + 20log(N*)	Includes higher order mixer responses		
LO-related spurious responses (200 Hz ≤ f < 10 MHz from carrier), Mixer level at –10 dBm	–73 dBc** + 20log(N*)			
Line-related spurious responses		–73 dBc** + 20log(N*) (nominal)		

**: N is the LO multiplication factor. Refer to page 4 for the N value verses frequency ranges.*

***: Nominally –40 dBc under large magnetic (0.38 Gauss rms) or vibrational (0.21 g rms) environmental stimuli.*

Dynamic Range Specifications (continued)

Second harmonic distortion (SHI)

	Source frequency	Mixer level	Distortion*	SHI*
	10 to 100 MHz	–15 dBm	–57 dBc/NA	+42 dBm/NA
	0.1 to 1.8 GHz	–15 dBm	–60 dBc/NA	+45 dBm/NA
	1.75 to 2.5 GHz	–15 dBm	–77 dBc/–95 dBc	+62 dBm/+80 dBm
	2.5 to 4 GHz	–15 dBm	–77 dBc/–101 dBc	+62 dBm/+86 dBm
	4 to 6.5 GHz	–15 dBm	–77 dBc/–105 dBc	+62 dBm/+90 dBm
	6.5 to 10 GHz	–15 dBm	–70 dBc/–105 dBc	+55 dBm/+90 dBm
	10 to 13.25 GHz	–15 dBm	–62 dBc/–105 dBc	+47 dBm/+90 dBm
Preamp on (Option P03, P08, P13, P26)		Preamp level	Distortion	SHI
	10 MHz to 1.8 GHz	–45 dBm	–78 dBc nominal	+33 dBm nominal
	1.8 to 13.25 GHz	–50 dBm	–60 dBc nominal	+10 dBm nominal

*: Normal path/LNP enabled (requires Option LNP)

Third-order intermodulation distortion (TOI)

(two –16 dBm tones at input mixer with tone separation > 5 times IF prefilter bandwidth, 20 to 30 °C)

		TOI	
	10 to 150 MHz	+13 dBm	+16 dBm typical
	150 to 600 MHz	+18 dBm	+21 dBm typical
	0.6 to 1.1 GHz	+20 dBm	+22 dBm typical
	1.1 to 3.6 GHz	+21 dBm	+23 dBm typical
	3.5 to 8.4 GHz	+15 dBm	+22 dBm typical
	8.3 to 13.6 GHz	+15 dBm	+23 dBm typical
	13.5 to 17 GHz	+11 dBm	+17 dBm typical
	17 to 26.5 GHz	+10 dBm	+17 dBm nominal
Preamp on (Option P03, P08, P13, P26)			
(two –45 dBm tones at preamp input)	10 to 500 MHz	+4 dBm nominal	
(two –45 dBm tones at preamp input)	500 MHz to 3.6 GHz	+4.5 dBm nominal	
(two –50 dBm tones at preamp input)	3.6 to 26.5 GHz	–15 dBm nominal	

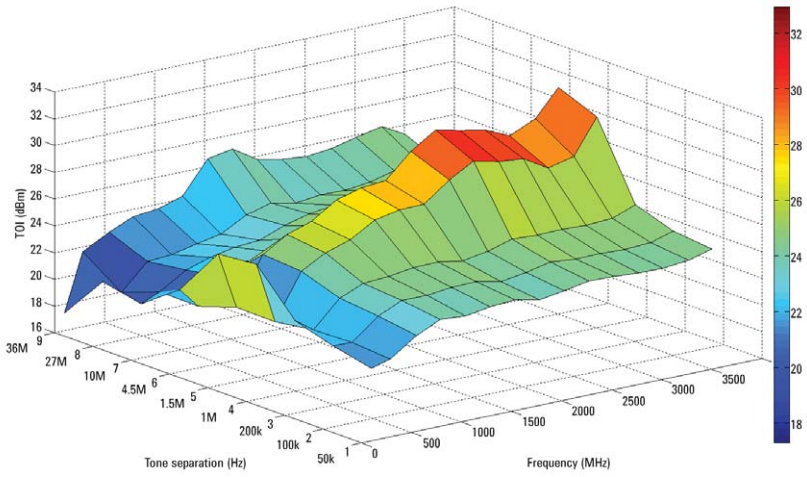

Figure 1. Nominal TOI performance versus frequency and tone separation

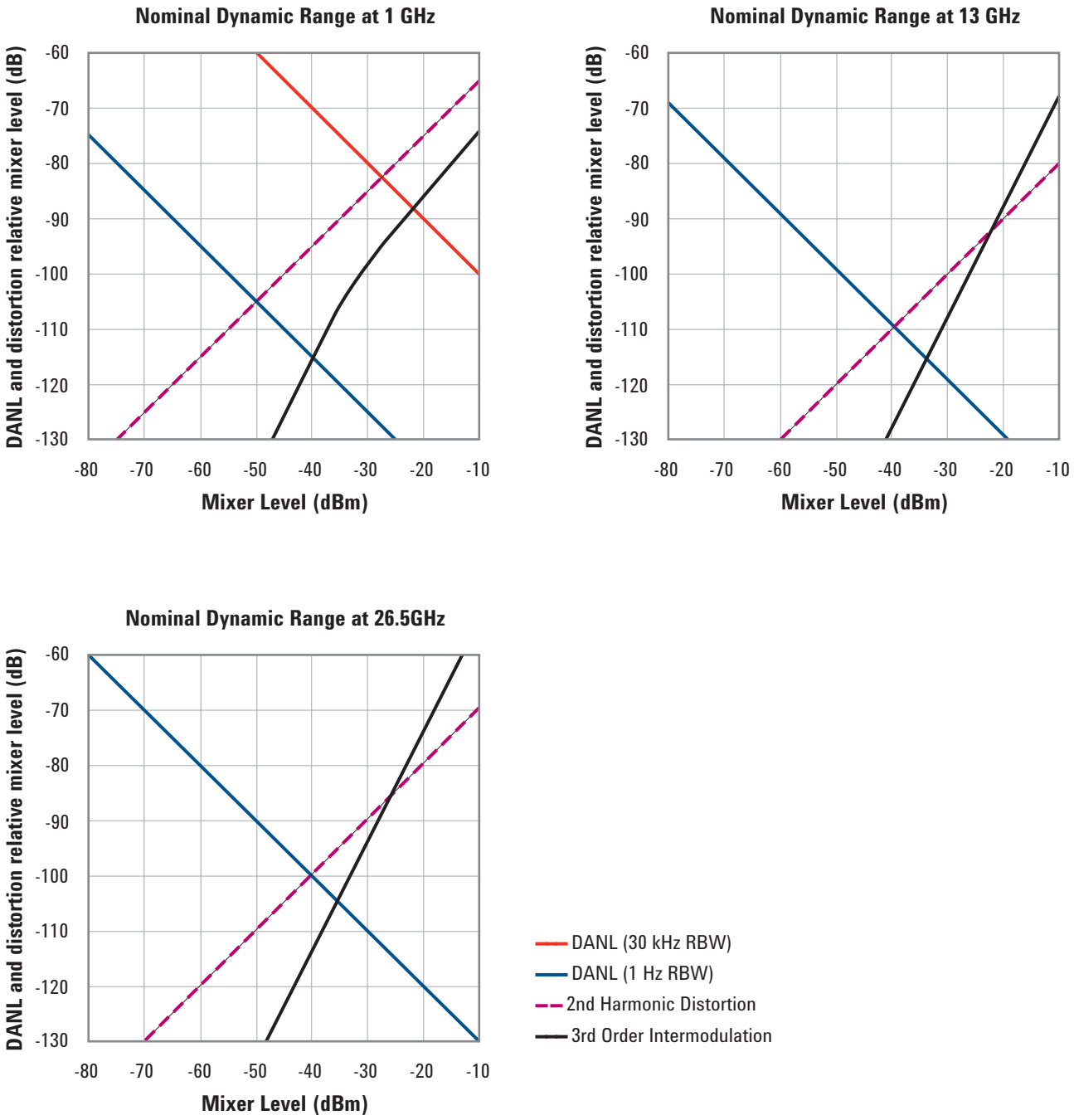

Figure 2. Third-order dynamic range plots

Phase noise

Noise sidebands	Offset frequency		
(20 to 30 °C, CF = 1 GHz)	10 Hz		–75 dBc/Hz nominal
	100 Hz	–94 dBc/Hz	–100 dBc/Hz typical
	1 kHz	–121 dBc/Hz	–125 dBc/Hz typical
	10 kHz	–129 dBc/Hz	–132 dBc/Hz typical
	30 kHz	–130 dBc/Hz	–132 dBc/Hz typical
	100 kHz	–129 dBc/Hz	–131 dBc/Hz typical
	1 MHz	–145 dBc/Hz	–146 dBc/Hz typical
	10 MHz	–155 dBc/Hz	–158 dBc/Hz typical

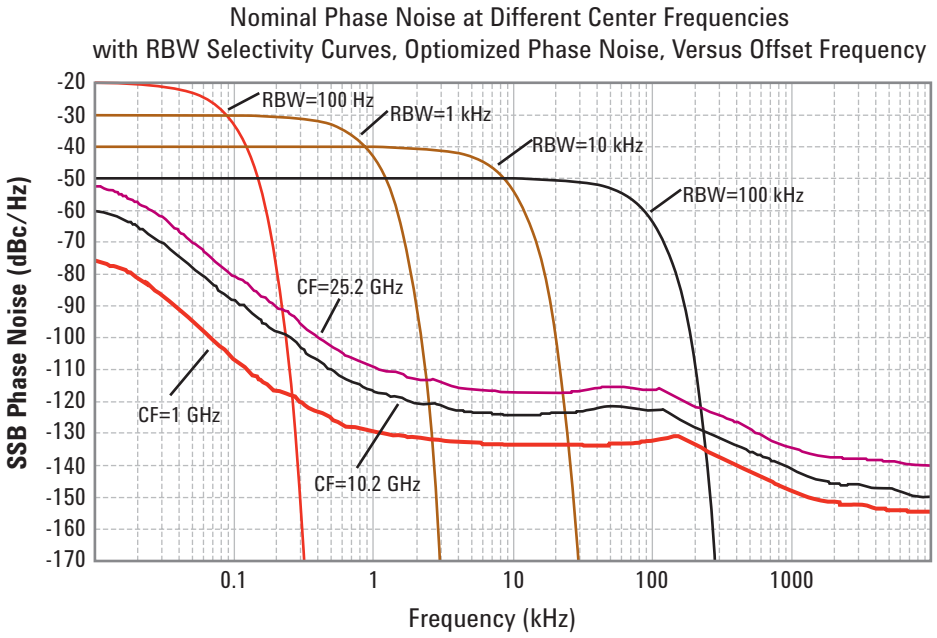

Figure 3. Nominal PXA phase noise at various center frequencies

Option MPB, microwave preselector bypass[1]

Frequency range	
N9030A-508	3.6 to 8.4 GHz
N9030A-513	3.6 to 13.6 GHz
N9030A-526	3.6 to 26.5 GHz

1. *When Option MPB is installed and enabled, some aspects of the analyzer performance change. Please refer to the PXA specification guide for more details.*

PowerSuite Measurement Specifications

Channel power

Amplitude accuracy, W-CDMA or IS95 (20 to 30 °C, attenuation = 10 dB)	± 0.61 dB (± 0.19 dB 95th percentile)

Occupied bandwidth

Frequency accuracy	± [span/1000] nominal

Adjacent channel power

3GPP W-CDMA (ACLR)

Accuracy (at specific mixer levels and ACLP ranges)	Adjacent channel	Alternate channel
MS (UE)	± 0.09 dB	± 0.16 dB
BTS	± 0.18 dB	± 0.31 dB
Dynamic range (typical)	Adjacent channel	Alternate channel
Without noise correction	–80 dB	–87 dB
With noise correction	–83.5 dB (–88 dB[1])	–89 dB
Offset channel pairs measured	1 to 6	

Multi-carrier ACP

3GPP W-CDMA

ACPR accuracy	± 0.13 dB

(4 carriers, 5 MHz offset, BTS, UUT ACPR range at –42 to –48 dB, optimal mixer level at –21 dBm)

Multiple number of carriers measured	Up to 12

Power statistics CCDF

Histogram resolution	0.01 dB

Harmonic distortion

Maximum harmonic number	10th
Results	Fundamental power (dBm), relative harmonics power (dBc), total harmonic distortion in %

Intermod (TOI)

Measure the third-order products and intercepts from two tones

Burst power

Methods	Power above threshold, power within burst width
Results	Single burst output power, average output power, maximum power, minimum power within burst, burst width

Spurious emission

3GPP W-CDMA

Table driven spurious signals; search across regions

Dynamic range (1 to 3.6 GHz)	97.1 dB (101.9 dB typical)
Absolute sensitivity (1 to 3.6 GHz)	–86.4 dBm (–90.4 dBm typical)

Spectrum emission mask (SEM)

cdma2000® (750 kHz offset)

Relative dynamic range	81.6 dB (86.4 dB typical)
Absolute sensitivity	–101.7 dBm (–105.7 typical)
Relative accuracy	± 0.08 dB

3GPP W-CDMA (2.515 MHz offset)

Relative dynamic range	85.4 dB (89.8 dB typical)
Absolute sensitivity	–101.7 dBm (–105.7 typical)
Relative accuracy	± 0.08 dB

1. *Nominal value base on hand-measured results from early production units. These observations were done near 2 GHz, the common W-CDMA operating region.*

General Specifications

Temperature range

Operating	5 to 50 °C 0 to 55 °C (with Option SSD)
Storage	–40 to +65 °C

Altitude

	3,000 meters (approx 10,000 feet) 4,500 meters (approx 14,760 feet) (with Option SSD)

EMC

Complies with European EMC Directive 2004/108/EC

- IEC/EN 61326-1 or IEC/EN 61326-2-1
- CISPR Pub 11 Group 1, class A [1]
- AS/NZS CISPR 11:2002
- ICES/NMB-001

This ISM device complies with Canadian ICES-001.
Cet appareil ISM est conforme a la norme NMB-001 du Canada

Safety

Complies with European Low Voltage Directive 73/23/EEC, amended by 93/68/EEC

- IEC/EN 61010-1 2nd Edition
- Canada: CSA C22.2 No. 61010-1
- USA: UL 61010-1 2nd Edition

Acoustic noise

Acoustic noise emission	Geraeuschemission
LpA < 70 dB Operator position	LpA < 70 dB Am Arbeitsplatz
Normal position	Normaler Betrieb
Per ISO 7779	Nach DIN 45635 t.19

Acoustic noise - more information

(Values given are per ISO 7779 standard in the “Operator Sitting” position)

Ambient temperature	
< 40 °C	Nominally under 55 dBA Sound Pressure. 55 dBA is generally considered suitable for use in quiet office environment
≥ 40 °C	Nominally under 65 dBA Sound Pressure. 65 dBA is generally considered suitable for use in noisy office environment.

Environmental stress

Samples of this product have been type tested in accordance with the Agilent Environmental Test Manual and verified to be robust against the environmental stresses of storage, transportation and end-use; those stresses include but are not limited to temperature, humidity, shock, vibration, altitude and power line conditions. Test methods are aligned with IEC 60068-2 and levels are similar to MIL-PRF-28800F Class 3.

1. *The N9030A is in full compliance with CISPR 11, Class A emissions and is declared as such. In addition, the N9030A has been type tested and shown to meet CISPR 11, Class B emissions limits. Information regarding the Class B emission performance of the N9030A is provided as a convenience to the user and is not intended to be a regulatory declaration.*

General Specifications (continued)

Power requirements	
Voltage and frequency (nominal)	100 to 120 V, 50/60/400 Hz 220 to 240 V, 50/60 Hz
Power consumption	
On	450 W (fully loaded with options)
Standby	40 W

Display	
Resolution	1024 x 768, XGA
Size	213 mm (8.4 in.) diagonal (nominal)

Data storage	
Internal	160 GB nominal (Removable hard disk drive) 160 GB nominal with Option SSD (Removable solid state drive)
External	Supports USB 2.0 compatible memory devices

Weight (without options)	
Net	22 kg (48 lbs) nominal
Shipping	34 kg (75 lbs) nominal

Dimensions	
Height	177 mm (7.0 in)
Width	426 mm (16.8 in)
Length	556 mm (21.9 in)

Warranty

The PXA signal analyzer is supplied with a one-year standard warranty.

Calibration cycle

The recommended calibration cycle is one year. Calibration services are available through Agilent service centers.

Inputs and Outputs

Front panel

RF input Connector	
Standard	type-N female, 50 Ω nominal
Probe power	
Voltage/current	+15 Vdc, ± 7% at 150 mA max nominal –12.6 Vdc, ± 10% at 150 mA max nominal
USB 2.0 ports	
Master (2 ports)	
Standard	Compatible with USB 2.0
Connector	USB Type-A female
Output current	0.5 A nominal
Headphone jack	miniature stereo audio jack (3.5 mm, also known as "⅛ inch")

Rear panel

10 MHz out	
Connector	BNC female, 50 Ω nominal
Output amplitude	≥ 0 dBm nominal
Frequency	10 MHz + (10 MHz x frequency reference accuracy)
Ext Ref In	
Connector	BNC female, 50 Ω nominal
Input amplitude range	–5 to +10 dBm nominal
Input frequency	1 to 50 MHz nominal (selectable to 1 Hz resolution)
Frequency lock range	$\pm 5 \times 10^{-6}$ of specified external reference input frequency
Trigger 1 and trigger 2 inputs	
Connector	BNC female
Impedance	> 10 kΩ nominal
Trigger level range	–5 to +5 V (TTL) factory preset
Trigger 1 and trigger 2 outputs	
Connector	BNC female
Impedance	50 Ω nominal
Level	0 to 5 V (CMOS) nominal
Sync (reserved for future use)	
Connector	BNC female
Monitor output	
Connector	VGA compatible, 15-pin mini D-SUB
Format	XGA (60 Hz vertical sync rates, non-interlaced) Analog RGB
Resolution	1024 x 768
Noise source drive +28 V (pulsed)	
Connector	BNC female
Output voltage	On 28.0 ± 0.1 V (60 mA maximum) Off < 1 V
SNS series noise source	For use with the Agilent Technologies SNS Series noise sources
Digital bus (reserved for future use)	
Connector	MDR-80

Inputs and Outputs (continued)

Rear panel (continued)

Analog out	
Connector	BNC female
USB 2.0 ports	
Master (4 ports)	
Standard	Compatible with USB 2.0
Connector	USB Type-A female
Output current	0.5 A nominal
Slave (1 port)	
Standard	Compatible with USB 2.0
Connector	USB Type-B female
Output current	0.5 A nominal
GPIB interface	
Connector	IEEE-488 bus connector
GPIB codes	SH1, AH1, T6, SR1, RL1, PP0, DC1, C1, C2, C3, C28, DT1, L4, C0
GPIB mode	Controller or Device
LAN TCP/IP interface	
Standard	1000Base-T
Connector	RJ45 Ethertwist
IF output	
Connector	SMA female, shared by Opts CR3, CRP, and ALV
Impedance	50 Ω nominal

2nd IF output, Option CR3

Center frequency	
SA Mode or I/Q analyzer w/IF BW ≤ 25 MHz	322.5 MHz
w/Option B40	250 MHz
w/Option B1X	300 MHz
Conversion gain	–1 to +4 dB (nominal) plus RF frequency response
Bandwidth	
Low band	Up to 140 MHz (nominal)
High band	
w/preselector	Depends on center frequency
w/preselector bypassed	Up to 700 MHz

Arbitrary IF output, Option CRP

Center frequency	
Range	10 to 75 MHz (user selectable)
Resolution	0.5 MHz
Conversion gain	–1 to +4 dB (nominal) plus RF frequency response
Bandwidth	
Output at 70 MHz	
Low band or High band w/Preseletor bypassed	100 MHz (nominal)
Preselected band	Depends on RF center frequency
Lower output frequencies	Subject to folding
Residual output signals	≤ –88 dBm (nominal)

I/Q Analyzer

Frequency

Frequency span	
Standard instrument	10 Hz to 10 MHz
Option B25	10 Hz to 25 MHz
Option B40	10 Hz to 40 MHz
Option B1X	10 Hz to 140 MHz
Resolution bandwidth (spectrum measurement)	
Range	
Overall	100 mHz to 3 MHz
Span = 1 MHz	50 Hz to 3 MHz
Span = 10 kHz	1 Hz to 10 kHz
Span = 100 Hz	100 mHz to 100 Hz
Window shapes	Flat Top, Uniform, Hanning, Hamming, Gaussian, Blackman, Blackman-Harris, Kaiser Bessel (K-B 70 dB, K-B 90 dB and K-B 110 dB)
Analysis bandwidth (waveform measurement)	
Standard instrument	10 Hz to 10 MHz
Option B25	10 Hz to 25 MHz
Option B40	10 Hz to 40 MHz
Option B1X	10 Hz to 140 MHz

IF frequency response (standard 10 MHz IF path)

IF frequency response (demodulation and FFT response relative to the center frequency)

Freq (GHz)	Analysis BW (MHz)	Max error	Midwidth error (95th percentile)	Slope (dB/MHz) (95th percentile)	RMS (nominal)
≤ 3.6	≤ 10	± 0.20 dB	± 0.12 dB	± 0.10 dB	0.02 dB
3.6 to 26.5	≤ 10 preselected				0.2 dB
3.6 to 26.5	≤ 10 preselector off[1]	± 0.20 dB	± 0.12 dB	± 0.10 dB	0.02 dB

IF phase linearity

Center freq (GHz)	Span (MHz)	preselector	Peak-to-peak (nominal)	RMS (nominal)
≥ 0.02, < 3.6	≤ 10	NA	0.06°	0.012°
≥ 3.6 to ≤ 26.5	≤ 10	Off[1]	0.08°	0.018°
≥ 3.6 to ≤ 26.5	≤ 10	On	0.09°	0.019°

1. *Option MPB is installed and enabled.*

I/Q Analyzer (continued)

Dynamic range (standard 10 MHz IF path)		
Clipping-to-noise dynamic range		Excluding residuals and spurious responses
Clipping level at mixer		Center frequency ≥ 20 MHz
IF gain = Low IF gain = High	–10 dBm –20 dBm	–8 dBm nominal –17.5 dBm nominal
Noise density at mixer at center frequency	(DANL + IF Gain effect) + 2.25 dB	

Data acquisition (standard 10 MHz IF path)		
Time record length		
Complex spectrum	131,072 samples (max)	Res BW ~540 Hz for 10 MHz (standard) span
Waveform	4,000,000 samples (max)[1]	4,000,000 samples ~335 ms at 10 MHz span
Sample rate	100 MSa/s	
ADC resolution	16 Bits	For 10 MHz (standard) span

1. *For deep capture, we recommend the use of the 89600 VSA software or the 89601X VXA.*

I/Q Analyzer (continued)

Option B25 25 MHz analysis bandwidth

IF frequency response (B25 IF path)

IF frequency response (demodulation and FFT response relative to the center frequency)

Freq (GHz)	Analysis BW (MHz)	Max error	Midwidth error (95th percentile)	Slope (dB/MHz) (95th percentile)	RMS (nominal)
≤ 3.6	10 to ≤ 25	± 0.30 dB	± 0.12 dB	± 0.05 dB	0.02 dB
3.6 to 26.5	10 to ≤ 25 preselected				0.25 dB
3.6 to 26.5	10 to ≤ 25 preselector off[1]	± 0.30 dB			0.015 dB

IF phase linearity

Center freq (GHz)	Span (MHz)	Preselector	Peak-to-peak (nominal)	RMS (nominal)
≥ 0.02, < 3.6	≤ 25	NA	0.14°	0.028°
≥ 3.6 to ≤ 26.5	≤ 25	Off[1]	0.25°	0.043°

Dynamic range (B25 IF path)

Full scale (ADC clipping)

Default settings, signal at CF (IF gain = Low)

Band 0	–8 dBm mixer level nominal
Bands 1 through 4	–7 dBm mixer level nominal

High gain setting, signal at CF (IF gain = High)

Band 0	–18 dBm mixer level nominal, subject to gain limitations
Bands 1 through 4	–17 dBm mixer level nominal, subject to gain limitations
Effect of signal frequency ≠ CF	Up to ± 3 dB nominal

IF spurious responses (preamp off)

IF second harmonic

Apparent freq.	Excitation freq.	Mixer level	IF gain	
Any on-screen f	(f + f_c +22.5 MHz)/2	–15 dBm	Low	–54 dBc nomnal
		–25 dBm	High	–54 dBc nomnal

IF conversion image

Any on-screen f	2 x f_c - f +45 MHz	–10 dBm	Low	–70 dBc nomnal
		–20 dBm	High	–70 dBc nomnal

Data acquisition (B25 IF path)

Time record length

Complex spectrum	131,072 samples (max)	Res BW ~900 Hz for 25 MHz (standard) span
Waveform	4,000,000 samples (MAX)[2]	4,000,000 samples ~128 ms at 25 MHz span
Sample rate	100 MSa/s	
ADC resolution	16 Bits	

1. *Option MPB is installed and enabled.*
2. *For deep capture, we recommend the use of the 89600 VSA software or the 89601X VXA.*

I/Q Analyzer (continued)

Option B40 40 MHz analysis bandwidth

IF frequency response (B40 IF path)

IF frequency responses — Relative to center frequency

Center freq. (GHz)	Span (MHz)	Preselector		Typical	RMS (nominal)
≥ 0.03, < 3.6	≤ 40	NA	± 0.4 dB	± 0.25 dB	0.05 dB
≥ 3.6, ≤ 8.4	≤ 40	Off [1]	± 0.4 dB	± 0.16 dB	0.05 dB
> 8.4, ≤ 26.5	≤ 40	Off [1]	± 0.6 dB	± 0.20 dB	0.1 dB

IF phase linearity (deviation from mean phase linearity

Center freq. (GHz)	Span (MHz)	Preselector	Peak-to-peak (nominal)	RMS (nominal)
≥ 0.03, < 3.6	≤ 40	NA	0.06°	0.012°
≥ 3.6, ≤ 26.5	≤ 40	Off [1]	0.30°	0.08°

EVM (EVM measurement floor for an 802.11g OFDM signal, using 89601A software equalization, channel estimation and data EQ)

2.4 GHz	–49.9 dB (0.32%) nominal
6.0 GHz with Option MPB	–49.9 dB (0.32%) nominal

Dynamic range (B40 IF path)

SFDR (Spurious-free dynamic range)	
Signal frequency within ±12 MHz of center	–80 dBc nominal
Signal frequency anywhere within analysis BW	
Spurious response within ±18 MHz of center	–79 dBc nominal
Response anywhere within analysis BW	–77 dBc nominal

1. Option MPB is installed and enabled.

I/Q Analyzer (continued)

Option B40 40 MHz analysis bandwidth

Full scale (ADC clipping)			
Default settings, signal at CF (IF gain = Low: IF gain offset = 0 dB)			
Band 0		–8 dBm mixer level nominal	
Bands 1 through 4		–7 dBm mixer level nominal	
High gain setting, signal at CF (IF gain = High)			
Band 0		–18 dBm mixer level nominal, subject to gain limitations	
Bands 1 through 4		–17 dBm mixer level nominal, subject to gain limitations	
Effect of signal frequency ≠ CF		Up to ± 3 dB nominal	
Spurious responses (Preamp off)			
Residual responses			–100 dBm nominal
Image responses (preselector on)			
Tune freq (f)	Excitation freq	Mixer level	Response
10 MHz to 3.6 GHz	f + 10,100 MHz	–10 dBm	–80 dBc
10 MHz to 3.6 GHz	f + 500 MHz	–10 dBm	–80 dBc
3.5 to 13.6 GHz	f + 500 MHz	–10 dBm	–78 dBc
13.5 to 17.1 GHz	f + 500 MHz	–10 dBm	–74 dBc
17.0 to 22 GHz	f + 500 MHz	–10 dBm	–70 dBc
22 to 26.5 GHz	f + 500 MHz	–10 dBm	–68 dBc
Other spurious responses			
First RF Order (f ≥ 10 MHz from carrier)		–10 dBm	–80 dBc + 20 x (log N[1])
Higher RF Order (f ≥ 10 MHz from carrier)		–40 dBm	–78 dBc + 20 x (log N[1])
LO-related spurious responses (Offset from carrier 200 Hz to 10 MHz)		–10 dBm	–73 dBc[2] + 20 x (log N[1]) nominal
Line-related spurious responses			–73 dBc[2] + 20 x (log N[1]) nominal
IF residual responses			
Band 0			–92 dBfs nominal
Band 1, preselector bypassed (Option MPB)			–87 dBfs nominal

Third order intermodulation distortion (two tones of equal level at -9 dBfs, 1 MHz tone separation, IF gain = Low, IF gain offset = 0 dB, preselector bypassed (Option MPB) in bands 1 through 4)	
Band 0	–83 dBc nominal
Band 1	–83 dBc nominal
Band 2	–82 dBc nominal
Band 3	–75 dBc nominal
Band 4	–67 dBc nominal

1. *N is the LO multiplication factor.*
2. *Nominally -40 dBc under large magnetic (0.38 Gauss RMS) or vibrational (0.21 g RMS) environmental stimuli*

I/Q Analyzer (continued)

Option B40 40 MHz analysis bandwidth

Noise density (0 dB attenuation; preselector bypassed (Option MPB); IF gain = Low/High; center of IF bandwidth)			
Band	Freq (GHz)		
0	1.80	–144 dBm/Hz	
1	5.95	–140 dBm/Hz	–148 dBm/Hz nominal, preselector on, IF gain = Low
2	10.95	–141 dBm/Hz	–150 dBm/Hz nominal, preselector on, IF gain = Low
3	15.30	–135 dBm/Hz	–145 dBm/Hz nominal, preselector on, IF gain = Low
4	21.75	–133 dBm/Hz	–144 dBm/Hz nominal, preselector on, IF gain = Low

Data acquisition (B40 IF path)		
Time record length	4,000,000 samples (max)[1]	4,000,000 samples (I/Q pairs) ~88.89 ms
Sample rate	90 MSa/s (IF samples)	
ADC resolution	12 Bits	

1. For deep capture, we recommend the use of the 89600 VSA software or the 89601X VXA.

I/Q Analyzer (continued)

Option B1X 140 MHz analysis bandwidth

IF frequency response (B1X IF path)

IF frequency response				Relative to center frequency	
Center freq (GHz)	Span (MHz)	Preselector		Typical	RMS (nominal)
≥ 0.03, < 3.6	≤ 80	NA	± 0.73 dB	± 0.15 dB	0.05 dB
	≤ 140	NA		± 0.25 dB	0.05 dB
≥ 3.6, ≤ 8.4	≤ 80	Off [1]	± 0.73 dB	± 0.2 dB	0.05 dB
	≤ 140	Off [1]		± 0.30 dB	0.05 dB
> 8.4, ≤ 26.5	≤ 80	Off [1]	± 0.9 dB	± 0.4 dB	0.1 dB
	≤ 140	Off [1]		± 0.75 dB	0.1 dB

IF phase linearity (deviation from mean phase linearity)				
Center freq (GHz)	Span (MHz)	Preselector	Peak-to-peak (nominal)	RMS (nominal)
≥ 0.03, < 3.6	≤ 140	NA	0.03°	0.004°
≥ 3.6, < 26.5	≤ 140	Off [1]	1.2°	0.2°

EVM (EVM measurement floor)	Customized settings required, preselector bypassed (Option MPB) above Band 0
Case 1: 62.5 Msymbol/s, 16QAM signal, RRC filter alpha of 0.2, non-equalized, with approximately 75 MHz occupied bandwidth	
Band 0, 1.8 GHz	0.8% nominal
Band 1, 5.95 GHz	1.1% nominal
Case 2: 104.167 Msymbol/s, 16QAM signal, RRC filter alpha of 0.35, non-equalized, with approximately 140 MHz occupied bandwidth	
Band 1, 5.95 GHz	3.0% nominal, (unequalized) 0.5% nominal, (equalized)
Band 2, 15.3 GHz	2.5% nominal, (unequalized) 0.6% nominal, (equalized)
Band 4, 26 GHz	3.5% nominal, (unequalized) 1.6% nominal, (equalized)

1. *Option MPB is installed and enabled.*

I/Q Analyzer (continued)

Option B1X 140 MHz analysis bandwidth

Dynamic range (B1X IF path)

SFDR (Spurious-free dynamic range)			
Signal frequency within ± 12 MHz of center			–75 dBc nominal
Signal frequency anywhere within analysis BW			
Spurious response within ± 63 MHz of center			–74 dBc nominal
Response anywhere within analysis BW			–72 dBc nominal
Full scale (ADC clipping)			
Default settings, signal at CF (IF gain = Low: IF gain offset = 0 dB)			
Band 0		–8 dBm mixer level nominal	
Bands 1 through 4		–7 dBm mixer level nominal	
High gain setting, signal at CF (IF gain = High)			
Band 0		–18 dBm mixer level nominal, subject to gain limitations	
Bands 1 through 4		–17 dBm mixer level nominal, subject to gain limitations	
Effect of signal frequency ≠ CF		Up to ± 3 dB nominal	
Spurious responses (preamp off)			
Residual responses			–100 dBm nominal
Image responses (preselector on)			
Tune freq (f)	Excitation freq	Mixer level	Response
10 MHz to 3.6 GHz	f + 10,200 MHz	–10 dBm	–80 dBc
10 MHz to 3.6 GHz	f + 500 MHz	–10 dBm	–80 dBc
3.5 to 13.6 GHz	f + 500 MHz	–10 dBm	–78 dBc
13.5 to 17.1 GHz	f + 500 MHz	–10 dBm	–74 dBc
17.0 to 22 GHz	f + 500 MHz	–10 dBm	–70 dBc
22 to 26.5 GHz	f + 500 MHz	–10 dBm	–68 dBc
Other spurious responses			
First RF Order (f ≥ First RF order 10 MHz from carrier)		–10 dBm	–80 dBc + 20 x (log N[1])
Higher RF Order (f ≥ First RF order 10 MHz from carrier)		–40 dBm	–78 dBc + 20 x (log N[1])
LO-related spurious responses (Offset from carrier 200 Hz to 10 MHz)		–10 dBm	–73 dBc[2] + 20 x (log N[1]) nominal
Line-related spurious responses			–73 dBc[2] + 20 x (log N[1]) nominal
Third order intermodulation distortion (two tones of equal level at –9 dBfs, 1 MHz tone separation, IF gain = Low, IF gain offset = 0 dB, preselector bypassed (Option MPB) in bands 1 through 4)			
Band 0			–82 dBc nominal
Band 1			–82 dBc nominal
Band 2			–80 dBc nominal
Band 3			–80 dBc nominal
Band 4			–74 dBc nominal

1. *N is the LO multiplication factor.*
2. *Nominally –40 dBc under large magnetic (0.38 Gauss RMS) or vibrational (0.21 g RMS) environmental stimuli*

I/Q Analyzer (continued)

Option B1X 140 MHz analysis bandwidth

Noise density (0 dB attenuation; preselector bypassed (Option MPB); center of IF bandwidth)			
Band	Freq (GHz)	IF gain = Low	IF gain = High
0	1.80	–149 dBm/Hz	–151 dBm/Hz
1	5.95	–145 dBm/Hz	–146 dBm/Hz
2	10.95	–144 dBm/Hz	–145 dBm/Hz
3	15.30	–139 dBm/Hz	–139 dBm/Hz
4	21.75	–136 dBm/Hz	–136 dBm/Hz

Data acquisition (B1X IF path)		
Time record length	4,000,000 samples (max)[1]	4,000,000 samples (I/Q pairs) ~20 ms
Sample rate	400 MSa/s (IF samples)	
ADC resolution	14 Bits	

1. For deep capture, we recommend the use of the 89600VSA software or the 89601X VXA.

Other Optional Output

Option ALV Log video out

General port specifications		
Connector	SMA female	Shared with other options
Impedance		50 Ω nominal

Fast log video output	
Output voltage	Open-circuit voltages shown
Maximum	1.6 V at –10 dBm nominal
Slope	25 ± 1 mV/dB nominal
Log fidelity	
Range	57 dB nominal
Accuracy within range	± 1.0 dB nominal
Rise time	15 ns nominal
Fall time	
Bands 1-4 with Option MPB	40 ns nominal best case,
Other cases	Depends on bandwidth

Other Optional Output

Option YAV Y-Axis output

General port specifications		
Connector	SMA female	Shared with other options
Impedance		50 Ω nominal

Screen video		
Operating conditions		
Display scale types	Log or Lin	"Lin" is linear in voltage
Log scales	All (0.1 to 20 dB/div)	
Modes	Spectrum analyzer only	
Gating	Gating must be off	
Output scaling	0 to 1.0 V open circuit, representing bottom to top of screen	
Offset		± 1% of full scale nominal
Gain accuracy		± 1% of output voltage nominal
Delay between RF input to analog output		71.7 µs +2.56/RBW + 0.159/VBW nominal

Log video (Log envelope) output		
Amplitude range (terminated with 50 Ω)		
Maximum		1.0 V nominal for –10 dBm at the mixer
Scale factor		1 V per 192.66 dB
Bandwidth	Set by RBW	
Operating conditions	Select Sweep Type = Swept	

Linear video (AM Demod) output		
Amplitude range (terminated with 50 Ω)		
Maximum		1.0 V nominal for signal envelope at the reference level
Minimum		0 V
Scale factor	If carrier level is set to half the reference level in volts, the scale factor is 200% of carrier level per volt. Regardless of the carrier level, the scale factor is 100% of reference level per volt.	
Bandwidth	Set by RBW	
Operating conditions	Select Sweep Type = Swept	

PXA Signal Analyzer Ordering Information

For more information, refer to PXA Signal Analyzer Configuration Guide (5990-3953EN)

Hardware	
N9030A	PXA signal analyzer
N9030A-503	Frequency range, 3 Hz to 3.6 GHz
N9030A-508 N9030A-513	Frequency range, 3 Hz to 8.4 GHz Frequency range, 3 Hz to 13.6 GHz
N9030A-526	Frequency range, 3 Hz to 26.5 GHz
N9030A-B25	Analysis bandwidth, 25 MHz
N9030A-B40 N9030A-B1X	Analysis bandwidth, 40 MHz Analysis bandwidth, 140 MHz
N9030A-MPB N9030A-EA3 N9030A-LNP	Microwave preselector bypass Electronic attenuator, 3.6 GHz Low noise path
N9030A-P03	Preamplifier, 3.6 GHz
N9030A-P08	Preamplifier, 8.4 GHz
N9030A-P13 N9030A-P26	Preamplifier, 13.6 GHz Preamplifier, 26.5 GHz
N9030A-HDD N9030A-SSD	Additional removable hard drive Removable solid state drive substitution
N9030A-CR3 N9030A-CRP N9030A-YAV N9030A-ALV	Connector rear, 2nd IF output Connector rear, Arbitrary IF output Y-axis video output Auxiliary log video output

Optional features	
N9030A-EMC	Basic precompliance EMI features

Applications	
Note: The last two letters of ordering numbers indicate the license type. FP stands for Fixed Perpetual, TP for Transportable Perpetual. It is recommended you configure each application with the license type. Visit **www.agilent.com/find/xseries_transportable** for more information about transportable licensing.	
N9061A-1FP N9061A-2FP	Remote language compatibility for 8566/68 (included with PXA shipment) Remote language compatibility for 856xE/EC (included with PXA shipment)
N9068A-2FP or -2TP	Phase noise measurement application
N9069A-1FP or -1TP	Noise figure measurement application (requires preamplifier)
N9051A-2FP	Pulse measurement software
89601A	89600 Vector Signal Analysis VSA software
89601X 89601XFP-205 or 89601XTP-205	VXA vector signal analyzer measurement application VXA Basic VSA-Lite (required option at initial order of 89601X)
89601XFP-333 or 89601XTP-333 89601XFP-AYA or 89601XTP-AYA	VXA X-Series connectivity (required option at initial order of 89601X, requires Option 205) VXA vector modulation analysis (requires Options 205 and 333)
89601XFP-B7R or 89601XTP-B7R	VXA WLAN modulation analysis (requires Options 205 and 333)
N6171A-M01	MATLAB® - Basic Signal Analysis Package
N6171A-M02 N6171A-M03	MATLAB - Standard Signal Analysis Package MATLAB - Advanced Signal Analysis Package

PXA Signal Analyzer Ordering Information (continued)

Accessories	
N9030A-KYB	Keyboard
N9030A-KB2	US 65 key USB keyboard
N9030A-EFM	USB flash drive, 4 GB
N9030A-DVR	USB DVD-ROM/CD-R/RW drive
N9030A-MLP	Minimum loss pad, 50 to 75 Ω
N9030A-1CP	Rack mount and handle kit
N9030A-1CM	Rack mount kit
N9030A-1CN	Front handle kit

Warranty and service	
Standard warranty is one year	
R-51 B-001-3C	1 year return-to-Agilent warranty extended to 3 years

Calibration[1]	
N9030A-UK6	Commercial calibration certificate with test data
N9030A-1A7	ISO 17025 compliant calibration
N9030A-A6J	ANSI Z540 compliant calibration
R-50C-011-3	Inclusive calibration plan, 3 year coverage
R-50C-013-3	Inclusive calibration plan and cal data, 3 year coverage

1. Options not available in all countries

Additional information, including literature, can be found at the Agilent website:

www.agilent.com/find/PXA
www.agilent.com/find/xseries_apps

Agilent Email Updates

www.agilent.com/find/emailupdates
Get the latest information on the products and applications you select.

LXI

www.lxistandard.org
LXI is the LAN-based successor to GPIB, providing faster, more efficient connectivity. Agilent is a founding member of the LXI consortium.

Agilent Channel Partners

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Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment through-out its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements. For information regarding self maintenance of this product, please contact your Agilent office.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance, onsite education and training, as well as design, system integration, and project management.

For more information on repair and calibration services, go to:

www.agilent.com/find/removealldoubt

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus

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Latin America	305 269 7500
United States	(800) 829-4444

Asia Pacific

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China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Thailand	1 800 226 008

Europe & Middle East

Austria	43 (0) 1 360 277 1571
Belgium	32 (0) 2 404 93 40
Denmark	45 70 13 15 15
Finland	358 (0) 10 855 2100
France	0825 010 700*
	*0.125 €/minute
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Ireland	1890 924 204
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