Agilent N5183A MXG
Microwave Analog Signal Generator

Data Sheet

Anticipate ___Accelerate ___Achieve

Agilent Technologies

Table of Contents

Definitions

Specification (spec):
Represents warranted performance of a calibrated instrument that has been stored for a minimum of 2 hours within the operating temperature range of 0 to 55 °C, unless otherwise stated, and after a 45 minute warm-up period. The specifications include measurement uncertainty. Data represented in this document are specifications unless otherwise noted. The specifications in this data sheet also apply to the N5183AEP MXG analog microwave signal generator express configuration. For more information about the express MXG, see the technical overview 5990-7629EN.

Typical (typ):
Represents characteristic performance, which 80% of the instruments manufactured will meet. This data is not warranted, does not include measurement uncertainty, and is valid only at room temperature (approximately 25 °C).

Nominal (nom):
The expected mean or average performance, or an attribute whose performance is by design, such as the 50 Ω connector. This data is not warranted and is measured at room temperature (approximately 25 °C).

Measured (meas):
An attribute measured during the design phase for purposes of communicating expected performance, such as amplitude drift vs. time. This data is not warranted and is measured at room temperature (approximately 25 °C).

Note: *All graphs contain measured data from several units at room temperature unless otherwise noted.*

Frequency

Range		
Option 520	100 kHz to 20 GHz	
Option 532	100 kHz to 31.8 GHz	
Option 540	100 kHz to 40 GHz	
Minimum frequency		
	100 kHz [1]	
Resolution		
	0.01 Hz	
Phase offset		
	Adjustable in nominal 0.01° increments	
Frequency switching speed [2, 3]		
Type	Standard	Option UNZ
SCPI mode	≤ 5 ms	≤ 1.15 ms, 750 µs (typ)
List/Step sweep mode	≤ 5 ms	≤ 900 µs, 600 µs (typ)
Stability		
	± aging rate	
	± temperature effects	
	± line voltage effects	
Internal time base reference oscillator aging rate		
	< ±1 ppm/yr	
Temperature effects		
	± 1 ppm (typ) (0 to 55 °C)	
Line voltage effects		
	± 0.1 ppm (nom)	
Line voltage range		
	5% to –10% (nom)	
Reference output		
Frequency	10 MHz	
Amplitude	≥ +4 dBm (nom) into 50 Ω load	
External reference input		
	Fixed	Variable (Option 1ER)
Input frequency	10 MHz	1 to 50 MHz
Lock range	± 10 Hz	
Amplitude	> –3.5 to 20 dBm (nom)	
Impedance	50 Ω (nom)	

1. *Performance below 250 kHz is unspecified, except as indicated.*
2. *Time from receipt of SCPI command or trigger signal to within 0.1 ppm of final frequency or within 100 Hz, whichever is greater, and amplitude settled to within 0.2 dB.*
3. *Specification does not apply when switching to or from frequencies < 500 kHz, when ALC level is< –5 dBm for Option 540 or < 0 dBm for Option 520, or when frequency crosses 0.002, 0.02, 0.1, 2.0, 3.2, 20.0, 25.6, or 32.0 GHz.*

Frequency (continued)

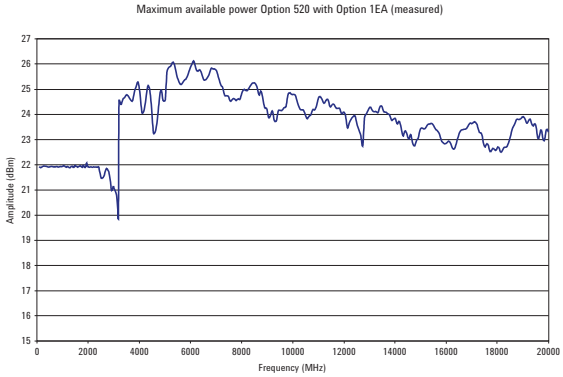
Digital sweep	
Operating modes	Step sweep (equally or logarithmically spaced frequency steps)
	List sweep (arbitrary list of frequency steps)
	Can also simultaneously sweep amplitude. See amplitude section for more detail.
Sweep range	Within instrument frequency range
Dwell time	100 µs to 100 s
Number of points	2 to 65535 (step sweep)
	1 to 1601 (list sweep)
Step change	Linear or logarithmic
Triggering	Free run, trigger key, external, timer, bus (GPIB, LAN, USB)
Markers	
	In step sweep mode, create up to 20 frequency markers
Display	Z-axis or RF amplitude pulse
Functions	M1 to center, M1/M2 to start/stop, marker delta

Amplitude

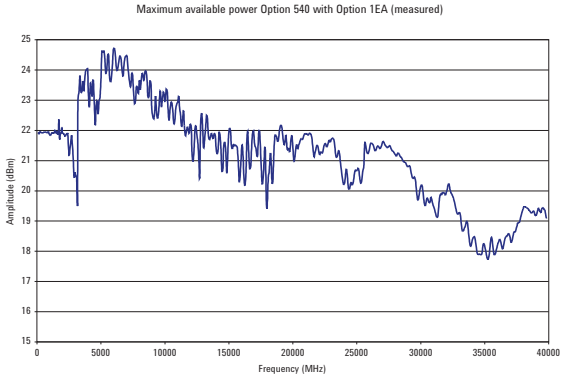
Maximum output power [1]		
Range	Standard [2]	Option 1EA [3]
Option 520		
100 to 250 kHz	+11	+14
> 250 kHz to 3.2 GHz [4]	+11	+18
> 3.2 to 20 GHz [4]	+11	+19
Options 532 and 540		
100 to 250 kHz	+11	+14
250 kHz to 3.2 GHz [4]	+7	+17
> 3.2 to 17 GHz	+7	+15
> 17 to 31.8 GHz	+7	+13
> 31.8 to 40 GHz	+7	+12

Minimum output power	
Standard	–20 dBm
Option 1E1	–90 dBm [5]

Maximum available power Option 520 with Option 1EA (measured)



Maximum available power Option 540 with Option 1EA (measured)



1. *Quoted specifications between 15 and 35 °C. Maximum output power typically decreases by 0.2 dB/°C for temperatures outside this range.*
2. *Settable power +2 dB higher than specified.*
3. *Settable power +30 dBm.*
4. *Units ordered before May 1st 2012 will require Option R2C to warrant increased 1EA max power specifications.*
5. *Settable to –130 dBm.*

Amplitude (continued)

Resolution

0.01 dB

Step attenuator (Option 1E1)

0 to 115 dB in 5 dB steps

Amplitude hold range

–15 to maximum specified output power with step attenuator in 0 dB. Can be offset using Option 1E1 mechanical attenuator.

Amplitude switching speed [1, 2]

Type

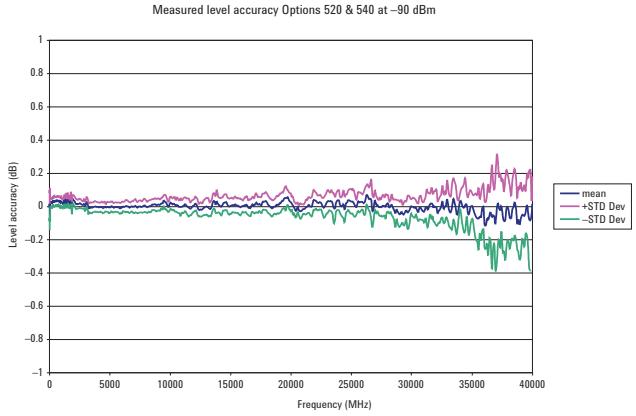
SCPI mode	2 ms (typ)
List/Step sweep mode	2 ms (typ)

Absolute level accuracy [dB] [3, 4]

Frequency range	–20 to < –10 dBm	–10 to +10 dBm	> +10 dBm
250 kHz to 2 GHz	±1.4	±0.6	±0.6
2 to 20 GHz	±1.3	±0.9	±0.9
20 to 40 GHz	±1.3	±0.9	±1.0

Frequency range	–90 to < –75 dBm	–75 to < –10 dBm	–10 to +10 dBm	> +10 dBm
250 kHz to 2 GHz	±1.4	±0.7	±0.6	±0.6
2 to 20 GHz	±1.6	±1.0	±0.9	±0.9
20 to 40 GHz	±2.0	±1.1	±0.9	±1.0

Measured level accuracy Options 520 & 540 at –90 dBm



1. *Time from receipt of SCPI command or trigger signal to amplitude settled within 0.2 dB.*
2. *Specification does not apply when switching from and to amplitudes where ALC levels are < –5 dBm for Option 540 or < 0 dBm for Option 520.*
3. *Level accuracy applies from –20 dBm to maximum output power between 15 °C and 35 °C.*
4. *For temperatures outside this range, absolute level accuracy degrades by 0.01 dB/degree C for frequencies ≤ 4.5 GHz and 0.02 dB/degree C for frequencies > 4.5 GHz. For instruments with Type-N connectors (Option 1ED), specifications are degraded typically 0.2 dB above 18 GHz. Specifications do not apply above the maximum specified power.*

Amplitude (continued)

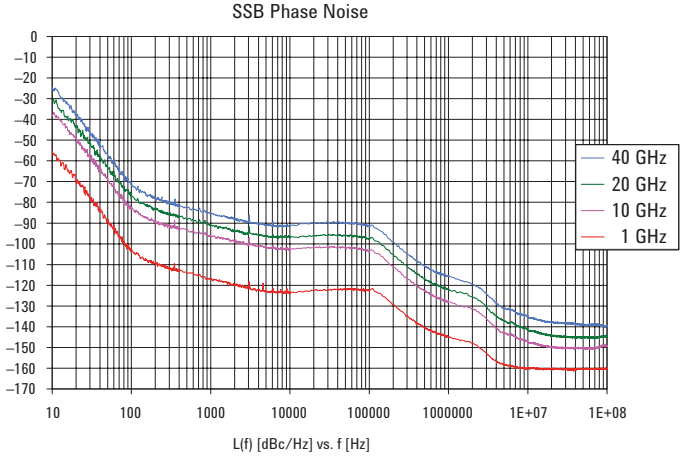
Temperature stability		
	0.01 dB/°C (typ) for temperatures < 20 °C or > 30 °C	
User flatness correction		
Number of points	2 to 1601	
Number of tables	10000 maximum; dependent on available free memory in instrument	
Entry modes	USB/LAN direct power meter control, LAN to GPIB and USB to GPIB, remote bus and manual USB/GPIB power meter control	
SWR		
	100 kHz to 20 GHz	1.6:1 (typ)
	> 20 to 40 GHz	1.8:1 (typ)
Leveling modes		
	Internal, external detector, ALC off, search	
External detector leveling [1]		
Range	–0.2 mV to –0.5 V (nom)	
Bandwidth	10 kHz (typ)	
Digital sweep modes		
Operating modes	Step sweep (evenly spaced amplitude steps)	
	List sweep (arbitrary list of amplitude steps)	
	Can also simultaneously sweep frequency. See frequency section for more detail.	
Sweep range	Within instrument amplitude range	
Dwell time	100 µs to 100 s	
Number of points	2 to 65535 (step sweep)	
	1 to 1601 (list sweep)	
Step change	Linear	
Triggering	Free run, trigger key, external, timer, bus (GPIB, LAN, USB)	

1. Not intended for pulsed operation.

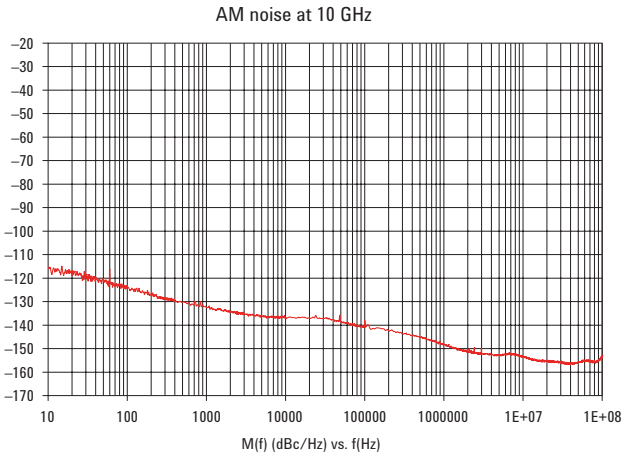
Spectral Purity

Single sideband phase noise (at 20 kHz offset from carrier)		
Frequency range	dBc/Hz	dBc/Hz (typ)
250 kHz to < 250 MHz	–113	–116
250 to < 375 MHz	–125	–128
375 to < 750 MHz	–119	–122
750 MHz to < 1.5 GHz	–113	–116
1.5 to < 3.0 GHz	–107	–110
3.0 to < 6.0 GHz	–101	–104
6.0 to < 12.0 GHz	–95	–98
12.0 to < 24.0 GHz	–89	–92
24.0 to 40.0 GHz	–83	–86

SSB Phase Noise



AM noise at 10 GHz



Spectral Purity (continued)

Residual FM (CW mode, 0.3 to 3 kHz bandwidth, CITT, RMS)	
	< N* 5Hz (typ)
Broadband noise	
	CW mode at +10 dBm or maximum specified output power, whichever is lower for offsets > 10 MHz
0.25 to 10 GHz	–145 dBc/Hz (typ)
10 to 20 GHz	–135 dBc/Hz (typ)
20 to 40 GHz	–130 dBc/Hz (typ)
Harmonics (dBc) [1]	
250 kHz to 2 GHz	–28 (–30 typ)
> 2 to 20 GHz	–54 (–60 typ)
> 20 to 40 GHz	–56 (typ)
Non-harmonics (dBc) [1, 2]	
250 kHz to 250 MHz	–62 (–89 typ)
> 250 to 375 MHz	–68 (–86 typ)
> 375 to 750 MHz	–57 (–74 typ)
> 750 MHz to 1.5 GHz	–54 (–70 typ)
> 1.5 to 3.2 GHz	–54 (–68 typ)
> 3.2 to 6 GHz	–47 (–63 typ)
> 6 to 12 GHz	–41 (–57 typ)
> 12 to 24 GHz	(–50 typ)
> 24 to 40 GHz	(–45 typ)
Subharmonics (dBc) [1]	
250 kHz to 1.5 GHz	None
> 1.5 GHz to 20 GHz	–53
> 20 to 40 GHz	–50

1. *CW mode at +10 dBm or maximum specified output power, whichever is lower.*
2. *Non-harmonics specifications apply to units with serial numbers ending with 49060000 or greater. For units with lower serial numbers, refer to the archive section at the end of this document.*

Analog Modulation

Frequency bands [1]		
Frequency	N	
100 kHz to < 250 MHz	1	
250 to < 375 MHz	0.250	
375 to < 750 MHz	0.500	
750 to < 1.5 GHz	1	
1.5 to < 3.0 GHz	2	
3.0 to < 6.0 GHz	4	
6.0 to < 12.0 GHz	8	
12.0 to < 24.0 GHz	16	
24.0 to 40 GHz	32	
Frequency modulation (Option UNT)		
Maximum deviation		
	N x 10 MHz (nom)	
Resolution		
	0.1% of deviation or 1 Hz, whichever is greater (nom)	
Deviation accuracy		
	< ± 2% + 20 Hz	
	1 kHz rate, deviation is N x 50 kHz	
Modulation frequency response (at 100 kHz deviation)		
	1 dB bandwidth	**3 dB bandwidth**
DC coupled	DC to 3 MHz (nom)	DC to 7 MHz (nom)
AC coupled	5 Hz to 3 MHz (nom)	5 Hz to 7 MHz (nom)
Carrier frequency accuracy relative to CW in DCFM		
	< ± 0.2% of set deviation + (N x 1 Hz) [2]	
	< ± 0.06% of set deviation + (N x 1 Hz) (typ) [3]	
Distortion		
	< 0.4%	
	1 kHz rate, deviation is N x 50 kHz	
Sensitivity when using external input		
	+1V peak for indicated deviation (nom)	

1. *N is a factor used to help define frequency and phase modulation specifications within the document.*
2. *Specification valid for temperature changes of less than ± 5 °C since last DCFM calibration.*
3. *Typical performance immediately after a DCFM calibration.*

Analog Modulation (continued)

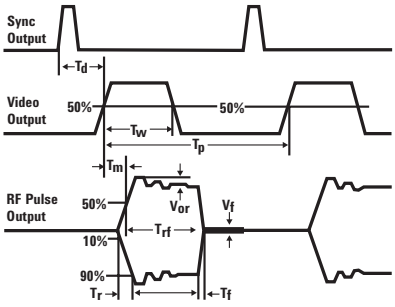
Phase modulation (Option UNT)		
Modulation deviation and frequency response		
	Max deviation	**3 dB bandwidth**
Nominal bandwidth	N x 5 radians (nom)	DC to 1 MHz (nom)
High bandwidth mode	N x 0.5 radians (nom)	DC to 4 MHz (nom)
Resolution	0.1% of deviation	
Deviation accuracy		
	< +0.5% + 0.01 rad (typ)	
	1 kHz rate, normal bandwidth mode	
Distortion		
	< 0.2% (typ)	
	1 kHz rate, deviation normal bandwidth mode	
Sensitivity when using external input		
	+1V peak for indicated deviation (nom)	
Amplitude modulation [1] (Option UNT)		
AM Depth	**Linear**	**Exponential**
Maximum settable	90%	20 dB
Resolution	0.1% of depth (nom)	0.01 dB (nom)
Accuracy (1 kHz rate)	< ± 4% of setting	< ± 4% of setting
	+ 1% (typ)	+ 0.2 dB) (typ)
Modulation rate (3 dB bandwidth, 30% depth)		
DC coupled	0 to 10 kHz (typ)	
AC coupled	5 Hz to 10 kHz (typ)	
Distortion (1 kHz rate, 30% depth)		
	< 2.0% (typ)	
Sensitivity when using external input		
	+1V peak for indicated depth (nom)	
Pulse modulation [2] (Option UNU)		
On/Off ratio	> 80 dB (typ) [3]	
Rise time	< 50 ns (typ)	
Fall time	< 50 ns (typ)	
Minimum width		
ALC on	≥ 2 µs (typ)	
ALC off	≥ 500 ns (typ)	
Resolution		
	20 ns (nom)	
Pulse repetition frequency		
ALC on	DC to 500 kHz	
ALC off	DC to 2 MHz	
Level accuracy (relative to CW, ALC on or off)	< 1 dB (typ)	

1. *AM is specified at carrier frequencies > 2 MHz, ALC on, and when AM envelope does not exceed max power or go below –15 dBm for Option 520 or –20 dBm for Option 540.*
2. *Pulse specifications apply to frequencies > 500 MHz. Operable down to 10 MHz.*
3. *Applies to power levels > –5 dBm for Option 1E1.*

Analog Modulation (continued)

Pulse modulation [2] (Option UNU) (continued)	
Video feedthrough	< 350 mV (typ)
Pulse overshoot	< 15% (nom)
Pulse compression	15 ns (typ)
Pulse delay	
RF delay (video to RF output)	10 ns (nom)
Video delay (ext input to video)	30 ns (nom)
External input	
Input impedance	50 ohm (nom)
Level	+1 Vpeak = ON (nom)

Narrow pulse modulation [1] (Option UNW)		
	500 MHz to 3.2 GHz	Above 3.2 GHz
On/Off ratio	> 80 dB (typ)	> 80 dB (typ)
Rise/Fall times (Tr, Tf)	< 10 ns (7 ns)	< 10 ns (7 ns)
Minimum pulse width		
Internally leveled	≥ 2 us	≥ 2 us
ALC off [2]	≥ 20 ns	≥ 20 ns
Repetition frequency		
Internally leveled	10 Hz to 500 kHz	10 Hz to 500 kHz
ALC off [2]	DC to 5 MHz	DC to 5 MHz
Level accuracy relative to CW		
Internally leveled	< ±1.0 dB (typ)	< ±1.0 dB (typ)
ALC off [2]	±1.0 dB (typ)	±1.0 dB (typ)
Width compression		
	< 5 ns (typ)	< 10 ns (typ)
RF width relative to video out		
Video feed-through [3]	< 300 mV (typ)	< 10 mV (typ)
Video delay -ext input to video	30 ns (nom)	30 ns (nom)
RF delay -video to RF output	10 ns (nom) 20 ns (nom)	10 ns (nom) 20 ns (nom)
Pulse overshoot	< 15% (nom)	< 15% (nom)
Input level	+1 Vpeak = RF On	+1 Vpeak = RF On
Input impedance	50 Ω (nom)	50 Ω (nom)
Td video delay (variable)		
Tw video pulse width (variable)		
Tp pulse period (variable)		
Tm RF delay		
Trf RF pulse width		
Tf RF pulse fall time		
Tr RF pulse rise time		
Vor pulse overshoot		
Vf video feedthrough		



1. *Pulse specifications apply to frequencies > 500 MHz. Operable down to 10 MHz.*
2. *With power search on.*
3. *Applies to power levels < +10 dBm.*

Analog Modulation (continued)

Internal pulse generator (included with Option UNU or Option UNW)	
Modes	Free-run, square, triggered, adjustable doublet, trigger doublet, gated, and external pulse
Square wave rate	0.1 Hz to 10 MHz, 0.1 Hz resolution (nom)
Pulse period (UNU)	500 ns to 42 seconds (nom)
Pulse width (UNU)	500 ns to pulse period – 10 ns (nom)
Pulse period (UNW)	30 ns to 42 seconds (nom)
Pulse width (UNW)	20 ns to pulse period – 10 ns (nom)
Resolution	10 ns
Adjustable trigger delay	–pulse period + 10 ns to pulse period to pulse width –10 ns
Settable delay	
Free run	–3.99 to 3.97 µs
Triggered	0 to 40 s
Resolution	
[delay, width, period]	10 ns (nom)
Pulse doublets	
1st pulse delay (relative to sync out)	0 to 42 s – pulse width – 10 ns
1st pulse width	500 ns to 42 s – delay – 10 ns
2nd pulse delay (relative to pulse 1)	0 to 42 s – (delay1 + width2) – 10 ns
2nd pulse width	20 ns to 42 s – (delay1 + delay2) – 10 ns
Pulse train (Option 320)	
Number of pulse patterns	2047
On/off time range (UNU)	500 ns to 42 sec
On/off time range (UNW)	20 ns to 42 sec
Internal analog modulation source (Option UNT)	
Waveform	Sine
Rate range	0.1 Hz to 2 MHz (tunable to 3 MHz)
Resolution	0.1 Hz
Frequency accuracy	Same as RF reference source (nom)
External modulation inputs [2]	
Modulation types	FM, AM, phase mod, pulse mod
Input impedance	50 Ω (nom)
Simultaneous modulation [1]	
	All modulation types (FM, AM, ϕM and pulse modulation) may be simultaneously enabled except: FM and phase modulation can not be combined; two modulation types can not be simultaneously generated using the same modulation source. For example, AM and FM can run concurrently and will modulate the output RF. This is useful for simulating signal impairments.

1. *If AM or pulse modulation are on, then phase and FM specifications do not apply.*
2. *Option UNT required for FM, AM, and phase mod inputs. Option UNU or UNW required for pulse modulation inputs.*

General Characteristics

Remote programming	
Interfaces	GPIB IEEE-488.2, 1987 with listen and talk
	LAN 100BaseT LAN interface, LXI class C compliant
	USB Version 2.0
Control languages	SCPI Version 1997.0
Compatibility languages supporting a subset of common commands	8360 series, E8247C, E8257C, E8257D, E8241A, E8244A, E8251A, E8254A, E4428C, E4438C, E8267C/D, 8662A, 8663A, 83711B, 83712B, 83731B, 83732B, 83751B, 83752B, 8340B, 8341B
Power requirements	
	100 or 120 VAC, 50 or 60 Hz and 400 Hz
	220 or 240 VAC, 50 or 60 Hz
	250 W maximum
Operating temperature range	
	0 to 55 °C
Storage temperature range	
	–40 to 70 °C
Operating and storage altitude	
	15,000 feet
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.
Safety	
	Complies with European Low Voltage Directive 73/23/EEC, amended by 93/68/EEC
	• IEC/EN 61010-1
	• Canada: CSA C22.2 No. 61010-1
	• USA: UL 61010-1
EMC	
	Complies with European EMC Directive 89/336/ EEC, amended by 93/68/EEC
	• IEC/EN 61326
	• CISPR Pub 11 Group 1, class A
	• AS/NZS CISPR 11:2002
	• ICES/NMB-001

General Characteristics (continued)

Memory

Memory is shared by instrument states, sweep list files, and other files. There is 512 MB of flash memory available in the N5181A MXG. Depending on how the memory is utilized, a maximum of 1000 instrument states can be saved.

Security (Option 006)

Memory sanitizing, memory sanitizing on power on, and display blanking.

Self test

Internal diagnostic routines test most modules in a preset condition. For each module, if its node voltages are within acceptable limits, the module "passes" the test.

Weight

- ≤ 13.8 kg (30 lb.) net
- ≤ 28.4 kg (62 lb.) shipping

Dimensions

(h x w x l)	88 mm x 426 mm x 432 mm (4.07 in x 16.8 in x 17 in)

Recommended calibration cycle

36 months. Agilent is committed to providing you with the lowest total cost to own and operate equipment. In support of this commitment, Agilent has verified that the stability of this product's architecture justifies a longer calibration interval of 3 years.

ISO compliant

The Agilent N5183A MXG is manufactured in an ISO-9001 registered facility in concurrence with Agilent Technologies' commitment to quality.

Front panel connectors [1]

RF output	Output impedance 50 Ω (nom)
Option 520	Precision APC-3.5 male, or Type-N with Option 1ED
Option 532/540	Precision 2.4 mm male; plus 2.4 – 2.4 mm and 2.4 – 2.9 mm female adapters
Maximum reverse power	0.5 W, 0 Vdc
USD 2.0	Used with a memory stick for transferring instrument states, licenses and other files into or out of the instrument. Also used with U2000 series USB average power sensors. For a current list of supported memory sticks, visit www.agilent.com/find/MXG, click on Technical Support, and refer to FAQs: Waveform Downloads and Storage.

1. All connectors are BNC unless otherwise noted.

General Characteristics (continued)

Rear panel connectors [1]	
RF output (Option 1EM)	Outputs the RF signal via a precision N type female connector.
Sweep out	Generates output voltage, 0 to +10 V when the signal generator is sweeping. This output can also be programmed to indicate when the source is settled or output pulse video and is TTL and CMOS compatible in this mode. Output impedance < 1 Ω, can drive 2k Ω. Damage levels are ±15 V.
AM	External AM input. Nominal input impedance is 50 Ω. Damage levels are ±5 V.
FM	External FM input. Nominal input impedance is 50 Ω. Damage levels are ±5 V.
Pulse	External pulse modulation input. This input is TTL and CMOS compatible. Low logic levels are 0 V and high logic levels are +1 V. Nominal input impedance is 50 Ω. Input damage levels are ≤ –0.3 V and ≥ +5.3 V.
Trigger in	This high impedance input accepts TTL and CMOS level signals for triggering point-to-point in sweep mode. Damage levels are ≤ –0.3 V and ≥ +5.3 V.
Trigger out	Outputs a TTL and CMOS compatible level signal for use with sweep mode. The signal is high at start of dwell, or when waiting for point trigger in manual sweep mode; low when dwell is over or point trigger is received. This output can also be programmed to indicate when the source is settled, pulse synchronization, or pulse video. Nominal output impedance is 50 ohms. Input damage levels are ≤ –0.3 V and ≥ +5.3 V.
Reference input	Accepts a 10 MHz reference signal used to frequency lock the internal timebase. Option 1ER adds the capability to lock to a frequency from 1 MHz to 50 MHz. Nominal input level –3.5 to +20 dBm, impedance 50 Ω.
10 MHz out	Outputs the 10 MHz reference signal used by internal time base. Level is nominally +3.9 dBm. Nominal output impedance 50 Ω. Input damage level is +16 dBm.
USB 2.0	The USB connector provides remote programming functions via SCPI.
LAN (100 BaseT)	The LAN connector provides the same SCPI remote programming functionality as the GPIB connector. The LAN connector is also used to access the internal web server and FTP server. The LAN supports DHCP, sockets SCPI, VXI-11 SCPI, connection monitoring, dynamic host name services, TCP keep alive. This interface is LXI class C compliant.
GPIB	The GPIB connector provides remote programming functionality via SCPI.
ALC input	This female BNC connector is used for negative external detector leveling. • Input impedance: 100 kΩ (nominal) • Signal levels: –0.2 mV to –0.5 V • Damage levels: ≤ –12 V and ≥ 1 V
Z-axis output	This female BNC connector supplies a +5 V (nominal) level during retrace and band switch intervals of a step or list sweep. During step or list sweep, this connector supplies a –5 V (nominal) level when the RF frequency is at a marker frequency and intensity marker mode is on. The load impedance should be ≥ 5 kΩ.

1. All connectors are BNC unless otherwise noted.

Ordering Information

N5183A MXG microwave analog signal generator	
Frequency	
520	Frequency range from 100 kHz to 20 GHz
532	Frequency range from 100 kHz to 31.8 GHz
540	Frequency range from 100 kHz to 40 GHz
Performance enhancements	
UNZ	Fast frequency switching
1E1	Step attenuator
1EA	High power
UNU	Pulse modulation
UNW	Narrow pulse modulation
320	Pulse train generator
UNT	AM, FM, phase modulation
006	Instrument security
320	Pulse train generator
1ER	Flexible reference input (1 to 50 MHz)
1EM	Move RF output to rear panel
1ED	Type N RF output connector
Accessories	
1CM	Rackmount kit
1CN	Front handle kit
1CP	Rackmount and front handle kit
1CR	Rack slide kit
AXT	Transit case

Archive

Non-harmonics (dBc) (For serial numbers < 49060000)	
250 kHz to 250 MHz	–54 (–89 typical)
> 250 to 375 MHz	–61 (–86 typical)
> 375 to 750 MHz	–55 (–74 typical)
> 750 MHz to 1.5 GHz	–48 (–70 typical)
> 1.5 to 3.2 GHz	–47 (–68 typical)
> 3.2 to 6 GHz	–40 (–63 typical)
> 6 to 12 GHz	–33 (–57 typical)
> 12 to 24 GHz	–50 (typical)
> 24 to 40 GHz	–45 (typical)

Related Literature

Application literature

RF Source Basics, a self-paced tutorial (CD-ROM), literature number 5980-2060E

Product literature

Agilent MXG Signal Generator, Configuration Guide, literature number 5989-5485EN

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