

N9000B CXA X-Series Signal Analyzer, Multi-touch

9 kHz to 3.0, 7.5, 13.6, or 26.5 GHz

Leading Low-Cost Tool

The CXA is today's leading low-cost tool for essential signal characterization. Its capabilities provide a solid foundation for cost-effective testing in general-purpose and educational applications.

This data sheet is a summary of the specifications and conditions for CXA signal analyzers. For the complete specifications guide, visit www.keysight.com/find/cxa_specifications



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Definitions and Conditions

Specifications describe the performance of parameters covered by the product warranty and apply to temperature ranges 0 to 55 °C, unless otherwise noted.

95th percentile values indicate the breadth of the population (approx. 2s) 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 are not covered by the product warranty.

The analyzer will meet its specifications when:

- It is within its calibration cycle
- Under auto couple control, except when Auto Sweep Time Rules = Accy
- 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. If Auto Align is set to Light, performance is not warranted, and nominal performance will degrade to become a factor of 1.4 wider for any specification subject to alignment, such as amplitude tolerances.

For ordering information, refer to the CXA Signal Analyzer Configuration Guide (5992-1275EN).

Get more information

This CXA signal analyzer data sheet is a summary of the complete specifications and conditions for N9000B CXA signal analyzers, which are available in the CXA Signal Analyzer Specification Guide. The CXA Signal Analyzer Specification Guide can be obtained on the web at: www.keysight.com/find/cxa_specifications

Frequency and Time Specifications

Frequency range	DC coupled	AC coupled	
Option 503	NA	9 kHz to 3.0 GHz	
Option 507	NA	9 kHz to 7.5 GHz	
Option 513	9 kHz to 13.6 GHz	10 MHz to 13.6 GHz	
Option 526	9 kHz to 26.5 GHz	10 MHz to 26.5 GHz	
	Band	LO multiple (N)	
ORF (Option 503, 507)	0	1	9 kHz to 3.0 GHz
	1	1	2.95 to 3.80 GHz
	2	1	3.70 to 4.55 GHz
	3	1	4.45 to 5.30 GHz
	4	1	5.20 to 6.05 GHz
	5	1	5.95 to 6.80 GHz
	6	1	6.70 to 7.50 GHz
MW (Option 513, 526)	0	1	9 kHz to 3.08 GHz
	1	2	2.95 to 7.58 GHz
	2	2	7.45 to 9.55 GHz
	3	2	9.45 to 12.60 GHz
	4	2	12.50 to 13.05 GHz
	4	4	12.95 to 13.80 GHz
	5	4	13.40 to 15.55 GHz
	6	4	15.45 to 19.35 GHz
	7	4	19.25 to 21.05 GHz
	8	4	20.95 to 22.85 GHz
9	4	22.75 to 24.25 GHz	
10	4	24.15 to 26.55 GHz	
Frequency reference			
Accuracy	\pm [(time since last adjustment x aging rate) + temperature stability + calibration accuracy]		
Aging rate	Option PFR	Standard	
	$\pm 1 \times 10^{-7}$ / year	$\pm 1 \times 10^{-6}$ / year	
	$\pm 1.5 \times 10^{-7}$ / 2 years		
Temperature stability	Option PFR	Standard	
20 to 30 °C	$\pm 1.5 \times 10^{-8}$	$\pm 2 \times 10^{-6}$	
Full temperature range	$\pm 5 \times 10^{-8}$	$\pm 2 \times 10^{-6}$	
Achievable initial calibration accuracy	Option PFR	Standard	
	$\pm 4 \times 10^{-8}$	$\pm 1.4 \times 10^{-6}$	
Example frequency reference accuracy (with Option PFR)	$= \pm (1 \times 10^{-7} + 5 \times 10^{-8} + 4 \times 10^{-8})$		
1 year after last adjustment	$= \pm 1.9 \times 10^{-7}$		
Residual FM			
Option PFR	$\leq (0.25 \text{ Hz} \times N)$ p-p in 20 ms nominal		
Standard	$\leq (10 \text{ Hz} \times N)$ p-p in 20 ms nominal		
	See band table above for N (LO multiple)		

Frequency readout accuracy (start, stop, center, marker)		
		\pm (marker frequency x frequency reference accuracy + 0.25 % x span + 5 % x RBW + 2 Hz + 0.5 x horizontal resolution ¹)
Marker frequency counter		
Accuracy		\pm (marker frequency x frequency reference accuracy + 0.100 Hz)
Delta counter accuracy		\pm (delta frequency x frequency reference accuracy + 0.141 Hz)
Counter resolution		0.001 Hz
Frequency span (FFT and swept mode)		
Range		0 Hz (zero span), 10 Hz to maximum frequency of instrument
Resolution		2 Hz
Accuracy	Swept	\pm (0.25 % x span + horizontal resolution)
	FFT	\pm (0.10 % x span + horizontal resolution)
Sweep time and triggering		
Range	Span = 0 Hz	1 μ s to 6000 s
	Span \geq 10 Hz	1 ms to 4000 s
Accuracy	Span \geq 10 Hz, swept	\pm 0.01 % nominal
	Span \geq 10 Hz, FFT	\pm 40 % nominal
	Span = 0 Hz	\pm 1 % nominal
Trigger		Free run, line, video, external 1, RF burst, periodic timer
Trigger delay	Span = 0 Hz or FFT	-150 to +500 ms
	Span \geq 10 Hz, swept	1 μ s to 500 ms
	Resolution	0.1 μ s
Time gating		
Gate methods		Gated LO; gated video; gated FFT
Gate length range (except method = FFT)		100.0 ns 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 40001
Resolution bandwidth (RBW)		
Range (-3.01 dB bandwidth)		1 Hz to 3 MHz (10 % steps), 4, 5, 6, 8 MHz
Bandwidth accuracy (power)	1 Hz to 750 kHz	\pm 1.0 % (\pm 0.044 dB) nominal
	820 kHz to 1.2 MHz (< 3 GHz CF)	\pm 2.0 % (\pm 0.088 dB) nominal
	1.3 to 2.0 MHz (< 3 GHz CF)	\pm 0.07 dB nominal
	2.2 to 3 MHz (< 3 GHz CF)	\pm 0.15 dB nominal
	4 to 8 MHz (< 3 GHz CF)	\pm 0.25 dB nominal
Bandwidth accuracy (-3.01 dB)	RBW range	1 Hz to 1.3 MHz \pm 2 % nominal
Selectivity (-60 dB/-3 dB)		4.1:1 nominal
EMI bandwidth (CISPR compliant)		200 Hz, 9 kHz, 120 kHz, 1 MHz (Option EMC required)
EMI bandwidth (MIL STD 461E compliant)		10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz (Option EMC required)

1. Horizontal resolution is span/(sweep points - 1)

Analysis bandwidth ¹		
Maximum bandwidth	Option B25	25 MHz
	Standard	10 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	
Measurement speed ²		
Local measurement and display update rate	11 ms (90/s) nominal	
Remote measurement and LAN transfer rate	6 ms (167/s) nominal	
Marker peak search	5 ms nominal	
Center frequency tune and transfer	22 ms nominal	
Measurement/mode switching	75 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			
RF (Option 503, 507)	Preamp off	100 kHz to 1 MHz	Displayed average noise level (DANL) to +20 dBm
		1 MHz to 7.5 GHz	Displayed average noise level (DANL) to +23 dBm
MW (Option 513/526)	Preamp on	100 kHz to 7.5 GHz	Displayed average noise level (DANL) to +15 dBm
	Preamp off	100 kHz to 26.5 GHz	Displayed average noise level (DANL) to +23 dBm
	Preamp on	100 kHz to 26.5 GHz	Displayed average noise level (DANL) to +23 dBm
	Preamp off	100 kHz to 26.5 GHz	Displayed average noise level (DANL) to +23 dBm
Input attenuator range			
RF (Option 503, 507)	Standard	0 to 50 dB in 10 dB steps	
	Option FSA	0 to 50 dB in 2 dB steps	
MW (Option 513, 526)	Standard	0 to 70 dB in 10 dB steps	
	Option FSA	0 to 70 dB in 2 dB steps	
Maximum safe input level			
Average total power	RF (Option 503, 507)	+30 dBm (1 W)	Input attenuation ≥ 20 dB, preamp off
		10 dBm (10 mW)	Input attenuation ≥ 20 dB, preamp on
	MW (Option 513, 526)	+30 dBm (1 W)	Input attenuation ≥ 10 dB, preamp off
		+30 dBm (1 W)	Input attenuation ≥ 20 dB, preamp on
Peak pulse power			
	+50 dBm (100 W)	< 10 μs pulse width, < 1 % duty cycle, input attenuation ≥ 30 dB	
DC volts			
RF (Option 503, 507)	AC coupled	±50 Vdc	
	AC coupled	±50 Vdc	
	DC coupled	±0.2 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		

Frequency range	Specification	95th percentile ($\approx 2\sigma$)		
(10 dB input attenuation, 20 to 30 °C, s = nominal standard deviation)				
RF (Option 503, 507)	9 kHz to 10 MHz	± 0.60 dB	± 0.45 dB	
	10 MHz to 3 GHz	± 0.75 dB	± 0.55 dB	
	3 to 5.25 GHz	± 1.45 dB	± 1.00 dB	
	5.25 to 7.5 GHz	± 1.65 dB	± 1.20 dB	
MW (Option 513, 526)	9 kHz to 10 MHz	± 0.8 dB	± 0.5 dB	
	10 MHz to 3 GHz	± 0.65 dB	± 0.4 dB	
	3 to 7.5 GHz	± 1.5 dB	± 0.5 dB	
	7.5 to 13.6 GHz	± 2.0 dB	± 0.8 dB	
	13.6 to 19 GHz	± 2.0 dB	± 1.0 dB	
19 to 26.5 GHz	± 2.5 dB	± 1.3 dB		
Preamp on (P03, P07)				
RF (Option 503, 507)	100 kHz to 3 GHz		± 0.70 dB	
	3 to 5.25 GHz		± 0.85 dB	
	5.25 to 7.5 GHz		± 1.35 dB	
Preamp on (P03, P07, P13, P26)				
MW (Option 513, 526)	100 kHz to 3.6 GHz		± 0.28 dB nominal	
	3.5 to 8.4 GHz		± 0.67 dB nominal	
	8.4 to 26.5 GHz		± 0.80 dB nominal	
	26.4 to 44 GHz		± 0.80 dB nominal	
Input attenuation switching uncertainty			Specifications	Additional information
Attenuation > 2 dB, preamp off	50 MHz (reference frequency)	± 0.32 dB	± 0.15 dB typical	
Relative to 10 dB (reference setting)	100 kHz to 3.0 GHz		± 0.30 dB nominal	
	3.0 to 7.5 GHz		± 0.50 dB nominal	
	7.5 to 26.5 GHz		± 0.70 dB nominal	
Total absolute amplitude accuracy				
(10 dB attenuation, 20 to 30 °C, 1 Hz \leq RBW \leq 1 MHz, input signal -10 to -50 dBm, all settings auto-coupled except Auto Swp Time = Accy, any reference level, any scale, s = nominal standard deviation)				
Preamp on (Option P03, P07, P13, P26)	At 50 MHz	± 0.40 dB		
	At all frequencies	$\pm (0.40 \text{ dB} + \text{frequency response})$		
	9 kHz to 3.6 GHz	± 0.27 dB (95th percentile $\approx 2\sigma$)		
			$\pm (0.39 \text{ dB} + \text{frequency response})$ nominal	
Input Voltage Standing Wave Ratio (VSWR) (≥ 10 dB attenuation)				
1 Hz to 3 MHz RBW	± 0.15 dB			
4, 5, 6, 8 MHz RBW	± 1.0 dB			
Reference level				
Range	Log scale	-170 to +23 dBm in 0.01 dB steps		
	Linear scale	Same as log (707 pV to 3.16 V)		
Accuracy	0 dB			
Display scale switching uncertainty				
Switching between linear and log	0 dB			
Log scale/div switching	0 dB			

Display scale fidelity			
-80 dBm ≤ input mixer level < -15 dBm	±0.15 dB total		
-15 dBm ≤ input mixer level < -10 dBm	±0.30 dB	±0.15 dB typical	
Trace detectors			
Normal, peak, sample, negative peak, log power average, RMS average, and voltage average			
Preamplifier (Option P03, P07, P13, P26)			
Frequency range	Option P03	100 kHz to 3.0 GHz	
	Option P07	100 kHz to 7.5 GHz	
	Option P13	100 kHz to 13.6 GHz	
	Option P26	100 kHz to 26.5 GHz	
Gain	100 kHz to 26.5 GHz	+20 dB nominal	
Noise figure	100 kHz to 26.5 GHz	DANL + 176.24 dB nominal	

Dynamic Range Specifications

		1 dB gain compression (two-tone)		Total power at mixer input		
RF (Option 503, 507)	Preamp off	50 MHz to 7.5 GHz		+2 dBm nominal		
	Preamp on	50 MHz to 7.5 GHz		-19 dBm nominal		
MW (Option 513, 526)	Preamp off	50 MHz to 7.5 GHz		+7 dBm nominal		
		7.5 to 13.6 GHz		+3 dBm nominal		
		13.6 to 26.5 GHz		+0 dBm nominal		
	Preamp on	50 MHz to 26.5 GHz		-19 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)						
Parentheses indicate typical performance						
		Preamplifier OFF		Preamplifier ON		
RF (Option 503, 507)	9 kHz to 1 MHz	(-120) dBm		(-139) dBm, 100 kHz to 1 MHz		
	1 to 10 MHz	-130 (-137) dBm		-149 (-157) dBm		
	10 MHz to 1.5 GHz	-148 (-150) dBm		-161 (-163) dBm		
	1.5 to 2.2 GHz	-144 (-147) dBm		-160 (-163) dBm		
	2.2 to 2.5 GHz	-144 (-147) dBm		-158 (-161) dBm		
	2.5 to 2.7 GHz	-142 (-145) dBm		-158 (-161) dBm		
	2.7 to 3.0 GHz	-139 (-143) dBm		-158 (-161) dBm		
	3 to 4.5 GHz	-137 (-140) dBm		-155 (-159) dBm		
	4.5 to 6 GHz	-133 (-136) dBm		-152 (-156) dBm		
	6 to 7.5 GHz	-128 (-131) dBm		-148 (-152) dBm		
MW (Option 513, 526)	1 to 10 MHz	-143 (-148) dBm		-153 (-158) dBm		
	10 MHz to 1.5 GHz	-147 (-150) dBm		-160 (-163) dBm		
	1.5 to 6 GHz	-143 (-147) dBm		-158 (-161) dBm		
	6 to 7.5 GHz	-141 (-145) dBm		-155 (-160) dBm		
	7.5 to 13.6 GHz	-139 (-142) dBm		-155 (-160) dBm		
	13.6 to 20 GHz	-134 (-140) dBm		-153 (-157) dBm		
	20 to 24 GHz	-132 (-138) dBm		-151 (-155) dBm		
	24 to 26.5 GHz	-124 (-129) dBm		-142 (-147) dBm		
Spurious responses						
RF (Option 503, 507)	Residual responses (Input terminated and 0 dB attenuation, 20 to 30 °C)	200 kHz to 7.5 GHz (swept)	-90 dBm			
		Zero span or FFT or other frequencies	-100 dBm nominal			
	Input related spurious	10 MHz to 7.5 GHz	-60 dBc typical			
MW (Option 513, 526)		Tuned frequency (f)	Mixer level	Response		
	Image responses	10 MHz to 26.5 GHz	-10 dBm	-60 dBc typical		
	LO-related spurious	10 MHz to 3 GHz	-10 dBm	-64 dBc typical		
	Other spurious responses					
	First RF order (f ≥ 10 MHz from carrier)			-10 dBm	-65 dBc	
	High RF order (f ≥ 10 MHz from carrier)			-10 dBm	-65 dBc	
Second Harmonic Distortion (SHI)						
	Source frequency	SHI (nominal)				
RF/MW (Option 503, 507, 513, 526)	10 MHz to 3.75 GHz	+42 dBm				
MW (Option 513, 526)	3.75 to 13.25 GHz	+54 dBm				

Third-order intermodulation distortion (TOI)

Parentheses indicate typical performance

RF (Option 503, 507)	Preamp off (Two -20 dBm tones at input mixer spaced by 100 kHz, 0 dB attenuation, 20 to 30 °C)	10 to 400 MHz	+10 (+14) dBm
		400 MHz to 3 GHz	+13 (+17) dBm
		3 to 7.5 GHz	+13 (+15) dBm
MW (Option 513, 526)	Preamp off (Two -20 dBm tones at input mixer spaced by 100 kHz, 0 dB attenuation, 20 to 30 °C)	10 to 500 MHz	+11 dBm, (+15) dBm
		500 MHz to 2 GHz	+12 dBm, (+15) dBm
		2 to 3 GHz	+11 dBm, (+15) dBm
		3 to 7.5 GHz	+12 dBm, (+17) dBm
		7.5 to 13.6 GHz	+11 dBm, (+15) dBm
Option P03, P07, P13, P26	Preamp on (Two -45 dBm tones at the preamp input, spaced by 100 kHz, 0 dB attenuation, 20 to 30 °C)	10 MHz to 26.5 GHz	-8 dBm nominal
Phase noise	Offset	Specification	Typical
Noise sidebands (20 to 30 °C, CF = 1 GHz)			
	1 kHz	-98 dBc/Hz	-103 dBc/Hz
	10 kHz	-106 dBc/Hz	-110 dBc/Hz
	100 kHz	-108 dBc/Hz	-110 dBc/Hz
	1 MHz	-130 dBc/Hz	-130 dBc/Hz
	10 MHz		-145 dBc/Hz nominal

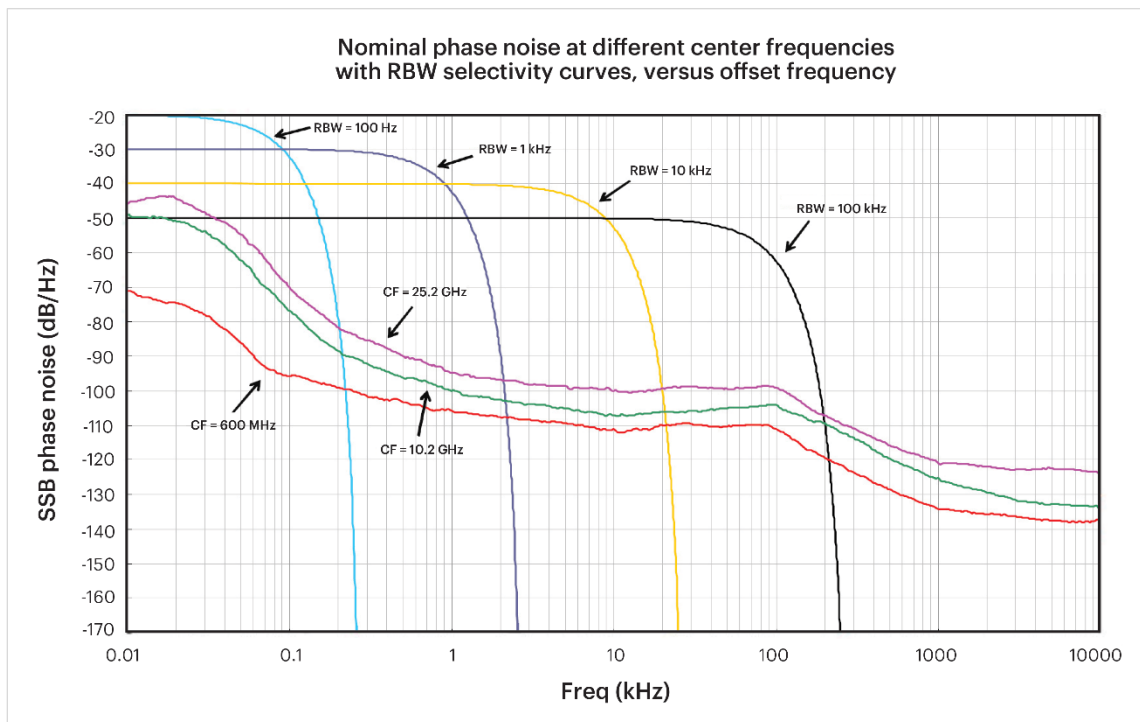


Figure 1. Nominal phase noise at different center frequencies for CXA

PowerSuite Measurement Specifications

Channel power			
Amplitude accuracy, W-CDMA or IS95 (20 to 30 °C, attenuation = 10 dB)		±1.33 dB (±0.61 dB 95th percentile)	
Occupied bandwidth			
Frequency accuracy		± [span/1000] nominal	
Adjacent channel power			
Accuracy, W-CDMA (ACLR) (at specific mixer levels and ACLR ranges)		Adjacent	Alternate
MS		±0.76 dB	±0.73 dB
BTS		±1.72 dB	±1.96 dB
Dynamic range (typical)			
RF (Option 503, 507)	Without noise correction	-63 dB	-67 dB
	With noise correction	-73 dB	-78 dB
MW (Option 513, 526)	Without noise correction	-66 dB	-69 dB
	With noise correction	-73 dB	-78 dB
Offset channel pairs measured		1 to 6	
Power statistics CCDF			
Histogram resolution		0.01 dB	
Harmonic distortion			
Maximum harmonic number		10th	
Result		Fundamental power (dBm), relative harmonics power (dBc), total harmonic distortion in %	
Burst power			
Methods		Power above threshold, power within burst width	
Results		Single burst output power, average output power, maximum power, minimum power within burst,	
Spurious emission			
W-CDMA (1 to 3.6 GHz) table-driven spurious signals; search across regions			
Dynamic range (RBW=1 MHz)		70.7 dB	(75.9 dB typical)
Absolute sensitivity (RBW=1 MHz)		-76.5 dBm	(-82.5 dBm typical)
Spectrum emission mask (SEM)			
cdma2000® (750 kHz offset)			
Relative dynamic range (30 kHz RBW)		67.4 dB	(72.7 dB typical)
Absolute sensitivity		-93.7 dBm	(-99.7 dBm typical)
Relative accuracy		±0.11 dB	
3GPP W-CDMA (2.515 MHz offset)			
Relative dynamic range (30 kHz RBW)		73.4 dB	(80.2 dB typical)
Absolute sensitivity		-91.7 dBm	(-97.7 dBm typical)
Relative accuracy		±0.11 dB	

Tracking Generator Specifications

Output frequency			
Frequency range	Option T03 ¹	9 kHz to 3 GHz	
	Option T06 ¹	9 kHz to 6 GHz	
Resolution	1 Hz		
Output power level			
Range	-50 to 0 dBm		
Resolution	0.1 dB		
Absolute accuracy (at 50 MHz, -10 dBm, 20 to 30 °C)	±0.55 dB		
Output flatness (referenced to 50 MHz, -10 dBm, 20 to 30 °C)	Specification	95th percentile (≈ 2s)	
9 kHz to 100 kHz	±1.5 dB	±1.2 dB	
100 kHz to 3.0 GHz	±1.2 dB	±0.8 dB	
3.0 GHz to 6.0 GHz	±1.5 dB	±1.2 dB	
Level accuracy	9 kHz to 100 kHz	±1.0 dB nominal	
	100 kHz to 3.0 GHz	±0.5 dB nominal	
	3.0 GHz to 6.0 GHz	±0.8 dB nominal	
Output power sweep			
Range	-50 to 0 dBm		
Resolution	0.1 dB		
Maximum safe reverse level			
Average total power	+30 dBm (1 W)		
AC coupled	±50 Vdc		
Phase noise			
Noise sidebands (CF = 1 GHz)	Offset		
	10 kHz	-102 dBc/Hz nominal	
	100 kHz	-104 dBc/Hz nominal	
	1 MHz	-117 dBc/Hz nominal	
Spurious outputs (0 dBm output)			
Harmonic spurs	100 kHz to 3 GHz	< -35 dBc	
	3 GHz to 6 GHz	< -30 dBc	
Non-harmonic spurs	9 kHz to 10 MHz	< -35 dBc nominal	
	10 MHz to 6 GHz	< -35 dBc	
Dynamic range			
Maximum output power – displayed average noise level			110 dBc nominal
Output VSWR			
9 kHz to 6 GHz	< 1.5:1 nominal		

1. Not available on microwave CXA (Option 513 or 526)

General Specifications

Temperature range		
Operating	0 to 55 °C	
Storage	-40 to 70 °C	
EMC		
Complies with the essential requirements of the European EMC Directive and the UK Electromagnetic Compatibility Regulations 2016 as well as current editions of the following standards (dates and editions are cited in the Declaration of Conformity):		
<ul style="list-style-type: none"> • IEC/EN 61326-1 or IEC/EN 61326-2-1 • CISPR 11 Group 1, Class A • AS/NZS CISPR 11:2002 • ICES/NMB-001 		
This ISM device complies with Canadian ICES-001		
Cet appareil ISM est conforme à la norme NMB-001 du Canada		
Safety		
Complies with the essential requirements of the European Low Voltage Directive a well as current editions of the following standards (dates and editions are cited in the Declaration of Conformity)		
<ul style="list-style-type: none"> • IEC/EN 61010-1 • Canada: CSA C22.2 No. 61010-1 • U.S.A.: UL 61010-1 		
Audio noise		
Acoustic noise emission	Geraeuschemission	
LpA < 70 dB	LpA < 70 dB	
Operator position	Am Arbeitsplatz	
Normal position	Normaler Betrieb	
Per ISO 7779	Nach DIN 45635 t.19	
Environmental stress		
Samples of this product have been type tested in accordance with the Keysight 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 MILPRF-28800F Class 3.		
Power requirements		
Voltage and frequency	100/120 V, 50/60/400 Hz	The instruments can operate with mains supply voltage fluctuations up to ±10% of the nominal voltage
	220/240 V, 50/60 Hz	
Power consumption	On	270 W maximum
	Standby	20 W
Display		
Resolution	1280 x 768, WXGA	
Size	269 mm (10.6 in.) diagonal (nominal)	
Data storage		
Internal	160 GB nominal (removable solid state drive)	
External	Supports USB 2.0 compatible memory devices	
Weight (without options)		
Net	15.4 kg (34.0 lbs)	
Shipping	27.4 kg (60.4 lbs)	
Dimensions		
Height	177 mm (7.0 in)	
Width	426 mm (16.8 in)	
Length	368 mm (14.5 in)	
Warranty		
The CXA signal analyzer is supplied with a 3-year warranty		
Calibration cycle		
The recommended calibration cycle is one year; calibration services are available through Keysight service centers.		

Inputs and Outputs

Front panel		
RF input connector		Type-N female, 50 Ω nominal
RF output (Option T03 or T06) Connector		Type-N female, 50 Ω nominal
Probe power		
Voltage/current		+15 Vdc, $\pm 7\%$ at 150 mA max nominal
		-12.6 Vdc, $\pm 10\%$ at 150 mA max nominal
USB ports		
Host (3 ports)	Standard	Compatible with USB 2.0
	Connector	USB Type-A female
Output current	Port marked with lightning bolt	1.2 A nominal
	Ports not marked with lightning bolt	0.5 A nominal
Rear panel		
10 MHz out	Connector	BNC female, 50 Ω nominal
	Output amplitude	≥ 0 dBm nominal
	Frequency	10 MHz \pm (10 MHz x frequency reference accuracy)
Ext Ref In	Connector	BNC female, 50 Ω nominal
	Input amplitude range	10 MHz \pm nominal
	Input frequency	10 MHz nominal
	Frequency lock range	$\pm 5 \times 10^{-6}$ of specified external reference input frequency
Trigger 1 inputs	Connector	BNC female
	Impedance	> 10 k Ω nominal
	Trigger level range	-5 to 5 V
Trigger 1 outputs	Connector	BNC female
	Impedance	50 Ω nominal
	Level	5 V TTL nominal
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
SNS Series noise source		
Analog out	Connector	BNC female
USB ports		
Host, super speed 2 ports (stacked with each other)	Standard	Compatible with USB 3.0
	Connector	USB Type-A female
	Output current	0.9 A
Host 1 port (stacked with LAN)	Standard	USB 2.0
	Connector	USB Type-A female
	Output current	0.5 A
Device	Standard	Compatible with USB 3.0 USB
	Connector	USB Type-B female

Rear panel		
GPIB interface	Connector	IEEE-488 bus connector
	GPIB mode	SH1, AH1, T6, SR1, RL1, PP0, DC1, C1, C2, C3, C28, DT1, L4, C0
	GPIB codes	Controller or device
LAN TCP/IP interface	Standard	1000Base-T
	Connector	RJ45 Ethertwist
Sync (reserved for future use)	Connector	BNC female
IF output	Connector	SMA female
	Impedance	50 Ω nominal
Wideband IF output, Option CR3 ¹		
Center frequency		
SA mode or I/Q analyzer		322.5 MHz
Conversion gain		-4 to +7 dB (nominal) plus RF frequency response
Bandwidth	Low band	Up to 120 MHz (nominal)
	High band	Up to 40 MHz (nominal)

1. Not available on microwave CXA (Option 513 or 526)

I/Q Analyzer

Frequency			
Frequency span	Standard	10 Hz to 10 MHz	
	Option B25	10 Hz to 25 MHz	
Resolution bandwidth (spectrum measurement)			
Range	Overall	100 MHz to 3 MHz	
	Span = 1 MHz	50 Hz to 1 MHz	
	Span = 10 kHz	1 Hz to 10 kHz	
	Span = 100 Hz	100 MHz to 100 Hz	
Window shapes			
Flat top, Uniform, Hanning, Gaussian, Blackman, Blackman-Harris, Kaiser Bessel (K-B 70 dB, K-B 90 dB and K-B 110 dB)			
Analysis bandwidth			
Standard		10 Hz to 10 MHz	
Option B25		10 Hz to 25 MHz	
IF frequency response (standard 10 MHz IF path)			
IF frequency response (demodulation and FFT response relative to the center frequency, 20 to 30 °C)			
Center frequency (GHz)	Span (MHz)	Max. error	RMS (nominal)
≤ 3.0	≤ 10	±0.40 dB	0.03 dB
3.0 < f ≤ 26.5	≤ 10	±0.40 dB	0.25 dB
IF phase linearity (deviation from mean phase linearity, nominal)			
Center frequency (GHz)	Span (MHz)	Peak-to-peak	RMS
≤ 3.0	≤ 10	0.5°	0.2°
3.0 < f ≤ 7.5	≤ 10	2.7°	2.4°
7.5 < f ≤ 26.5	≤ 10	1.5°	0.4°
Data acquisition (standard 10 MHz IF path)			
Time record length		5,000,000 IQ sample pairs	
Sample rate		30 MSa/s	
ADC resolution		14 Bits	
Option B25 25 MHz analysis bandwidth			
IF frequency response (demodulation and FFT response relative to the center frequency, 20 to 30 °C)			
Center frequency (GHz)	Span (MHz)	Max. error	RMS
≤ 3.0	10 to ≤ 25	±0.45 dB	0.03 dB
3.0 < f ≤ 26.5	10 to ≤ 25	±0.45 dB	0.65 dB
IF phase linearity (deviation from mean phase linearity, nominal)			
Center frequency (GHz)	Span (MHz)	Peak-to-peak	RMS
0.02 ≤ f ≤ 3.0	10 to ≤ 25	2.7°	0.9°
3.0 < f ≤ 7.5	10 to ≤ 25	4.7°	2.2°
7.5 < f ≤ 26.5	10 to ≤ 25	3.5°	1.0°
Data acquisition (B25 IF path)			
Time record length	IQ analyzer	5,000,000 IQ sample pairs	
	Sample rate	90 MSa/s	
	ADC resolution	14 Bits	

Related Literature

Publication title	Publication number
CXA Signal Analyzer N9000B - Configuration Guide	5992-1275EN
X-Series Signal Analyzers - Brochure	5992-1316EN

For more information or literature resources please visit the web: www.keysight.com/find/cxa

Web

- Product page: www.keysight.com/find/N9000B
- X-Series measurement applications: www.keysight.com/find/X-Series_Apps
- X-Series signal analyzers: www.keysight.com/find/X-Series

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