Keysight Technologies
M9290A CXA-m
PXIe X-Series Signal Analyzer
10 Hz to 3.0, 7.5, 13.6 or 26.5 GHz

Data Sheet

KEYSIGHT TECHNOLOGIES

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Deploy a smaller microwave footprint

In test system development, one of your crucial requirements is doing more in less space—but this often means tradeoffs between footprint and precision in signal analysis. That is, until now: we've expanded the Keysight X-Series with the CXA-m, a PXIe signal analyzer that offers fully specified performance up to 26.5 GHz. It lets you handle RF and microwave signals in four slots, and you can leverage your existing code. Choose the CXA-m and deploy a smaller microwave footprint.

Technical Specifications

Definitions and conditions

Temperatures referred to in this document are defined as follows:

- Full temperature range = Individual module temperature of 5 to 68 °C, as reported by the module, and environment temperature of 0 to 55 °C.
- Controlled temperature range = Individual module temperature of 25 to 40 °C, as reported by the module, and environment temperature of 20 to 30 °C.

Specifications describe the warranted performance of calibrated instruments. Data represented in this document are specifications under the following conditions unless otherwise noted.

- 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

95th percentile values indicate the breadth of the population (approx. 2σ) 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.

Recommended best practices in use

- Use slot blockers and EMC filler panels in empty module slots to ensure proper operating temperatures. Keysight chassis and slot blockers optimize module temperature performance and reliability of test.
- Set chassis fan to high at environmental temperatures above 45°C.

Get more information

This CXA-m PXIe X-Series signal analyzer data sheet is a summary of the complete specifications and conditions available in the CXA-m PXIe Signal Analyzer Specification Guide. The CXA-m PXIe Signal Analyzer Specification Guide can be obtained on the web at:

www.keysight.com/find/cxa-m_manuals

For ordering information, refer to the CXA-m PXIe Signal Analyzer Configuration Guide (5992-0193EN).

Frequency and Time Specifications

Frequency range	**DC coupled**	**AC coupled**
Option F03	10 Hz to 3.0 GHz	10 MHz to 3.0 GHz
Option F07	10 Hz to 7.5 GHz	10 MHz to 7.5 GHz
Option F13	10 Hz to 13.6 GHz	10 MHz to 13.6 GHz
Option F26	10 Hz to 26.5 GHz	10 MHz to 26.5 GHz
Band	**LO multiple (N)**	
0	1	10 Hz to 3.08 GHz
1	2	2.95 to 7.575 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	± [(time since last adjustment x aging rate) + temperature stability + calibration accuracy]	
Aging rate	Option PFR	Standard
	± 1 x 10^{-7} / year	± 1 x 10^{-6} / year
	± 1.5 x 10^{-7} / 2 years	
Temperature stability	Option PFR	Standard
20 to 30 °C	± 1.5 x 10^{-8}	± 2 x 10^{-6}
Full temperature range	± 5 x 10^{-8}	± 2 x 10^{-6}
Achievable initial calibration accuracy	Option PFR	Standard
	± 4 x 10^{-8}	± 1.4 x 10^{-6}
Example frequency reference accuracy (with Option PFR)	= ± (1 x 1 x 10^{-7} + 5 x 10^{-8} + 4 x 10^{-8})	
1 year after last adjustment	= ± 1.9 x 10^{-7}	
Residual FM		
Option PFR	≤ 0.25 Hz p-p in 20 ms nominal	
Standard	≤ 10 Hz p-p in 20 ms nominal	
Frequency readout accuracy (start, stop, center, marker)		
± (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	± (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 span (FFT and swept mode)		
Range	0 Hz (zero span), 10 Hz to maximum frequency of instrument	
Resolution	2 Hz	
Accuracy		
Swept	± (0.25 % x span + horizontal resolution)	
FFT	± (0.10 % x span + horizontal resolution)	

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

Frequency and Time Specifications (Continued)

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	± 1 % nominal
Trigger	Free run, video, external, RF burst, periodic timer	
Trigger delay	Span = 0 Hz or FFT	–150 to +500 ms
	Span ≥ 10 Hz, swept	1 µs to 500 ms
	Resolution	0.1 µs
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	± 1.0 % (± 0.044 dB) nominal
	820 kHz to 1.2 MHz	± 2.0 % (± 0.088 dB) nominal
	1.3 to 2.0 MHz	± 0.13 dB nominal
	2.2 to 3 MHz	± 0.22 dB nominal
	4 to 8 MHz	± 0.32 dB nominal
Bandwidth accuracy (–3.01 dB)	1 Hz to 1.3 MHz	± 2 % nominal
RBW range		
Selectivity (–60 dB/–3 dB)	4.1:1 nominal	
EMI bandwidth (CISPR compliant)	200 Hz, 9 kHz, 120 kHz, 1 MHz	(Option EMC)
EMI bandwidth (MIL STD 461E compliant)	10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz	(Option EMC)
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			
	Preamp off	Displayed average noise level (DANL) to +30 dBm	
	Preamp on	Displayed average noise level (DANL) to +23 dBm	
Input attenuator range			
Standard		0 to 70 dB in 10 dB steps	
Option FSA		0 to 70 dB in 2 dB steps, 7.5 GHz	
		0 to 70 dB in 10 dB steps, 7.5 to 26.5 GHz	
Maximum safe input level			
Average total power			
	+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, and input attenuation ≥ 30 dB	
DC volts			
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 response		**Specification**	**95th percentile (≈ 2σ)**
(10 dB input attenuation, 20 to 30 °C, σ = nominal standard deviation)			
	9 kHz to 10 MHz	± 0.50 dB	± 0.4 dB
	10 MHz to 3 GHz	± 0.65 dB	± 0.5 dB
	3 to 13.6 GHz	± 1.30 dB	± 0.8 dB
	13.6 to 19.3 GHz	± 1.50 dB	± 1.0 dB
	19.3 to 24.2 GHz	± 2.20 dB	± 1.3 dB
	24.2 to 26.5 GHz	± 2.50 dB	± 1.3 dB
Preamp on (Option P03, P07, P13, P26)			
	100 kHz to 10 MHz		± 0.5 dB
	10 MHz to 3 GHz		± 1.0 dB
	3 to 7.5 GHz		± 1.2 dB
	7.5 to 13.6 GHz		± 1.0 dB
	13.6 to 21 GHz		± 1.2 dB
	21 to 24.2 GHz		± 1.8 dB
	24.2 to 26.5 GHz		± 2.4 dB
Input attenuation switching uncertainty		**Specifications**	**Additional information**
Attenuation > 2 dB, preamp off	50 MHz (reference frequency)	± 0.3 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

Amplitude Accuracy and Range Specifications (Continued)

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	± 0.40 dB	
At all frequencies	± (0.40 dB + frequency response)	
100 kHz to 3 GHz	± 0.60 dB (95th Percentile ≈ 2σ)	
Preamp on (Option P03/P07/P13/P26)	± (0.36 dB + frequency response) (95th percentile)	
Precision amplitude accuracy (Option PAA)		
Preamp off (10 dB attenuation)	**Specification**	**Additional information**
9 kHz to 10 MHz	± 0.70 dB	± 0.31 dB typical
10 MHz to 3 GHz	± 0.85 dB	± 0.40 dB typical
3 to 7.5 GHz	± 0.95 dB	± 0.44 dB typical
7.5 to 9.55 GHz	± 0.90 dB	± 0.38 dB typical
9.55 to 12.55 GHz	± 0.95 dB	± 0.44 dB typical
12.55 to 13.6 GHz	± 0.90 dB	± 0.32 dB typical
13.6 to 15.55 GHz	± 0.95 dB	± 0.35 dB typical
15.55 to 22.8 GHz	± 1.10 dB	± 0.50 dB typical
22.8 to 24.2 GHz	± 1.20 dB	± 0.50 dB typical
24.2 to 26.5 GHz	± 1.30 dB	± 0.57 dB typical
Preamp on (0 dB attenuation)		
100 kHz to 10 MHz		± 0.30 dB typical
10 MHz to 3 GHz		± 0.65 dB typical
3 to 7.5 GHz		± 0.73 dB typical
7.5 to 9.55 GHz		± 0.49 dB typical
9.55 to 12.55 GHz		± 0.71 dB typical
12.55 to 19.3 GHz		± 0.65 dB typical
19.3 to 21 GHz		± 0.80 dB typical
21 to 22.8 GHz		± 1.20 dB typical
22.8 to 24.2 GHz		± 1.39 dB typical
24.2 to 26.5 GHz		± 1.66 dB typical
Input voltage standing wave ratio (VSWR) (≥ 10 dB attenuation)		
10 MHz to 3 GHz	< 1.2 nominal	
3 to 7.5 GHz	< 1.4 nominal	
7.5 to 13.6 GHz	< 1.6 nominal	
13.6 to 24.2 GHz	< 1.8 nominal	
24.2 to 26.5 GHz	< 2.2 nominal	
Resolution bandwidth switching uncertainty (referenced to 30 kHz RBW)		
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	

Amplitude Accuracy and Range Specifications (Continued)

Display scale fidelity		
–80 dBm ≤ input mixer level < –10 dBm	± 0.15 dB total	
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	10 MHz to 3 GHz	10 dB nominal
	3 to 26.5 GHz	DANL + 176.24 dB nominal

Dynamic Range Specifications

1 dB gain compression (two-tone)				
		Total power at input mixer		
Preamp off	10 MHz to 7.5 GHz	+6 dBm nominal		
	7.5 to 26.5 GHz	+4 dBm nominal		
Preamp on	10 MHz to 7.5 GHz	–15 dBm nominal		
	7.5 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**		
10 Hz	–95 dBm nominal			
100 Hz	–110 dBm nominal			
1 kHz	–115 dBm nominal			
9 kHz to 1 MHz	(–125) dBm			
1 to 10 MHz	–144, (–148) dBm	–154, (–158) dBm		
10 MHz to 1.5 GHz	–148, (–150) dBm	–160, (–163) dBm		
1.5 to 4.5 GHz	–146, (–149) dBm	–160, (–163) dBm		
4.5 to 7 GHz	–141, (–145) dBm	–157, (–161) dBm		
7 to 9.5 GHz	–144, (–147) dBm	–158, (–160) dBm		
9.5 to 13 GHz	–136, (–140) dBm	–156, (–160) dBm		
13 to 14.5 GHz	–142, (–145) dBm	–158, (–161) dBm		
14.5 to 19.3 GHz	–132, (–138) dBm	–153, (–157) dBm		
19.3 to 23 GHz	–134, (–139) dBm	–152, (–157) dBm		
23 to 24 GHz	–132, (–137) dBm	–150, (–155) dBm		
24 to 26.5 GHz	–128, (–133) dBm	–144, (–149) dBm		
Spurious responses				
Residual response (Input terminated and 0 dB attenuation)	200 kHz to 26.5 GHz (swept)	–90 dBm		
	Zero span or FFT or other frequencies	–100 dBm nominal		
	Tuned frequency (f)	**Excitation Freq**	**Mixer level**	**Response**
Image responses (Second mixer)				
	10 MHz to 7.5 GHz	f + 1645 MHz	–10 dBm	–70 dBc (–80 dBc typical)
	7.5 GHz to 19.3 GHz	f - 1645 MHz	–10 dBm	–70 dBc (–80 dBc typical)
	19.3 GHz to 21 GHz	f + 1645 MHz	–10 dBm	–70 dBc (–80 dBc typical)
	21 GHz to 22.8 GHz	f - 1645 MHz	–10 dBm	–70 dBc (–80 dBc typical)
	22.8 GHz to 24.2 GHz	f + 1645 MHz	–10 dBm	–70 dBc (–80 dBc typical)
	24.2 GHz to 26.5 GHz	f - 1645 MHz	–10 dBm	–70 dBc (–80 dBc typical)
LO-related spurious	10 MHz to 26.5 GHz		–10 dBm	–64 dBc typical
Other spurious responses	**Mixer level**	**Response**		
IF feedthrough	–10 dBm	–75 dBc (–80 dBc typical)		
First RF order (f ≥ 10 MHz from carrier)	–10 dBm	–70 dBc (–80 dBc nominal)		
High RF order (f ≥ 10 MHz from carrier)	–30 dBm	–70 dBc (–80 dBc nominal)		
Second harmonic distortion (SHI)				
Source frequency	**SHI (nominal)**			
10 MHz to 3.75 GHz	+50 dBm			
3.75 to 13.25 GHz	+62 dBm			

Dynamic Range Specifications (Continued)

Third-order intermodulation distortion (TOI)			
Parentheses indicate typical performance			
	Preamp off (Two –20 dBm tones at input mixer spaced by 100 kHz, 0 dB attenuation, 20 to 30 °C	10 MHz to 2 GHz	+12 dBm, (+16) dBm
		2 to 3 GHz	+12 dBm, (+17) dBm
		3 to 7.5 GHz	+12 dBm, (+16) dBm
		7.5 to 13.6 GHz	+11 dBm, (+15) dBm
		13.6 to 26.5 GHz	+10 dBm, (+14) 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

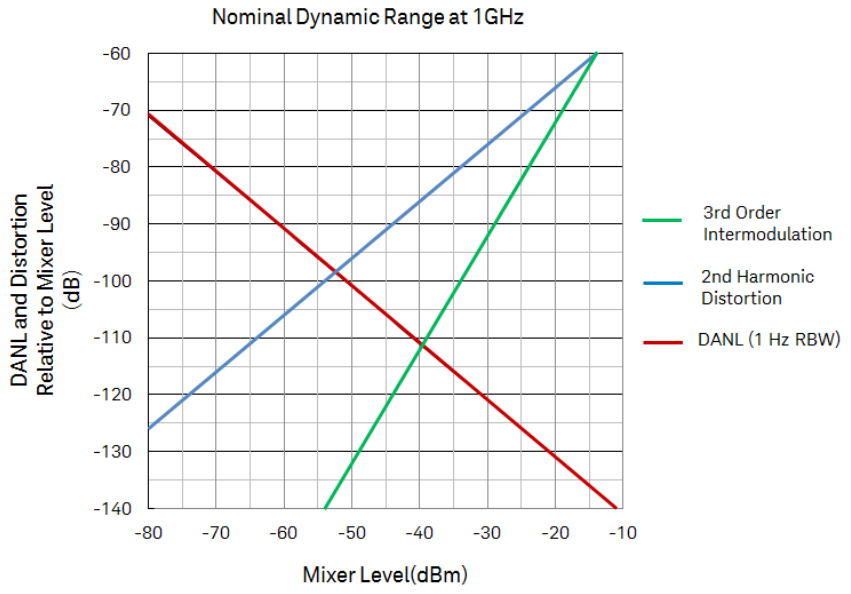


Figure 1. Nominal dynamic range for Band 0, for second and third order distortion, 10 MHz to 3 GHz

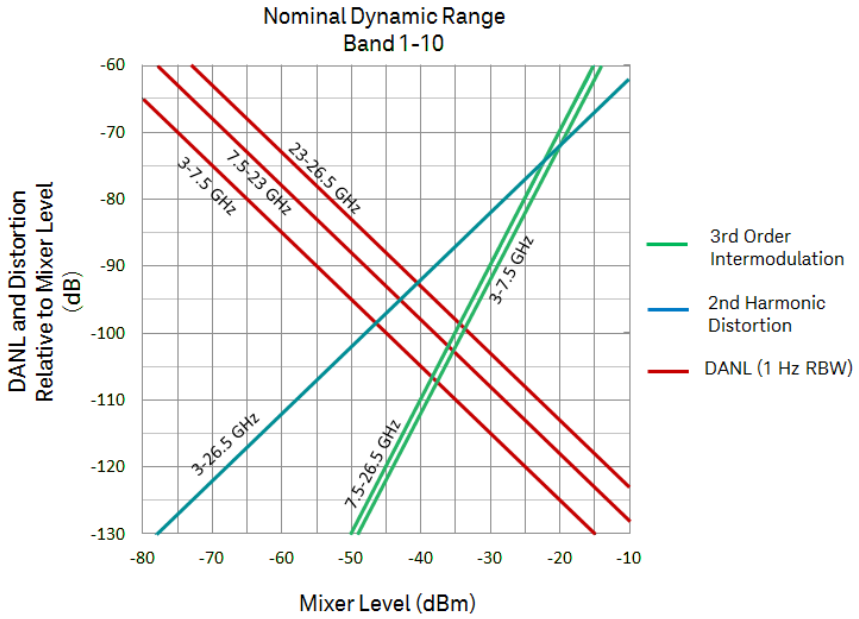


Figure 2. Nominal dynamic range, for second and third order distortion, 3 GHz to 26.5 GHz

Dynamic Range Specifications (Continued)

Phase noise	Offset	Specification	Typical
Noise sidebands (20 to 30 °C, CF = 1 GHz)			
	100 Hz		–90 dBc/Hz nominal
	1 kHz	–102 dBc/Hz	–105 dBc/Hz
	10 kHz	–106 dBc/Hz	–110 dBc/Hz
	100 kHz	–108 dBc/Hz	–110 dBc/Hz
	1 MHz	–130 dBc/Hz	–132 dBc/Hz
	10 MHz		–145 dBc/Hz nominal

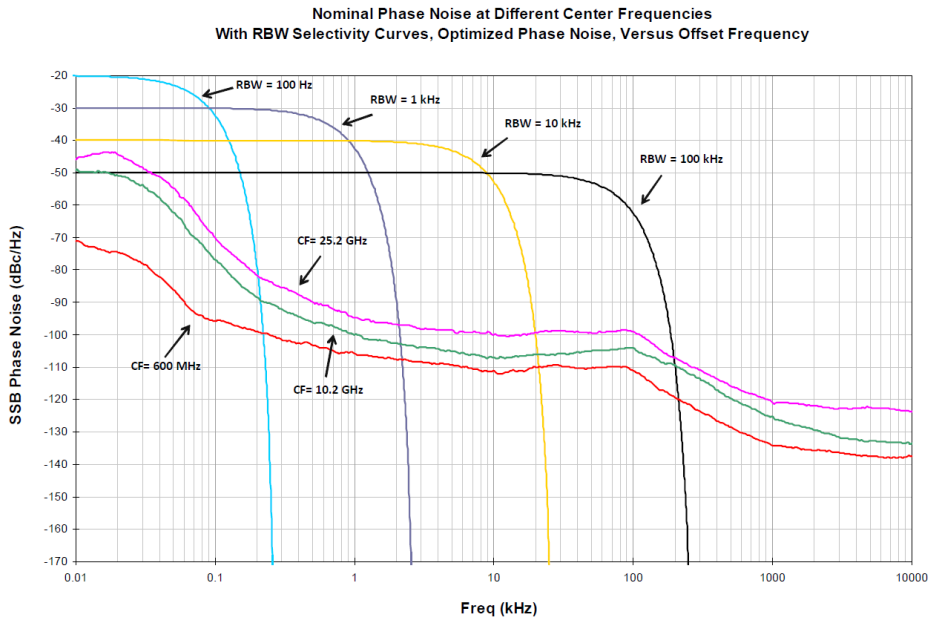


Figure 3. Nominal phase noise at different center frequencies

PowerSuite Measurement Specifications

Channel power			
Amplitude accuracy, W-CDMA or IS95 (20 to 30 °C, attenuation = 10 dB)	± 1.23 dB (± 0.62 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		± 0.21 dB	± 0.25 dB
BTS		± 0.89 dB	± 0.67 dB
Dynamic range (typical)			
	Without noise correction	–68 dB	–72 dB
	With noise correction	–73 dB	–78 dB
Offset channel pairs measured	1 to 6		
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			
W-CDMA (1 to 3.0 GHz) table-driven spurious signals; search across regions			
Dynamic range		75.0 dB	(79.1 dB typical)
Absolute sensitivity		–82.5 dBm	(–86.5 dBm typical)
Spectrum emission mask (SEM)			
cdma2000® (750 kHz offset)			
Relative dynamic range (30 kHz RBW)		73.0 dB	(78.1 dB typical)
Absolute sensitivity		–99.7 dBm	(–102.7 dBm typical)
Relative accuracy		± 0.11 dB	
3GPP W-CDMA (2.515 MHz offset)			
Relative dynamic range (30 kHz RBW)		77.5 dB	(82.4 dB typical)
Absolute sensitivity		–97.7 dBm	(–101.7 dBm typical)
Relative accuracy		± 0.15 dB	

Tracking Generator Specifications

Output frequency		
Frequency range		
Option T03	2 MHz to 3 GHz	
Option T07	2 MHz to 7.5 GHz	
Option T13	2 MHz to 13.6 GHz	
Option T26	2 MHz to 26.5 GHz	
Resolution	10 Hz	
Output power level		
Range		
2 MHz to 10 GHz	–35 to 0 dBm	
10 to 20 GHz	–35 to –5 dBm	
20 to 26.5 GHz	–40 to –12 dBm	
Resolution	0.1 dB	
Absolute accuracy (at 50 MHz, –15 dBm)	± 1.0 dB typical	± 0.3 dB nominal
Output flatness (Referenced to 50 MHz, –15 dBm)	95th percentile (≈ 2σ)	
2 MHz to 7.5 GHz	± 1.0 dB	± 0.3 dB
7.5 to 13.6 GHz	± 1.2 dB	± 0.3 dB
13.6 to 23 GHz	± 1.8 dB	± 0.6 dB
23 to 26 GHz	± 2.5 dB	± 1.2 dB
26 to 26.5 GHz		± 2.3 dB
Level accuracy		Nominal
2 MHz to 7.5 GHz		± 0.8 dB
7.5 to 13.6 GHz		± 0.9 dB
13.6 to 23GHz		± 1.5 dB
23 to 26 GHz		± 1.8 dB
26 to 26.5GHz		± 2.9 dB
Output power sweep		
Range		
2 MHz to 10 GHz	–35 to 0 dBm	
10 to 20 GHz	–35 to –5 dBm	
20 to 26.5 GHz	–40 to –12 dBm	
Resolution	0.1 dB	
Maximum safe reverse level		
Average total power	+ 30 dBm (1 W)	
AC coupled	± 50 Vdc	
Phase noise		
Noise sidebands (Center Frequency = 1 GHz)	Offset	Typical
	10 kHz	–98 dBc/Hz
	100 kHz	–105 dBc/Hz
	1 MHz	–122 dBc/Hz
Dynamic range		
	Maximum output power – displayed average	110 dBc nominal
Output VSWR		
2 MHz to 7 GHz		< 1.7:1 nominal
7 to 23 GHz		< 2.5:1 nominal
23 to 26.5 GHz		< 3.5:1 nominal

General Specifications

Temperature range	
Operating	0 to 55 °C
Storage	–40 to 70 °C
EMC	
Complies with European EMC Directive 2004/108/EC – IEC/EN 61326-1 – CISPR Pub 11 Group 1, class A – AS/NZS CISPR 11 – ICES/NMB-001	
This ISM device complies with Canadian ICES-001	
Cet appareil ISM est conforme à la norme NMB-001 du Canada	
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 requirement	
Power drawn from chassis	≤ 65 W
Weight	
Net	1.9 kg (4.2 lbs)
Shipping	4.2 kg (9.3 lbs)
Dimensions	
Height	132 mm (5.2 in)
Width	82 mm (3.2 in)
Length	202 mm (8.0 in)
Calibration cycle	
The recommended calibration cycle is one year; calibration services are available through Keysight service centers	

Inputs and Outputs

RF input	
Connector	3.5mm female, 50 Ω nominal
RF output	
Connector	3.5mm female, 50 Ω nominal
10 MHz in	
Connector	SMB male, 50 Ω nominal
10 MHz out	
Connector	SMB male, 50 Ω nominal
Trigger in	
Connector	SMB male, 10 kΩ nominal
Trigger out	
Connector	SMB male, 50 Ω nominal
Analog out	
Connector	SMB male, 50 Ω nominal
Noise source	For use with Keysight 346 and SNS series noise sources

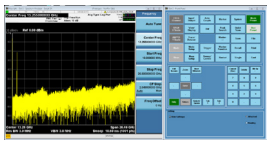
I/Q Analyzer

Frequency			
Frequency span			
Standard instrument	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 instrument	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		0.10 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	0.5 °	0.4 °
Data acquisition (standard 10 MHz IF path)			
Time record length	4,000,000 IQ sample pairs		
Sample rate	90 MSa/s		
ADC resolution	16 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 (nominal)
≤ 3.0	10 to ≤ 25	± 0.45 dB	0.03 dB
3.0 < f ≤ 26.5	10 to ≤ 25		0.20 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	1 °	0.3 °
3.0 < f ≤ 7.5	10 to ≤ 25	1 °	0.5 °
Data acquisition (B25 IF path)			
Time record length			
IQ analyzer	4,000,000 IQ sample pairs		
Sample rate	90 MSa/s		
ADC resolution	16 Bits		

System Requirements

Operating system	Windows 7 (32 & 64 bit)
Processor speed	1.86 GHz minimum
	2.4 GHz recommended
Available memory	4 GB minimum
	8 GB recommended
Available disk space	4 GB
Video	Support for DirectX 9 graphics with 128 MB graphics recommended (SuperVGA supported)
Browser	Microsoft Internet Explorer 7.0 or greater

Software

Instrument connection software			
	Keysight IO library	The IO library suite offers a single entry point for connection to the most common instruments including AXIe, PXI, GPIB, USB, Ethernet/LAN, RS-232, and VXI test instruments from Keysight and other vendors. It automatically discovers interfaces, chassis, and instruments. The graphical user interface allows you to search for, verify, and update IVI instrument and soft front panel drivers for modular and traditional instruments. The IO suite safely installs in side-by-side mode with NI I/O software.	Free software download at www.keysight.com/find/iosuite
Module setup and usage			
	Keysight soft |front panel	The CXA-m includes a soft front panel (SFP), a software-based graphical user interface (GUI) which enables the instrument's capabilities from your PC.	Included on CD-ROM shipped with module or online
Module management			
Keysight connection expert		Connection expert is the graphical user interface included in the IO libraries suite that allows you to search for, verify and update IVI instrument and soft front panel drivers for modular and traditional instruments	Free software download at www.keysight.com/find/iosuite
Programming			
Driver		**Development environments**	
IVI-COM IVI-C LabVIEW MATLAB		Visual Studio (VB .NET, C#, C/C++), VEE, LabVIEW, LabWindows/CVI, MATLAB	Included on CD-ROM shipped with module.
Programming assistance			
	Command expert	Assists in finding the right instrument commands and setting correct parameters. A simple interface includes documentation, examples, syntax checking, command execution, and debug tools to build sequences for integration in Excel, MATLAB, Visual Studio, and VEE.	Free software download at www.keysight.com/find/commandexpert
Signal analysis software			
	X-Series measurement applications	Provides measurements for analog demodulation, noise figure, phase noise, vector signal analysis, and others.	Licensed software. For more information, visit www.keysight.com/find/x-series_apps
	89600 VSA	89600 VSA software sees through the complexity of emerging and existing industry standards, serving as your window into complex signal interactions.	Licensed software. For more information, visit www.keysight.com/find/vsa
	SystemVue	SystemVue is a system-level EDA platform for designing communications and defense systems. Used with the M9290A, SystemVue enables you to create model-based design validation tests to ensure consistency from design to manufacturing.	Licensed software. For more information, visit www.keysight.com/find/systemvue

Related Literature

Literature	Pub number
M9290A CXA-m PXIe Signal Analyzer - Product Fact Sheet	5992-0044EN
M9290A CXA-m PXIe Signal Analyzer - Configuration Guide	5992-0193EN
M9018A PXIe 18 slot Chassis - Data Sheet	5990-6583EN
M9037A PXIe High Performance Embedded Controller - Data Sheet	5991-3661EN
M9036A PXIe Embedded Controller - Data Sheet	5990-8465EN

Web

For more information or literature resources please visit the web:

Product page: www.keysight.com/find/M9290A
X-Series measurement applications: www.keysight.com/find/X-Series_Apps
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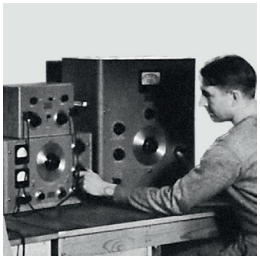

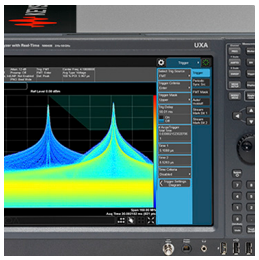

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