DATA SHEET

# N9322C Basic Spectrum Analyzer

Easy on your budget. Tough to beat performance, efficiency and simplicity.





#### **Definitions and Conditions**

## Learn more about the product

Reference these frequentlyused documents:

- Brochure (5991-1166EN)
  - Introduces the product features
- Configuration Guide (5991-1168EN)
  - Describes ordering information

#### Specification

Describes the performance of parameters covered by the product warranty and apply to the full temperature range of 5 to  $45^{\circ}$ C, unless otherwise noted.

#### **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

Indicates 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
- It has been turned on at least 30 minutes
- It 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

### Frequency and Time Specification

		Supplemental information
Frequency		
Range	9 kHz to 7 GHz	AC coupled
Resolution	1 Hz	
Frequency reference		
	Option PFR	Standard
Nominal frequency	10 MHz	10 MHz
Aging rate	$\pm 1 \times 10^{-7}$ /Year	$\pm 1 \times 10^{-6}$ /Year
Temperature stability		
20 to 30°C	± 1.5 × 10 <sup>-8</sup>	
5 to 45°C	± 5 × 10 <sup>-8</sup>	± 1 × 10 <sup>-6</sup>
Achievable initial calibration accuracy	± 4 × 10 <sup>-8</sup>	± 1 × 10 <sup>-6</sup>
Frequency readout accuracy (start, sto	pp, center, marker)	
Marker resolution	(frequency span)/(number of sweep point - 1)	
Uncertainty	± (freq indication x freq reference uncertainty + 1 Hz)	<sup>1</sup> + 1% x span +20% x resolution bandwidth + marker resolution
Sweep point	461, fixed	
Marker frequency counter		
Resolution	1 Hz	
Accuracy	± [(marker freq x freq reference uncertainty <sup>1</sup> ) + (counter resolution)]	RBW/Span ≥ 0.02 (Marker level to displayed noise level > 25 dB, frequency offset = 0 Hz)
Frequency span (FFT and swept mode)		
Range	0 Hz (zero span), 50 Hz to 7 GHz	
Resolution	1 Hz	
Accuracy	± (0.22% ×span + span/(sweep point -1)), nomi	inal
Sweep time and triggering		
Range	2 ms to 1000 s	Span ≥ 100 Hz
	600 ns to 1000 s	Span = 0 Hz (minimum resolution = 600 ns, when RBW $\ge$ 30 kHz)
Mode	Continuous, Single	
Sweep time rule	Accuracy or Speed	
Trigger	Free run, video, external, RF burst	
Trigger slope	Selectable positive or negative edge	
Trigger delay	± 12 ms to ± 12 s, nominal	Span = 0 Hz

<sup>1.</sup> Frequency reference uncertainty = Aging rate x period since adjustment + temperature stability.

### Frequency and Time specification (Continued)

		Supplemental information
Time-gated sweep (Option TMG)		
Gate sources	External	
	Periodic timer	Sync sources include free and external
		Period 0 to 20 s (It should be gerater than gate delay plus gate length)
		Offset -5 to +5 s
Gate delay range	12 μs to 10 s	Resolution = 200 ns
Gate length range	84 μs to 10 s	Resolution = 200 ns
RBW range	≥ 1 kHz	VBW is fixed and equal to RBW for efficiency
Resolution bandwidth (RBW)		
Range (-3 dB bandwidth)	10 Hz to 3 MHz	In 1-3-10 sequence
Accuracy	± 5%, nominal	< 10% when RBW = 3 MHz
Resolution filter shape factor	< 5 : 1, nominal	60 dB/3 dB bandwidth ratio, digital, Gaussian-like
EMI bandwidth (CISPR compliant)	200 Hz, 9 kHz, 120 kHz, 1 MHz	Option EMC required
Accuracy	± 10% nominal	
Resolution filter shape factor	< 5:1 nominal	-60 dB/-6 dB bandwidth ratio
Video bandwdith (VBW)		
Range	1 Hz to 3 MHz in 1-3-10 sequence	In 1-3-10 sequence
Accuracy	± 10%, nominal	VBW = 1 Hz to 1 MHz

### **Amplitude Specifications**

		Supplemental information
Measurement range		
100 kHz to 1 MHz	Displayed average noise level (DANL) to +10 dBm	2 "
1 MHz to 7 GHz	Displayed average noise level (DANL) to +20 dBm	— Preamp off
Input attenuator range	0 to 50 dB, in 1 dB steps	
Maximum damage level		
Average contunious power	≤ +33 dBm, 3 minutes maximum	Input attenuator setting ≥ 20 dB
DC voltage	± 50 V <sub>DC</sub> maximum	2 MHz to 7 GHz
Level display range	DC	
Scale units	dBm, dBmV, dBμV, dBmV EMF, dBμV EMV, V, W, V	EMF
Marker level readout	0.01 dB	Log scale
Resolution	< 1% of signal level	Linear scale
Number of traces	4	
Detectors	Positive-peak, negative-peak, sample, normal, ave	erage (video, RMS, voltage), quasi-peak (option EMC required)
Trace function	Clear/write, maximum hold, average, minimum hol	
Frequency response		
• •	humidity, attenuation 20 dB, reference frequency 50 MHz	7
9 to 100 kHz	± 0.5 dB nominal	Preamp off
100 kHz to 3 GHz	± 0.7 dB	Preamp off
3 to 4 GHz	± 0.85 dB	Preamp off
4 to 7 GHz	± 1.0 dB	Preamp off
100 kHz to 3 GHz	± 0.7 dB	Preamp on
3 to 4 GHz	± 0.9 dB	Preamp on
4 to 7 GHz	± 1.1 dB	Preamp on
Input attenuation switching unc		F -
20 to 30°C, attenuation ≥ 1 dB, pr	-	
1 to 50 dB attenuation	Typical ± 0.2 dB	Relative to 20 dB (reference setting)
Resolution bandwidth switching	21	
20 to 30°C, 10 Hz to 3 MHz RBW	± 0.1 dB, nominal	
Total absolute amplitude accura		
iotal appolitio amplitude accula	CV	
•	•	cy, input signal -50 to 0 dBm, preamp off; attenuation 20 dB.
20 to 30°C, 30% to 70% RH, peak	k detector, RBW 1 kHz, VBW 300 Hz, sweep time Accurac	cy, input signal –50 to 0 dBm, preamp off; attenuation 20 dB.
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe	k detector, RBW 1 kHz, VBW 300 Hz, sweep time Accurac	cy, input signal –50 to 0 dBm, preamp off; attenuation 20 dB.
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz	c detector, RBW 1 kHz, VBW 300 Hz, sweep time Accurace time rule is set to Speed	cy, input signal –50 to 0 dBm, preamp off; attenuation 20 dB.
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies	k detector, RBW 1 kHz, VBW 300 Hz, sweep time Accurace time rule is set to Speed ± 0.3 dB	cy, input signal -50 to 0 dBm, preamp off; attenuation 20 dB.  95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz	c detector, RBW 1 kHz, VBW 300 Hz, sweep time Accurace time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)	
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz	c detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy eep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB	95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz	to detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy the per time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB	95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz <b>Preamp on</b>	to detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy the per time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB	95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz  Preamp on At 50 MHz	t detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy teep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB	95th percentile 95th percentile
•	t detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy teep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB  ± 0.4 dB	95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz  Preamp on At 50 MHz At all frequencies 100 kHz to 3 GHz	to detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy the properties are to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB  ± 0.4 dB  ± (0.4 dB + frequency response)	95th percentile 95th percentile 95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz  Preamp on At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz	t detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy sep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB  ± 0.4 dB  ± (0.4 dB + frequency response)  ± 0.60 dB	95th percentile 95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz  Preamp on At 50 MHz At all frequencies 100 kHz to 3 GHz  3 to 4 GHz  4 to 7 GHz  At 3 GHz  4 to 7 GHz  At 3 GHz  4 to 7 GHz	t detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy teep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB  ± 0.4 dB  ± (0.4 dB + frequency response)  ± 0.60 dB  ± 0.65 dB	95th percentile 95th percentile 95th percentile 95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz  Preamp on At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz Preampon At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz  Preamplifier	t detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy teep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB  ± 0.4 dB  ± (0.4 dB + frequency response)  ± 0.60 dB  ± 0.65 dB	95th percentile 95th percentile 95th percentile 95th percentile 95th percentile
20 to 30°C, 30% to 70% RH, peak Add additional ± 0.3 dB when swe At 50 MHz At all frequencies 100 kHz to 3 GHz 3 to 4 GHz 4 to 7 GHz  Preamp on At 50 MHz At all frequencies	t detector, RBW 1 kHz, VBW 300 Hz, sweep time Accuracy sep time rule is set to Speed  ± 0.3 dB  ± (0.3 dB + frequency response)  ± 0.60 dB  ± 0.65 dB  ± 0.80 dB  ± 0.4 dB  ± (0.4 dB + frequency response)  ± 0.60 dB  ± 0.60 dB  ± 0.90 dB	95th percentile 95th percentile 95th percentile 95th percentile 95th percentile

### Dynamic Range Specifications

1 dB gain compression 20 to 30°C, frequency ≥ 50 MI	Hz Pofloval > 20 dp-			Supplemental information
Preamp off	50 to 200 MHz 200 to 500 MHz 500 MHz to 7 GHz	+ 2 dBm nominal + 4 dBm nominal + 7 dBm nominal	Mixer power level (dBm) = input	power (dBm) – input attenuation (dB)
Preamp on	> -32 dBm nominal; preamp	otal power at the	Total power at the preamp = tota	al power at the input (dBm) — input attenuation (dB)
Displayed average noise leve	el (DANL)		Normalized to 1 Hz	With 10 Hz RBW
20 to 30°C, input terminated 5	50 Ω, 0 dB input attenua	tion, RBW = 1 kHz ,	RMS detector, average ≥ 40	
Preamp off	9 to 100 kHz		–100 dBm, nominal	-90 dBm, nominal
	100 kHz to 1 MHz		–108 dBm, –127 dBm typical	–98 dBm, –117 dBm typical
	1 to 10 MHz		–128 dBm, –146 dBm typical	–118 dBm, –136 dBm typical
	10 to 500 MHz		–142 dBm, –146 dBm typical	–132 dBm, –136 dBm typical
	500 to 2.5 GHz		–141 dBm, –145 dBm typical	–131 dBm, –135 dBm typical
	2.5 to 4 GHz		–140 dBm, –144 dBm typical	–130 dBm, –134 dBm typical
	4 to 6 GHz		-138 dBm, -140 dBm typical	–128 dBm, –130 dBm typical
	6 to 7 GHz		-136 dBm, -138 dBm typical	–126 dBm, –128 dBm typical
Preamp on	9 to 100 kHz		–110 dBm, nominal	–100 dBm, nominal
	100 kHz to 1 MHz		-131 dBm, -150 dBm typical	–121 dBm, –140 dBm typical
	1 to 10 MHz		-148 dBm, -163 dBm typical	–138 dBm, –153 dBm typical
	10 to 500 MHz		-161 dBm, -164 dBm typical	-151 dBm, -154 dBm typical
	500 to 2.5 GHz		-159 dBm, -162 dBm typical	–149 dBm, –152 dBm typical
	2.5 to 4 GHz		-158 dBm, -161 dBm typical	–148 dBm, –151 dBm typical
	4 to 6 GHz		-155 dBm, -158 dBm typical	-145 dBm, -148 dBm typical
	6 to 7 GHz		-150 dBm, -154 dBm typical	–140 dBm, –144 dBm typical
Spurious response			,,	
Input terminated and 0 dB inp	ut attenuation preamn	off 20 to 30°C		
Residual response	< -90 dBm, typical -			
-30 dBm signal at input mixer		50 dBiii		
Input related spurious	< –75 dBc			
input related spurious	Exceptions:			
	'	Uz with E1 input fro	nguanou)	
	-65 dBc (F1 - 21.4 MHz, with F1 input frequency) -65 dBc (F1 - 5.35 MHz, with F1 input frequency)			
	-65 dBc (F1 - 5.35 MHz, with F1 input frequency) -65 dBc (F1 = 4155 MHz, with F1 input frequency)			
Miyor cianal layel at 20 dp				
Mixer signal level at –30 dBm, Second harmonic distortion	50 MHz to 3 GHz	preamp on, 20 to 30	< -65 dBc	
Second narmonic distortion				
Two _20 dPm tones at input ~	3 to 7 GHz	input attanuation (	< -70 dBc 0 dB, preamp off, reference level > -	20 dRm 20 to 20°C
		, iliput attelluation t		-zo ubiii, zu tu su G
Third-order intercept (TOI)	50 to 300 MHz 300 MHz to 7 GHz		+9 dBm, +12 dBm typical +11 dBm, +15 dBm typical	
Dhace noice	SUU IVITZ LU / GHZ		* * * * * * * * * * * * * * * * * * * *	Tunical
Phase noise	_ 1 CUz		Specification	Typical
20 to 30°C, center frequency :				00 dPa/Uz
Offset from CF signal	10 kHz		, 00 dDo/Uz	< -90 dBc/Hz
	100 kHz		< -98 dBc/Hz	< -100 dBc/Hz
Desided FM	1 MHz		< –119 dBc/Hz	< -121 dBc/Hz
Residual FM	10.11			
20 to 30°C, RBW 100 Hz,	≤ 10 Hz p-p in 20 ms	, nominal		

### Tracking Generator (Option TG7)

		Supplemental information		
Output frequency		- Capptoniontal information		
Range	5 MHz to 7 GHz			
Resolution	1 Hz			
Resolution bandwidth	3 kHz to 3 MHz			
Output power level	02 to 02	O MIZ CO O MITZ		
Range	-20 to 0 dBm			
Resolution	1 dB			
Output flatness	± 2 dB, nominal			
VSWR	< 2 : 1, nominal	5 MHz to 7 GHz, input attenuator ≥ 12 dB		
Dyanmic range	Max. output power – DANL with 3 kHz RBW	o mile to 7 and, input attornation = 12 ab		
Connector and impedance	N-type female, 50 $\Omega$			
Maximum safe reverse level	14-type remate, 30 sz			
Average total power	30 dBm (1W)			
DC voltage	± 50 V <sub>DC</sub>			
Reflection measurement (Option RM	50			
•	5 MHz to 7 GHz			
Frequency range Frequency resolution	100 kHz			
	-4 to +2 dBm, nominal			
Output power	<u> </u>			
Measurement speed	2 s (full span 5 MHz to 7 GHz)			
Number of data points	461	M 1 1 1001 17 1		
Directivity of calibrator	> 40 dB	Mechanical OSL calibrator		
Return loss				
Range	0 to 60 dB			
Accuracy	20 × log 10 (1.1 + 10 <sup>(- (D-RL)/20)</sup> + 0.016 × 10 <sup>(-RL/20)</sup> + 10 <sup>(-3 +RL/20)</sup> )	Nominal, after average		
	D: Directivity of calibrator			
	RL: Return loss value of the DUT			
Resolution	0.01 dB			
Voltage standing wave ratio				
Range	1 to 65			
Resolution	0.01			
Accuracy	Refer to return loss accuracy			
Insertion loss				
Range	0 to 30 dB			
Resolution	0.01 dB			
Distance-to-fault (DTF)				
Vertical range	0 to 60 dB	Return loss		
S	1 to 65	VSWR		
Range	(Number of data points – 1) × resolution	Number of data points = 461		
Resolution (meter)	$(1.5 \times 10^8) \times (V_p)/(F_2 - F_1) \text{ Hz}$	V <sub>P</sub> is the cable's relative propagation velocity		
	, , , , , , , , , , , , , , , , , , ,	F2 is the stop frequency		
		F1 is the start frequency		
Immunity to interference		·		
On-channel	+17 dBm, nominal			
On-frequency	–5 dBm, nominal			
on noquonoy	J dom, nominat			

### Other Options

AM/FM modulation analysis (Option A	AMA)	Supplemental information
Frequency range	10 MHz to 7 GHz	
Carrier power accuracy	± 1.8 dB, nominal	
Carrier power range	-30 to +10 dBm	100 kHz to 2 MHz
	-30 to +20 dBm	2 MHz to 7 GHz
Carrier power displayed resolution	0.01 dBm	
AM measurement (included in Option	AMA)	
Modulation rate	20 Hz to 100 kHz	
Accuracy	1 Hz, nominal	Modulation rate < 1 kHz
	< 0.1% modulation rate, nominal	Modulation rate ≥ 1 kHz
Depth	5 to 95%	
Accuracy	± 4%, nominal	
FM measurement (included in Option	AMA)	
Modulation rate	20 Hz to 200 kHz	
Accuracy	1 Hz, nominal	Modulation rate < 1 kHz
	< 0.1% modulation rate, nominal	Modulation rate ≥ 1 kHz
Deviation	20 Hz to 400 kHz	
Accuracy	± 4%, nominal	
ASK/FSK modulation analysis (Option	n DMA)	
Frequency range	2.5 MHz to 6 GHz	
Carrier power accuracy	± 2 dB, nominal	
Carrier power range	-30 to +20 dBm, nominal	
Carrier power displayed resolution	0.01 dBm	
ASK measurement (included in Optio	n DMA)	
Symbol rate range	100 Hz to 100 kHz	
Modulation depth/index range	5 to 95%	
Accuracy	± 4% of reading, nominal	
Displayed resolution	0.1%	
FSK measurement (included in Option	n DMA)	
FSK deviation	100 Hz to 400 kHz	
Symbol rate range	100 Hz to 20 kHz	$1 \le \beta \le 20$ ( $\beta$ is the ratio of frequency deviation to symbol rate (deviation/rate))
	20 to 50 kHz	1 ≤ <b>β</b> ≤ 8
	50 to 100 kHz	1 ≤ <b>β</b> ≤ 4
Accuracy	± 4%, nominal	
Displayed resolution	0.01 Hz	
Channel scanner (Option SCN)		
Scan modes	Top N, bottom N, and list	
Channels displayed	1 to 20	
Displayed orientation	Vertical	Number of channels ≤ 5
• •	Horizontal	Number of channels > 5
Chart	Bar chart, and time chart	
Log file	*.CSV	
Spectrum monitor (Option MNT)		
Display modes	Spectrogram	
	Spectrum trace	

### Other Options (Continued)

		Supplemental information
Security features (Option SEC)		
Security erase method	Erase the entire user flash memory by writing single character "1" over all memory locations	Non-recoverable
Port control	Disable or enable LAN or USB connectors	
Task planner (Option TPN)		
Task plan execution mode	Auto, manual, and manual if fail	
Task plan file	*.TPN	Complementary task plan editor is available with Keysight HSA and BSA PC software
Number of tasks	Maximum 20 in a single .TPN file	
Measurements supported	Regular spectrum analysis and power suite (c	channel power, ACPR and OBW)
USB average power sensor support (C	Option PWM)	
Power sensor supported	Keysight U2000 Series USB power sensor	
Frequency range	9 kHz to 24 GHz	Sensor dependent
Dynamic range	-60 to +44 dBm	Sensor dependent
USB peak and average power senesor	support (Option PWP)	
Power sensor supported	Keysight U2020 and U2042/44 X-Series USB	B peak and average power sensor
Frequency range	50 MHz to 40 GHz	Sensor dependent
Dynamic range	-30 to +20 dBm	
Base band input (Option BB1)		
Frequency range		
	9 kHz to 10 MHz	
Frequency span		
	100 Hz to 9.997 MHz	
Frequency resolution		
	1 Hz	
Measurement range		
	DANL to +10 dBm (9 kHz to 2 MHz)	
	DANL to +20 dBm (2 MHz to 10 MHz)	
Overall amplitude accuracy		
20 to 30°C, 30 to 70% RH, peak detect	tor, input signal –50 to 0 dBm, 95th percentile	
9 to 100 kHz	± 2.5 dB	
100 kHz to 10 MHz	± 1.5 dB	
Displayed average noise level		
20 to 30°C, 30 to 70% RH, 10 Hz RBW, reference level < -35 dBm	1 Hz VBW, 50 $\Omega$ termination on input, 0 dB attenuation	on, RMS detector, Trace average > 40,
9 to 100 kHz	-135 dBm, nominal	
100 kHz to 10 MHz	–145 dBm	
Residual response		
	< -120 dBm, nominal	20 to 30°C, Ref level < -35 dBm
		$50 \Omega$ termination on input, 0 dB attenuation

### Other Options (Continued)

	Supplemental information	
Base band input (Option BB1)	- Continued	
Phase noise		
Fc = 5 MHz, RBW = 1 kHz, VBV	V = 30 Hz. Ref level –30 dBm, input attenuation 0 dB, input signal –20 dBm, average > 40	
Offset 30 kHz	-120 dBc/Hz, nominal	
Offset 100 kHz	-127 dBc/Hz, nominal	
Offset > 200 kHz	-130 dBc/Hz, nominal	
Second harmonic distortion		
F > 100 kHz, signal level -30 dl	Bm, ref level –30 dBm, attenuation 0 dB	
	< -55 dBc nominal	
Third order intermodulation distortion		
F > 100 kHz, -20 dBm tones at 100 kHz apart, ref level -20 dBm, attenuation 0 dB		
	< -55 dBc, nominal	

### Inputs and Outputs

			Supplemental information
Front panel			
RF input connector	N-type female, $50\Omega$ , nominal		
VSWR	< 1.5 : 1, nominal	10 MHz to 3 GHz	Input attenuator ≥10 dB, or 20 dB fixed attenuation
	< 2.0 : 1, nominal	3 to 7 GHz	
Calibration output	Amplitude	−25 ± 0.25 dBm	
	Frequency	40 MHz	
	Connector and impedance	BNC-type female, 50 Ω, nominal	
Probe power	Voltage/Current	+15 V, 150 mA maximum	
		–12.6 V, 150 mA maximum	
RF output connector	N-type female, 50 Ω, nominal	Option TG7 installed	
USB interface (host)	A plug, version 1.1		
Rear panel			
10 MHz reference output	Output amplitude	> 0 dBm	
	Frequency	10 MHz ± (10 MHz × frequency	
		reference accuracy)	
	Connector and impedance	BNC-type female, 50 Ω, nominal	
10 MHz reference input	Input amplitude	-5 to +10 dBm, nominal	
	Frequency	10 MHz	
	Connector and impedance	BNC-type female, 50 $\Omega$ , nominal	
External trigger input	Input amplitude	5 V TTL level; -12.6 V, 150 mA	
		max (nominal)	
	Connector and impedance:	BNC-type female, 10 k $\Omega$	
LAN TCP/IP interface	100Base-T, RJ-45 connector		
USB interface (device)	B plug, version 1.1		
Mini USB (device)	Mini-AB female, version 1.1		
GPIB interface	IEEE-488 bus connector	Optional G01 installed	

### General

Temperature and relative humidity		Supplemental information
Operating temperature range	+5 to +45°C	
Storage temperature range	−20 to +70°C	
Relative humidity	< 95%	
EMC		
Complies with European EMC Directive 2004/108/EC		
IEC/EN 61326-1 / IEC/EN 61326-2-1		
CISPR Pub 11 group 1, class A		
AS/NZS CISPR 11:2004		
ICES/NMB-001:2006		
This ISM device complies with Canadian ICES-001		
Cet appareil ISM est conforme à la norme NMB-001 du Canada		

#### General (Continued)

#### Safety

Complies with European Low Voltage Directive 2006/95/EC

- · IEC/EN 61010-1 3rd Edition
- · Canada: CSA C22.2 No. 61010-1-04
- · USA: UL 61010-1 2nd Edition

#### 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 Maunal 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 (nominal)	100 to 240 VAC, 50 to 60 Hz	Auto ranging
Power consumption	≤ 25 W, < 20 W, typical	
Display		
Resolution	640 x 480	
Size	165.1 mm (6.5 inch) diagonal (nominal)	
Data storage		
Internal	64 MB nominal	
External	Supports USB 3.0 compatible memory devices	
Weight (without options)		
Net	7.9 kg (17.4 lbs), nominal	
Shipping	14.5 kg (30.9 lbs), nominal	
Dimensions		
Height	132.5 mm (5.2 inch)	Occupies 3U height in a rack
Width	320 mm (12.6 inch)	
Length	400 mm (15.7 inch)	

#### Warranty

The N9322C spectrum analyzer is supplied with a three-year warranty

#### Calibration cycle

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

