USB & ETHERNET & DAISY-CHAIN

Signal Generator

SSG-9GD-RC

50Ω 10 to 9000 MHz -55 to +21 dBm SMA Female Dual Channel

THE BIG DEAL

- Two independently tunable channels
- Cost effective , Broadband signal generator
- High output power, +21 dBm
- CW, pulsed, AM, FM & chirp outputs
- Compact design for bench top use
- Power over Ethernet (PoE) enabled
- Daisy-chain for multi-module dynamic control

APPLICATIONS

- Semiconductor high power burn-in & life testing
- Radar, SATCOM, Telecoms, Industrial and Wireless testing
- Benchtop signal generator
- Automated production test systems

Generic photo used for illustration purposes only

PRODUCT OVERVIEW

Mini-Circuits' SSG-9GD-RC is a dual-channel wide-band signal generator operating from 10 to 9000 MHz. With up to +21 dBm typical output power, it is an ideal signal source for characterization of millimeter wave components and systems at high power. Configure CW / single-tone outputs, flexible pulse sequences, AM, FM and Chirp modulations, or automated frequency / power sweep & hop sequences.

SSG-9GD-RC has been developed in a compact package with powerful software control and automation to provide a cost effective broadband signal generator and LO source for any bench or production test application. This is a high quality, repeatable and reliable signal source with low phase noise and excellent harmonic rejection.

The generator can be controlled via USB or Ethernet (supporting SSH, HTTP & Telnet protocols). Full software support is provided, including our user-friendly GUI application for Windows, flexible API and programming instructions for Windows and Linux environments. The daisy-chain control interface with "dynamic addressing" simplifies control integration and allows multiple units to be combined into a multi-channel signal source with control through a single software interface.

KEY FEATURES

Feature	Advantages
High quality signal source	Outstanding combination of fine frequency and power resolution, low phase noise and excellent harmonic rejection, and low spurious signals in a compact package; with two independently tunable channels suited for a wide range of applications .
Dual Channel	The two channels can operate independently and in coherent or non-coherent modes with 2.8° phase resolution for the complete 360° range.
Flexible pulse, AM, FM and Chirp modulation	Configure various analog modulations according to your needs.
Sweep & Hop sequences	Configure custom CW output frequency and power sequences to run unaided for high speed, automated test applications.
Dynamic daisy-chain control	Simplify control software and interconnections and develop low-cost, multi-channel signal generator systems by daisy-chaining multiple units with control through a single interface.

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

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ELECTRICAL SPECIFICATIONS [1], +25°C

Parameter	Condition (MHz)		Min.	Typ.	Max.	Unit
Output Frequency	–		10	–	9000	MHz
Frequency Resolution [2]	10 - 9000		–	1	–	Hz
Frequency Accuracy	Using internal reference		–	±1	–	ppm
Return Loss	10 - 9000		–	-10	–	dB
Output Power Max	10 - 9000		+18	+21	–	dBm
Output Power Min	10 - 9000		–	-55	-50	dBm
Power Resolution (nominal)	10 - 9000		–	0.1	–	dB
Output Power Accuracy	-50 to +18 dBm	10 - 9000	–	±0.5	–	dB
RF Output Leakage	10 - 9000	RF Off	–	-80	–	dBm
Harmonics	-50 to +18 dBm	10 - 2000	–	-10	–	dBc
		2000 - 8000	–	-15	–	
		8000 - 9000	–	-10	–	
Non-Harmonic Spurious	0 dBm to Max Power	Offsets 1 kHz to 150 MHz	–	-60	–	dBc
Boundary Spurs		10 - 9000	–	-40	–	
Isolation (between channels)	-50 to +18 dBm	10 - 9000	–	-60	–	dB
Settling Time [3, 4]	Hop mode [5]	10 - 9000	–	0.20	–	ms
	Frequency sweep	10 - 9000	–	0.80	–	
	Power transition (at set frequency)		–	0.015	–	
	PC (external) control		–	2	–	
Dwell Time (nominal) [4, 6]	–		0.01	–	10,000	ms
Phase Offset Range	–		0	–	359	deg
Phase Offset Resolution	–		–	1	–	

1. Specifications are after 15 minutes warm-up time.
2. Frequency Resolution is tested with 10 MHz external reference.
3. Settling Time - transition time between 2 output states. During the transition, RF output is turned off to avoid transient outputs.
4. Generator response time is Dwell Time + Settling Time.
5. For hop sequences pre-loaded into internal memory (high-speed mode).
6. Dwell Time - duration of each signal point in a Sweep or Hop sequence set by user. Default is minimum dwell time.

MODULATION SPECIFICATIONS, [7] +25°C

Parameter		Condition		Min.	Typ.	Max.	Unit
Modulation types		AM, FM, Chirp, Pulse (Rising, Falling and bi-directional)					
Max modulation freq		3 dB point		–	–	5	kHz
FM Max deviation		–		–	50	–	MHz
AM Modulation depth [8]		–		0	–	100	%
Chirp rate		Nominal value		0.0015	–	20	MHz/µs
Pulse Width Resolution		Nominal value		0.05	–	–	µs
Pulse Width [9, 10]		Measured at the 50% of pulse level	Internal Pulse Modulation	5	–	10e6	µs
			External Pulse Modulation	5	–	10e6	
Pulse Period (regular mode)		Measured at the 50% of pulse level	Internal Pulse Modulation	10	–	10e6	µs
			External Pulse Modulation	10	–	10e6	
Pulse interval [11]	Fixed freq. & Power	Measured at the 50% of pulse level		7	–	4e6	µs
	Varying freq. & Power			150	–	4e6	
Pulse Rise / Fall Time [12, 13]		Measured between 10% and 90% of pulse level		–	180 / 150	–	ns
Pulse Width Accuracy [14]		Measured at 50% of pulse level	Internal pulse modulation	–	±10	–	%
			External pulse modulation	–	±10	–	
External pulse modulation input threshold		External pulse modulation		3	–	–	V
Trigger Response Delay		Trigger edge to 50% of pulse level	Internal pulse modulation	–	1	–	µs
			External pulse modulation	–	2	–	
Pulse Power Ratio		PWR_{OUT} = +20 dBm, $FREQ_{OUT}$ = 10 MHz		–	60	–	dB
		PWR_{OUT} = +20 dBm, $FREQ_{OUT}$ = 9000 MHz		–	50	–	

7. Regular pulse mode has fixed frequency and power supporting internal and external modulation and input / output trigger options. Dynamic mode allows for flexible RF pulse sequences with varying frequency, power pulse width and pulse repetition interval (PRI).
8. In AM modulation, ensure there is sufficient margin between the carrier power and Generator's Min/Max power spec to allow generating the modulated signal without distortions. For example a modulation depth of 50% translates to power of +1.76 dB to -3.01 dB from the carrier.
9. Pulse Width in normal mode must be less than pulse period by at least 0.5 µs with Internal pulse modulation and by 2 µs in external pulse modulation.
10. Pulse Widths below 0.5 µs can be set, however performance is only guaranteed for the ranges noted in the table.
11. In dynamic mode.
12. Pulse rise time will increase with pulse interval under 3 µs.
13. For signals at same power & frequency.
14. Pulse Width Accuracy is 10% of pulse width, or ±100 ns, whichever is greater.

PHASE NOISE (SSB), +25°C

Frequency Offset (kHz)	Carrier Frequency (MHz)									
	1000		3000		5000		7000		9000	
	Typ.	Max	Typ.	Max	Typ.	Max	Typ.	Max	Typ.	Max
1	-114.0	-111.0	-104.5	-100.0	-102.0	-96.0	-100.0	-94.0	-98.0	-92.0
10	-123.5	-120.0	-115.5	-113.0	-112.5	-109.5	-109.5	-106.5	-107.5	-104.5
100	-123.0	-128.0	-121.0	-119.0	-117.0	-114.0	-115.0	-112.0	-112.5	-109.5
1,000	-135.0	-125.0	-124.5	-123.0	-125.5	-120.5	-121.0	-115.0	-121.0	-116.0
10,000	-147.0	-145.0	-149.5	-147.0	-147.0	-144.0	-146.5	-142.5	-145.0	-141.0
Noise Floor	-148.0	-145.0	-150.0	-147.0	-150.0	-147.0	-150.0	-147.0	-150.0	-147.0

REFERENCE, TRIGGER & DC POWER, +25°C

Parameter	Condition		Min.	Typ.	Max.	Unit
Aging	Using internal reference		–	2	–	ppm/yr
Reference In	Frequency	–	–	10	–	MHz
	Power	–	-3.5	–	+12.5	dBm
	Phase noise	10 kHz Offset	–	-135	–	dBc/Hz
Reference Out	Frequency	–	–	10	–	MHz
	Frequency accuracy	Using internal reference	–	±1	–	ppm
	Power	–	–	+10	–	dBm
	Phase noise	10 kHz Offset	–	-140	–	dBc/Hz
Trigger Out [15]	Low		0	–	0.4	V
	High		3.0	–	5.0	
	Pulse width		–	100	–	µs
Trigger In	Low		0	–	0.4	V
	High		3.0	–	5.0	
	Pulse width		–	1	–	µs
Supply Voltage (V_{DC})	DC Input port [16]		5.7	6.0	6.3	V_{DC}
Supply Current (I_{DC})			–	2.3	2.8	A
Supply Current (I_{DC})	USB port [16]		–	20	–	mA
Supply Voltage (V_{DC})	LAN port [16, 17]		50	53	57	V_{DC}
Supply Current (I_{DC})			–	230	350	mA

15. Trigger out voltage specified with impedance load of 10 kΩ minimum.
16. Power must be provided via the 2.1 mm DC Input or LAN port (using PoE systems) before connecting the unit to USB. The same is true in reverse, disconnect unit from USB before disconnecting power supply.
17. Compliant with IEEE 802.3at mode A and mode B.

ABSOLUTE MAXIMUM RATINGS

Operating Temperature	0°C to 50°C
Storage Temperature	-20°C to 60°C
Power in @ Reference in	+15 dBm
Reverse Voltage (DC) @ Reference out	8 V_{DC}
Reverse Voltage (DC) @ RF out	15 V_{DC}
Reverse Power (RF) @ RF out	+20 dBm
Voltage input to trigger ports	-0.3V_{DC} to +5.5V_{DC}

Permanent damage may occur if any of these limits are exceeded. Operating in the range between operating power limits and absolute maximum ratings for extended periods of time may result in reduced life and reliability.

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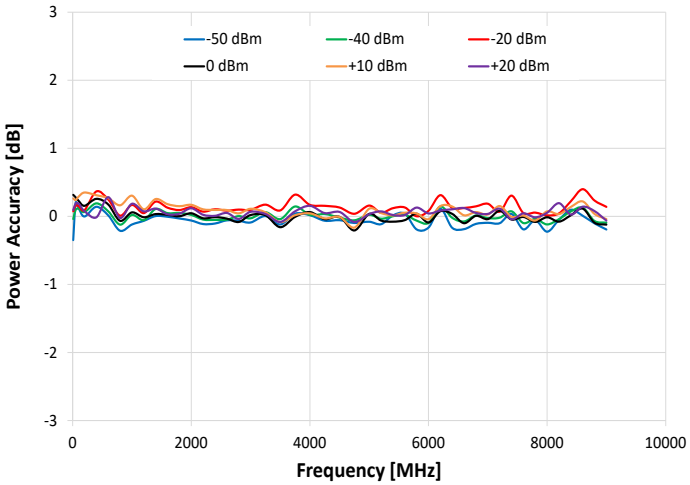
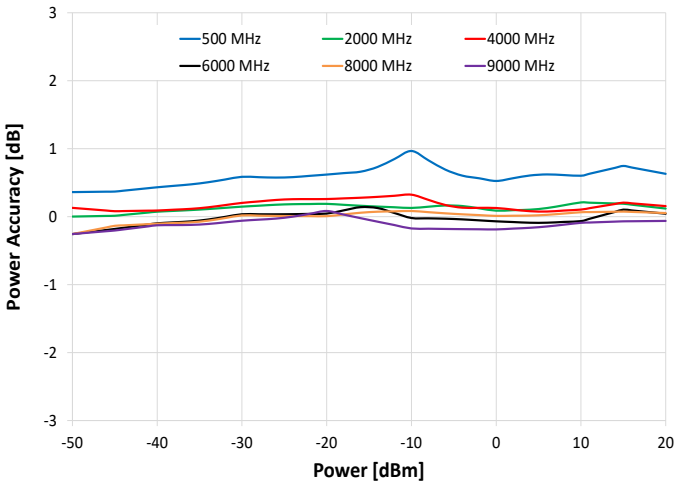
TYPICAL PERFORMANCE GRAPHS (PER CHANNEL)

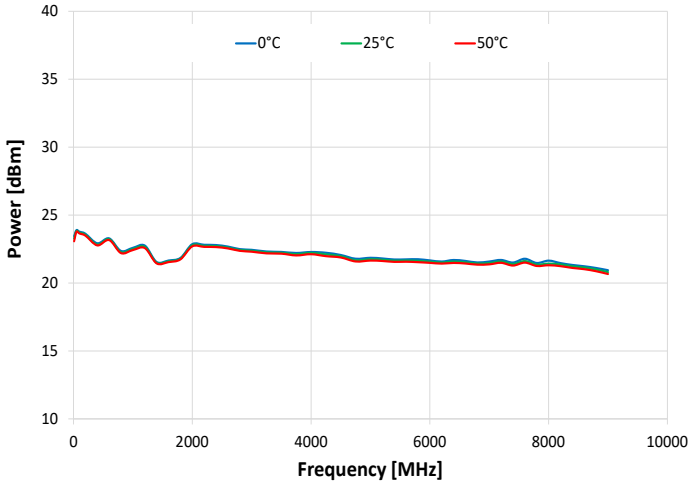
Power Accuracy vs. Output Frequency



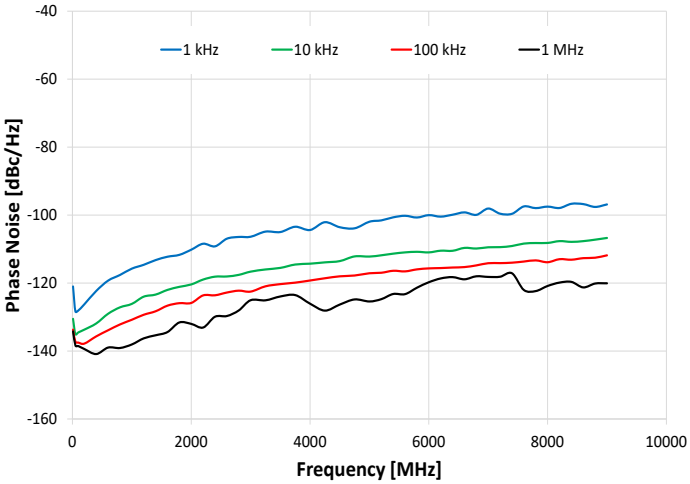
Power Accuracy vs. Output Power



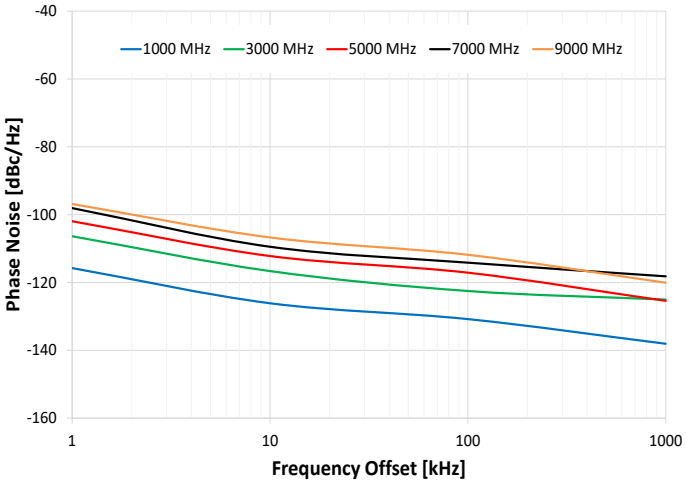
Max Power vs. Output Frequency



Phase Noise vs. Output Frequency

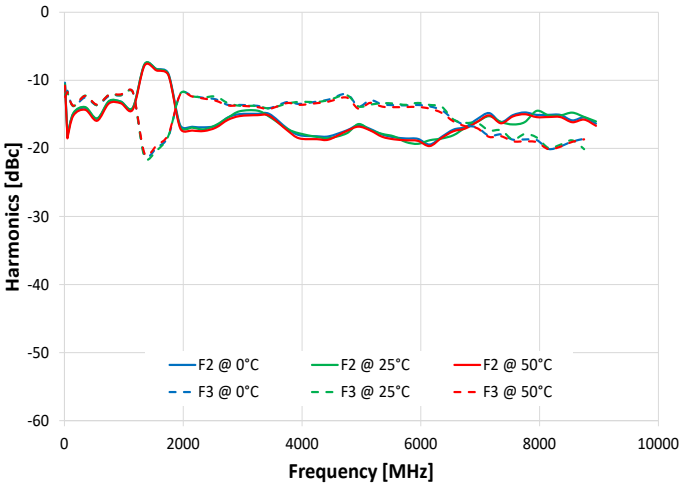


Phase Noise vs. Offset Frequency

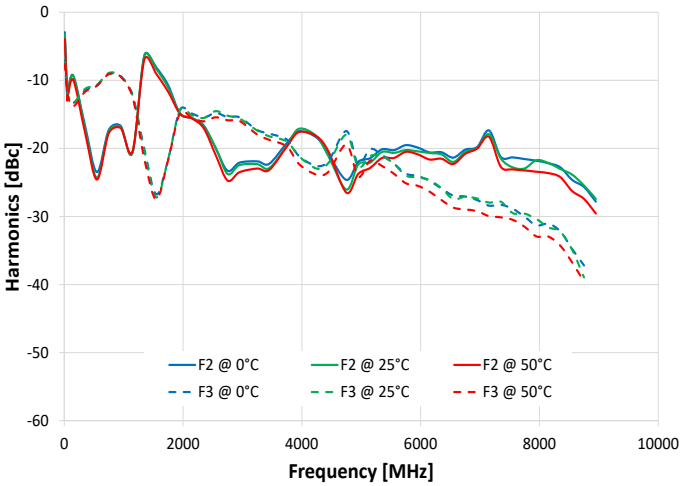


TYPICAL PERFORMANCE GRAPHS (PER CHANNEL, CONTINUED)

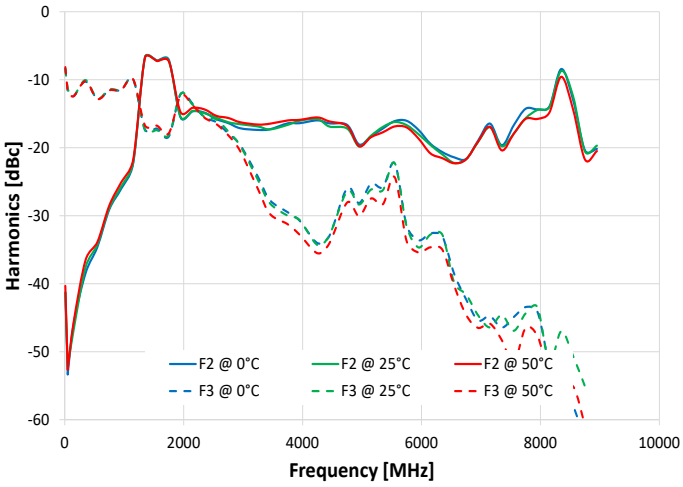
Harmonics vs. Output Frequency @ +20 dBm



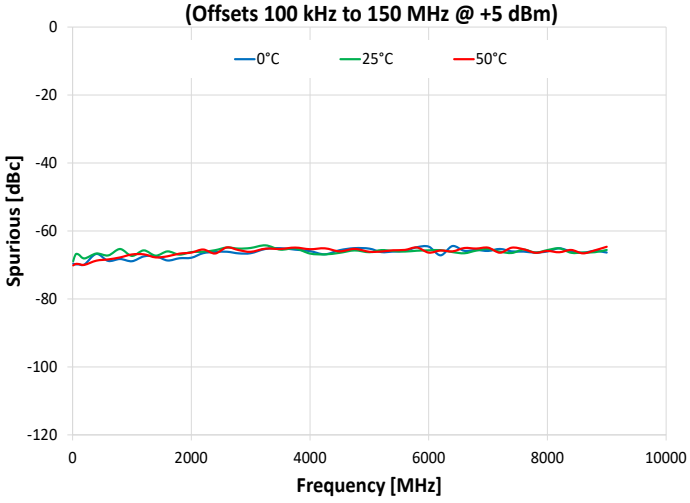
Harmonics vs. Output Frequency @ 0 dBm



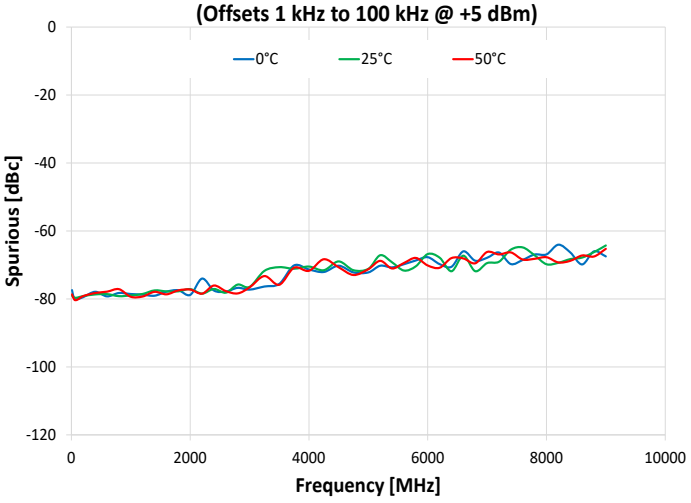
Harmonics vs. Output Frequency @ -20 dBm



Spurious vs. Output Frequency
(Offsets 100 kHz to 150 MHz @ +5 dBm)



Spurious vs. Output Frequency
(Offsets 1 kHz to 100 kHz @ +5 dBm)



CONTROL INTERFACES

Ethernet Control	Supported Protocols	TCP / IP, HTTP, Telnet, SSH, DHCP, UDP (limited)
	Max Data Rate	1 Gbps (1000 Base-T Full Duplex)
USB Control	Supported Protocols	HID (Human Interface Device) - High-speed
	Min Communication Time [18]	400 µs typ (full transmit/receive cycle)

18. USB Min Communication Time is based on the polling interval of the USB HID protocol (125 µs polling interval, 64 bytes per packet), medium CPU load and no other high-speed USB devices using the USB bus.

SOFTWARE & DOCUMENTATION

Mini-Circuits' full software and support package including user guide, Windows GUI, API, programming manual and examples can be downloaded free of charge (refer to the last page for the download path).

A comprehensive set of software control options is provided:

- GUI for Windows – Simple software interface for control via Ethernet and USB.
- Programming / automation via Ethernet:
  - Complete set of control commands which can be sent via any supported protocol.
  - Simple to implement in the majority of modern programming environments.
- Programming / automation via USB:
  - DLL files provide a full API for Windows with a set of intuitive functions which can be implemented in any programming environment supporting .Net Framework or ActiveX.
  - Direct USB programming is possible in any other environment (not supporting .Net or ActiveX).

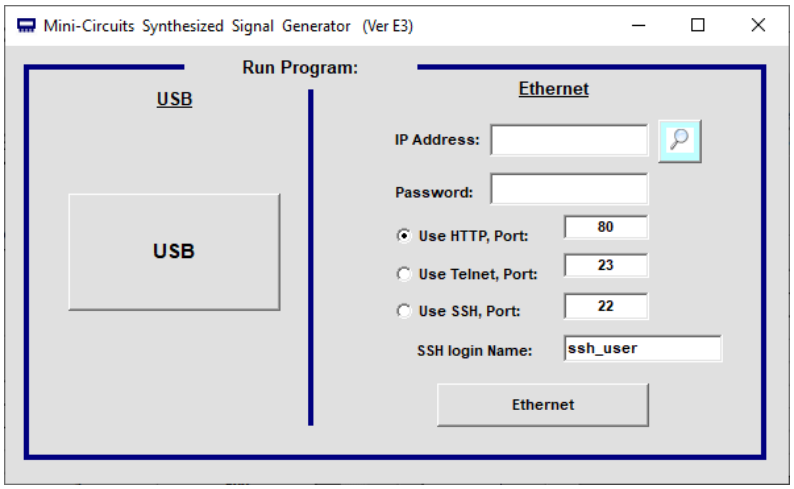
Please contact testsolutions@minicircuits.com for support.

MINIMUM SYSTEM REQUIREMENTS

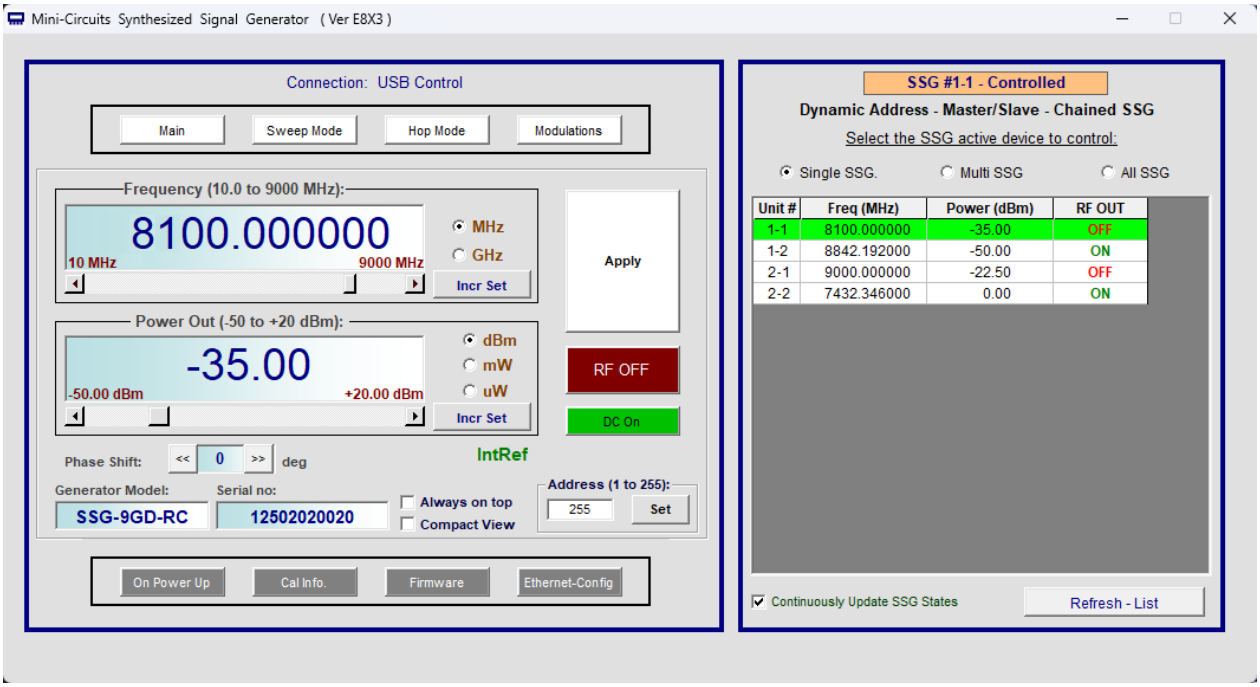
GUI	Windows 7 or later
USB API DLL	Windows 7 or later and programming environment with ActiveX or .NET support
USB Direct Programming	Linux, Windows 7 or later
HTTP, Telnet or SSH	Any computer with a network port and Ethernet-TCP/IP (HTTP, Telnet or SSH protocols) support
Hardware	Intel i3 (or equivalent) or later

GRAPHICAL USER INTERFACE (GUI) FOR WINDOWS - KEY FEATURES

- Connect via USB or Ethernet
- Password protected access for safe remote usage over Ethernet



- Set all functions for each channel independently
- Configure output power, frequency, pulse modulation
- Program timed signal output sequences (linear sweep and frequency hop)
- Control timed sequences in multiple generators simultaneously
- Track unit operation time since last calibration and setup calibration reminders



Note: A daisy-chain of two dual channel units.

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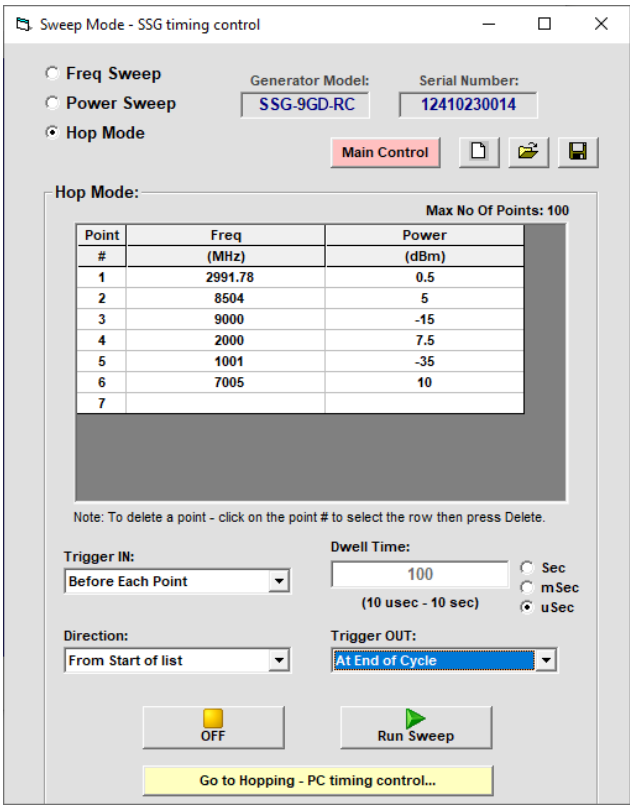
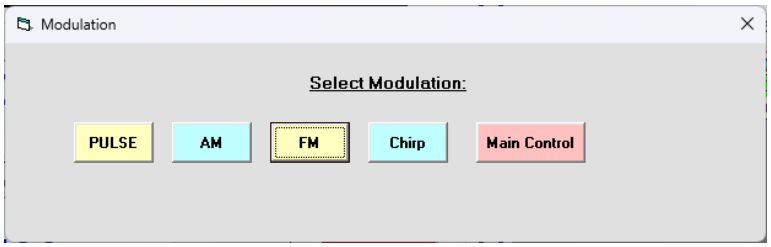
AUTOMATED SWEEP / HOP SEQUENCES

- Set all functions for each channel independently
- Sweep across a frequency band at a fixed output power.
- Sweep output power levels at a fixed frequency.
- Hop through a list of pre-defined frequency / power settings.
- Set dwell times down to 10 µs in high speed mode.
- Run on demand or in response to external triggers.
- Produce triggers to signal switching points or completing a run.



MODULATION

- Select AM,FM, Chirp or Pulse modulation
- In the individual screens for each modulation specify the parameters for the modulated signal



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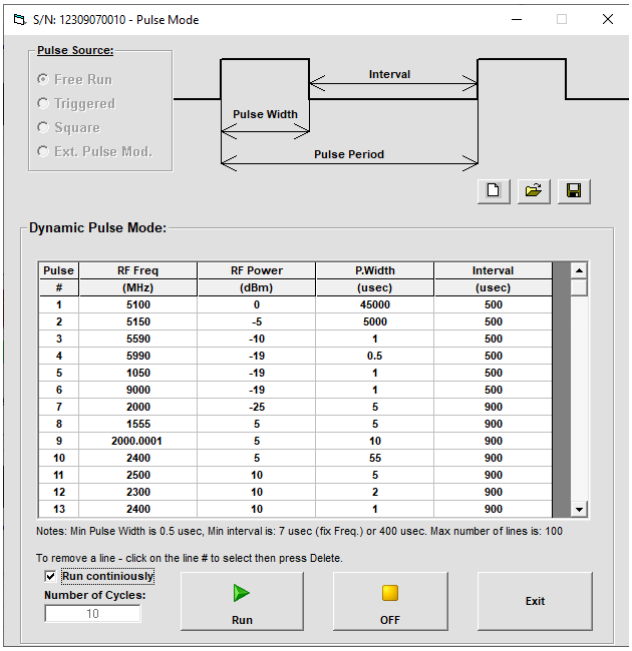
DYNAMIC PULSE MODULATION

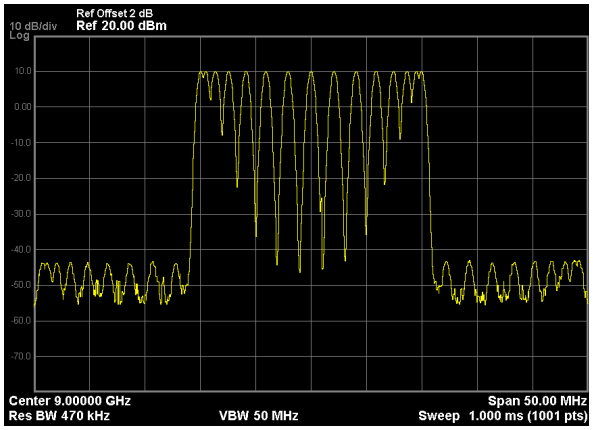
- Configure repetitive pulsed output sequences.
- Define custom pulse lists with a different frequency, power, width & interval at each step.
- Set pulse widths down to 0.5 us.
- Run continuously or for a preset number of cycles.

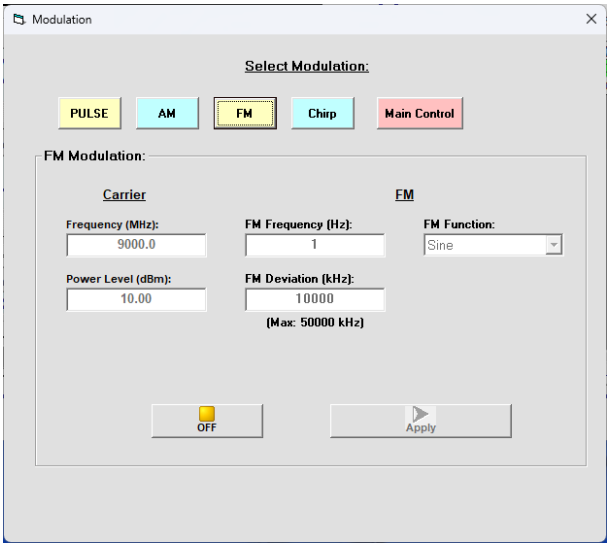


Pulse #	RF Freq (MHz)	RF Power (dBm)	P.Width (usec)	Interval (usec)
1	5100	0	45000	500
2	5150	-5	5000	500
3	5590	-10	1	500
4	5990	-19	0.5	500
5	1050	-19	1	500
6	9000	-19	1	500
7	2000	-25	5	900
8	1555	5	5	900
9	2000.0001	5	10	900
10	2400	5	55	900
11	2500	10	5	900
12	2300	10	2	900
13	2400	10	1	900

FREQUENCY MODULATION (FM)

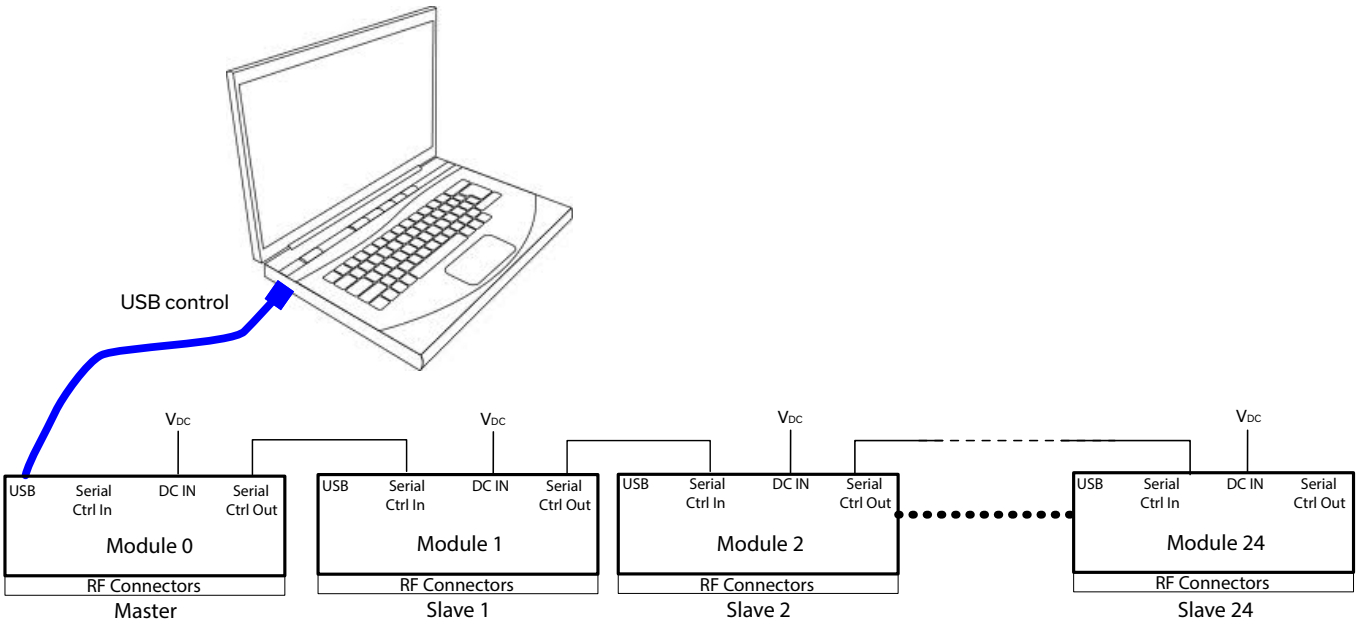
- Set carrier power and frequency.
- Set modulating signal frequency.
- Set desired FM deviation.
- Select Sine or triangle wave modulating signal.





CONNECTING MULTIPLE MODULES (DAISY CHAIN)

The model is designed to connect up to 25 modules in series (daisy chain) using dynamic addressing, meaning there is no need to specifically set the address of the modules. The addresses will be set automatically as part of establishing the communications with the computer. The module connected to the computer's USB port or Ethernet connection will be assigned address 0 (master), the first module connected to it will get address 1 (slave) and subsequent modules incrementing up to address 24 (slave).



Connections between modules will be made using the serial in/out ports with the module connected to the PC act as a master and all other as slave modules. All control will be through the master module (address 0) which is the only one communicating with the PC or computer network. Serial control out port of each module should be connected to the serial control in port of the next module.

Power must be supplied to each module separately via their individual power supplies.

The serial master/slave bus allows connecting modules of different types to the same daisy chain as long as all support Mini-Circuits Dynamic addressing setup. To add a new module to the setup, simply connect the module and refresh the address listing, no need to reset any of the existing modules or assign addresses manually.

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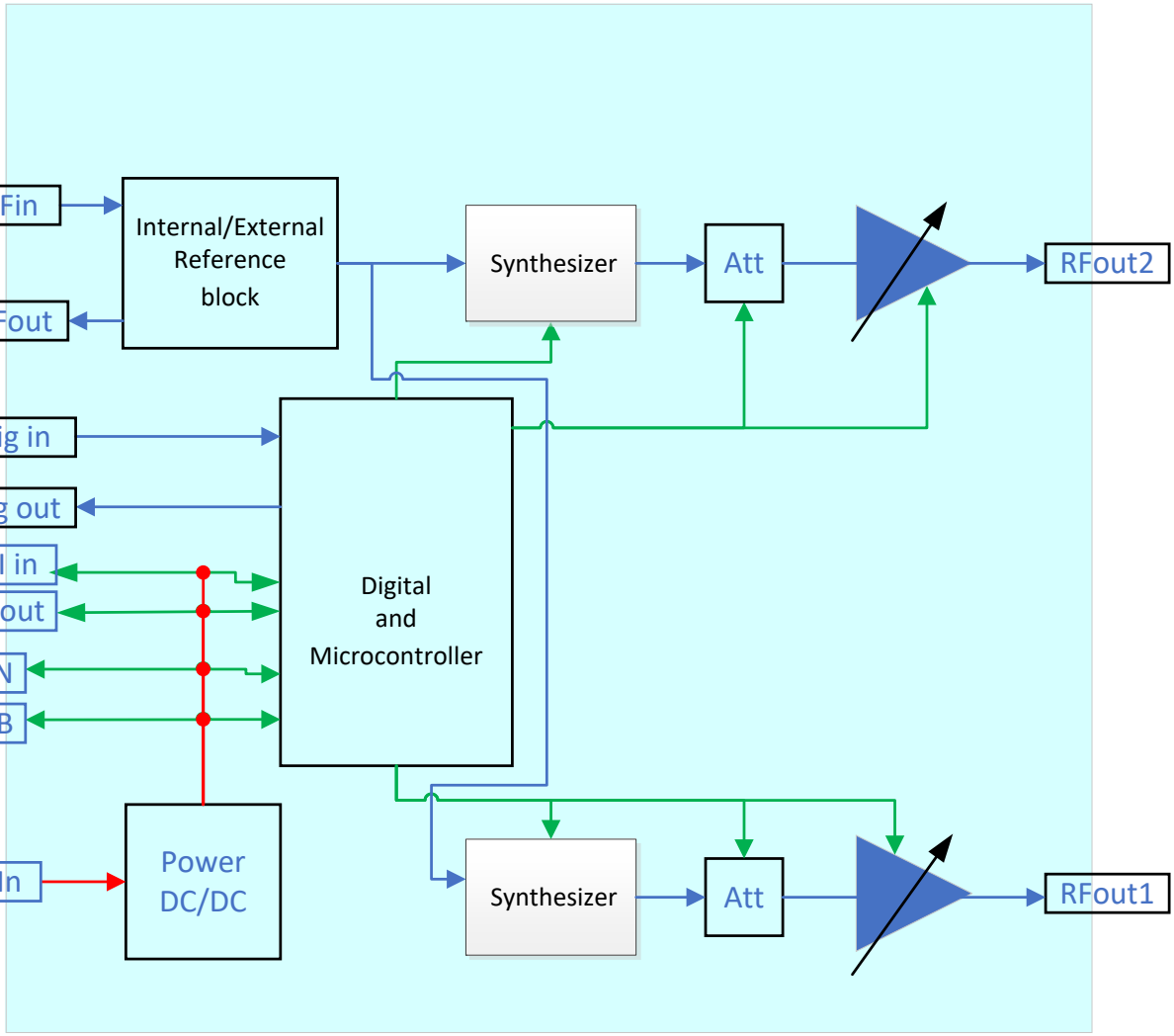
BLOCK DIAGRAM



CONNECTIONS

Port Name	Connector Type
RF output (RF1 & RF2)	SMA-Female
Reference in	J4 SMB-Male
Reference out	J5 SMB-Male
Trigger in	J3 SMB-Male
Trigger out	J2 SMB-Male
Power in [19]	2.1 mm DC socket
USB port	USB type C female
Network (Ethernet/LAN)	RJ45 socket
Serial Out (Digital Control 1 port)	Digital Snap Fit Connector [20]
Serial In (Digital Control 2 port)	Digital Snap Fit Connector [20]

19. No power On/Off switch - SSG will power on as soon as power is connected, starting at the specified startup condition (factory default set to 9000 MHz, -50 dBm, RF Off).
20. Mating connector is Hirose ST40X-10S-CV(30)

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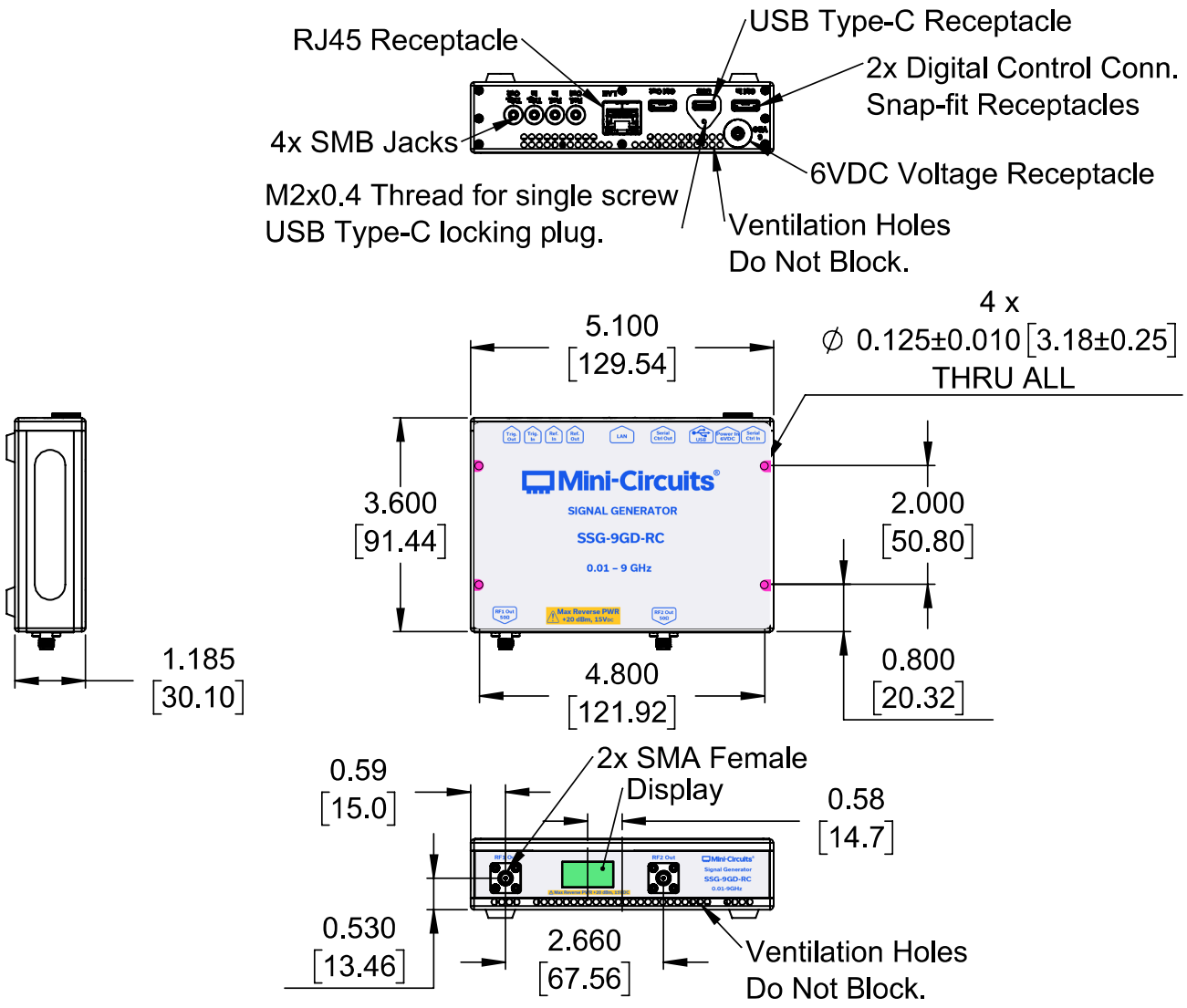
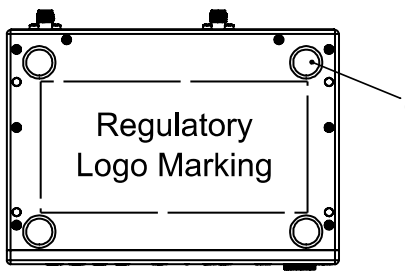
OUTLINE DRAWING (SL3644)



NOTES:

1. Case material: Aluminum alloy.
2. Case Finish: Nickel Plate.
3. Weight: 600 grams
4. Marking may contain other features or characters for internal lot control.



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DETAILED MODEL INFORMATION IS AVAILABLE ON OUR WEBSITE

CLICK HERE

Performance Data & Graphs	**Data** **Graphs**
Case Style	**SL3644**
Environmental Rating	**ENV55**
Software, User Guide & Programming Manual	https://www.minicircuits.com/softwaredownload/sg.html
Regulatory Compliance	Refer to user guide for compliance information CE UKCA https://www.minicircuits.com/app/AN49-003.pdf
Support	testsolutions@minicircuits.com

INCLUDED ACCESSORIES [21]

	Part No.	Description	Qty.
	AC/DC-6-3W	AC/DC Grounded Power adapter, 0°C to +40°C AC Input: 100-240 V, 50/60 Hz, I_{Max}= 1.2A DC Output 6±0.3 V, I_{Max}= 3A	1
(See images below)	CBL-3W-xx	AC Power Cord (Select one power cord from below with each unit)	1
	USB-CBL-AC-7SC+	6.5 ft (2.0 m) USB Cable: USB type A (Male) to USB type C (Male) Includes a screw lock to securely fasten the USB cable to the module	1
	CBL-5FT-BMSMB+	5.0 ft (1.5 m) Trigger cable: BNC (Male) to SMB (Female)	2

21. Additional quantities are available for purchase as optional accessories.

AC POWER CORD OPTIONS [22]

United States	Europe	United Kingdom	Australia and China	Israel
				
CBL-3W-US	CBL-3W-EU	CBL-3W-UK	CBL-3W-AU	CBL-3W-IL

22. Select one option from the list with each unit. Please contact testsolutions@minicircuits.com if your region is not listed.

OPTIONAL ACCESSORIES

	Part No.	Description
	CBL-RJ45-MM-5+	5.0 ft (1.5 m) Ethernet cable: RJ45 (Male) to RJ45 (Male) Cat 5E cable
	CBL-5FT-MMD+	5.0 ft (1.5 m) Cable assembly for serial control daisy chain with snap fit connectors
	CBL-1.5FT-MMD+	1.5 ft (0.45 m) Cable assembly for serial control daisy chain with snap fit connectors

CALIBRATION [23]

Part No.	Description
CALSSG-9GD-RC	Calibration Service for SSG-9GD-RC CLICK HERE

23. Model supports 3rd party calibration services.

NOTES:

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at https://www.minicircuits.com/terms/viewterm.html

Signal Generator

SSG-9GD-RC

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 0°C.

Freq. (MHz)	Power deviation from nominal vs. Output Frequency (dB)									
	-50 dBm	-45 dBm	-40 dBm	-30 dBm	-20 dBm	-10 dBm	0 dBm	+10 dBm	+15 dBm	+20 dBm
10	-0.08	0.08	-0.03	0.00	0.04	-0.03	0.14	0.10	0.43	0.11
50	0.10	0.16	0.04	0.15	0.06	0.12	0.12	0.22	0.53	0.24
100	0.04	0.13	0.04	0.11	0.08	0.14	0.13	0.36	0.47	0.17
200	-0.06	0.02	0.00	-0.01	0.03	0.15	0.12	0.46	0.33	0.13
400	0.16	0.16	0.20	0.31	0.35	0.56	0.38	0.52	0.54	0.31
600	0.00	-0.03	0.02	0.10	0.17	0.30	0.23	0.40	0.49	0.25
800	-0.28	-0.24	-0.22	-0.10	-0.05	0.25	0.02	0.20	0.22	0.01
1000	-0.21	-0.12	-0.07	-0.01	0.10	0.44	0.06	0.33	0.39	0.11
1200	-0.18	-0.14	-0.17	-0.15	0.01	0.28	0.03	0.16	0.25	0.06
1400	-0.09	-0.03	0.01	0.07	0.13	0.14	0.10	0.23	0.33	0.05
1600	-0.10	-0.06	-0.03	-0.04	0.05	0.07	0.05	0.22	0.27	0.05
1800	-0.15	-0.07	-0.07	-0.05	0.04	0.06	0.07	0.11	0.23	0.09
2000	-0.19	-0.15	-0.09	0.03	0.14	0.17	0.06	0.23	0.24	0.07
2200	-0.16	-0.17	-0.15	-0.06	0.04	0.12	0.04	0.14	0.16	0.00
2400	-0.10	-0.20	-0.16	-0.03	0.03	0.15	0.02	0.15	0.15	0.01
2600	-0.15	-0.15	-0.16	0.00	0.10	0.18	0.01	0.16	0.16	0.02
2800	-0.11	-0.15	-0.13	-0.01	0.13	0.18	-0.01	0.13	0.11	-0.02
3000	-0.16	-0.16	-0.09	-0.02	0.11	0.23	0.05	0.25	0.20	0.09
3250	-0.09	-0.05	-0.05	0.01	0.17	0.25	0.05	0.16	0.09	0.06
3500	-0.20	-0.17	-0.17	-0.08	0.10	0.15	-0.07	0.05	-0.03	-0.04
3750	0.00	0.07	0.08	0.21	0.36	0.35	-0.01	0.12	0.15	0.03
4000	-0.06	-0.07	-0.06	0.03	0.16	0.20	0.03	0.05	0.11	0.01
4250	-0.08	0.01	0.01	0.11	0.26	0.25	0.04	0.13	0.18	0.08
4500	-0.08	-0.05	-0.07	0.05	0.17	0.22	0.00	0.09	0.07	-0.02
4750	0.00	-0.02	-0.02	-0.01	0.14	0.21	-0.14	0.04	0.09	0.00
5000	0.01	0.01	0.00	0.11	0.24	0.28	0.15	0.19	0.23	0.09
5200	-0.07	-0.08	-0.05	0.03	0.12	0.15	0.05	0.20	0.16	0.05
5400	0.00	-0.02	0.01	0.08	0.19	0.11	-0.04	0.14	0.07	0.01
5600	0.05	0.01	0.02	0.12	0.22	0.15	0.02	0.19	0.10	0.07
5800	-0.11	-0.08	-0.08	-0.02	0.10	0.01	0.09	0.25	0.21	0.16
6000	-0.21	-0.16	-0.12	0.00	0.13	0.03	-0.02	0.07	0.12	0.05
6200	0.23	0.16	0.16	0.21	0.29	0.18	0.11	0.14	0.20	0.07
6400	-0.17	-0.09	-0.06	0.04	0.10	0.07	0.15	0.19	0.28	0.15
6600	-0.05	-0.07	-0.12	0.04	0.13	0.12	-0.06	0.11	0.10	0.08
6800	-0.33	-0.19	-0.06	0.05	0.19	0.11	-0.02	0.12	0.03	0.02
7000	0.03	-0.03	-0.04	0.05	0.24	0.14	-0.01	0.13	0.06	0.09
7200	-0.06	-0.06	-0.01	-0.03	0.13	0.29	0.19	0.27	0.18	0.16
7400	0.24	0.15	0.18	0.31	0.47	0.16	0.09	0.16	0.11	0.04
7600	-0.21	-0.16	-0.13	-0.02	0.18	0.17	0.13	0.21	0.21	0.15
7800	-0.31	-0.19	-0.11	0.01	0.15	0.08	0.01	0.02	0.07	-0.02
8000	-0.19	-0.16	-0.14	0.06	0.21	0.23	0.18	0.19	0.25	0.15
8200	-0.14	-0.17	-0.15	-0.06	0.02	0.04	-0.04	0.05	0.06	0.05
8400	-0.18	-0.16	-0.08	-0.01	0.08	0.10	0.01	0.11	0.09	0.04
8600	0.00	0.03	0.05	0.11	0.32	0.20	0.14	0.23	0.17	0.09
8800	-0.10	-0.11	-0.11	0.01	0.21	0.01	-0.07	0.07	-0.05	-0.02
9000	-0.20	-0.18	-0.16	-0.08	0.19	-0.07	-0.10	0.06	0.00	-0.03

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 0°C.

Power (dBm)	Power deviation from nominal vs. Output Power (dB)									
	500 MHz	1000 MHz	2000 MHz	3000 MHz	4000 MHz	5000 MHz	6000 MHz	7000 MHz	8000 MHz	9000 MHz
-50	0.37	-0.14	-0.13	-0.30	0.05	-0.03	-0.28	0.11	-0.04	-0.25
-49	0.37	-0.12	-0.12	-0.29	0.04	-0.03	-0.27	0.10	-0.04	-0.25
-48	0.37	-0.11	-0.11	-0.28	0.03	-0.03	-0.25	0.08	-0.05	-0.25
-47	0.37	-0.09	-0.09	-0.27	0.02	-0.02	-0.24	0.06	-0.06	-0.25
-46	0.37	-0.07	-0.08	-0.26	0.01	-0.02	-0.23	0.05	-0.06	-0.25
-45	0.37	-0.05	-0.07	-0.25	0.00	-0.02	-0.22	0.03	-0.07	-0.25
-44	0.38	-0.04	-0.07	-0.23	0.00	-0.01	-0.20	0.02	-0.08	-0.24
-43	0.39	-0.03	-0.06	-0.21	0.00	0.00	-0.19	0.01	-0.09	-0.23
-42	0.40	-0.02	-0.06	-0.19	0.00	0.00	-0.18	0.01	-0.09	-0.22
-41	0.41	-0.01	-0.06	-0.17	0.00	0.01	-0.16	0.00	-0.10	-0.21
-40	0.42	0.00	-0.05	-0.15	0.00	0.02	-0.15	-0.01	-0.11	-0.20
-38	0.43	0.01	-0.04	-0.14	0.00	0.01	-0.13	-0.01	-0.09	-0.20
-36	0.45	0.03	-0.03	-0.12	0.00	0.01	-0.11	0.00	-0.07	-0.21
-34	0.46	0.04	0.00	-0.09	0.02	0.03	-0.09	0.01	-0.04	-0.20
-32	0.49	0.05	0.04	-0.06	0.07	0.08	-0.07	0.02	0.00	-0.18
-30	0.52	0.06	0.08	-0.04	0.11	0.13	-0.05	0.04	0.04	-0.16
-28	0.51	0.07	0.10	-0.02	0.12	0.14	-0.02	0.06	0.05	-0.14
-26	0.51	0.09	0.12	0.00	0.14	0.16	0.01	0.08	0.06	-0.13
-24	0.51	0.10	0.14	0.03	0.16	0.18	0.04	0.12	0.09	-0.08
-22	0.53	0.11	0.16	0.08	0.20	0.21	0.07	0.17	0.13	0.01
-20	0.55	0.12	0.17	0.12	0.24	0.24	0.10	0.22	0.18	0.09
-18	0.61	0.17	0.20	0.13	0.26	0.26	0.11	0.27	0.20	0.05
-16	0.67	0.22	0.23	0.14	0.29	0.28	0.12	0.32	0.22	0.00
-14	0.75	0.28	0.24	0.16	0.30	0.29	0.10	0.29	0.22	-0.06
-12	0.85	0.36	0.22	0.19	0.30	0.29	0.05	0.18	0.21	-0.11
-10	0.95	0.43	0.21	0.23	0.30	0.29	0.00	0.07	0.20	-0.17
-8	0.83	0.34	0.20	0.18	0.23	0.22	0.00	0.04	0.18	-0.17
-6	0.71	0.26	0.19	0.14	0.17	0.16	0.00	0.01	0.17	-0.17
-4	0.64	0.19	0.17	0.11	0.12	0.12	0.00	-0.02	0.16	-0.17
-2	0.63	0.16	0.14	0.10	0.09	0.11	0.00	-0.05	0.16	-0.19
0	0.62	0.12	0.11	0.08	0.05	0.11	-0.01	-0.08	0.16	-0.21
+2	0.63	0.15	0.14	0.10	0.05	0.10	0.00	-0.05	0.15	-0.19
+4	0.65	0.18	0.16	0.12	0.05	0.09	0.01	-0.02	0.15	-0.16
+6	0.68	0.23	0.19	0.15	0.07	0.10	0.03	0.01	0.15	-0.13
+8	0.72	0.29	0.23	0.20	0.10	0.13	0.07	0.05	0.15	-0.09
+10	0.77	0.35	0.28	0.25	0.13	0.15	0.10	0.09	0.16	-0.04
+11	0.78	0.36	0.28	0.25	0.13	0.16	0.11	0.07	0.17	-0.06
+12	0.79	0.37	0.28	0.24	0.14	0.17	0.12	0.05	0.18	-0.07
+13	0.80	0.38	0.29	0.23	0.15	0.18	0.12	0.03	0.19	-0.09
+14	0.81	0.39	0.29	0.23	0.16	0.19	0.13	0.01	0.20	-0.10
+15	0.82	0.40	0.29	0.22	0.16	0.20	0.14	-0.01	0.21	-0.12
+16	0.78	0.35	0.26	0.19	0.15	0.18	0.12	0.00	0.19	-0.12
+17	0.74	0.30	0.22	0.16	0.13	0.15	0.11	0.01	0.17	-0.12
+18	0.70	0.24	0.19	0.14	0.11	0.12	0.10	0.02	0.14	-0.12
+19	0.66	0.19	0.15	0.11	0.09	0.09	0.09	0.03	0.12	-0.11
+20	0.61	0.14	0.12	0.08	0.07	0.07	0.08	0.04	0.09	-0.11

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 0°C.

Freq. (MHz)	Harmonics levels vs. Output Frequency (dBc)									
	F2					F3				
	-50 dBm	-40 dBm	-20 dBm	0 dBm	+20 dBm	-50 dBm	-40 dBm	-20 dBm	0 dBm	+20 dBm
10	-40.54	-49.40	-41.31	-2.93	-10.35	-7.87	-8.34	-8.37	-7.08	-12.18
50	-49.19	-52.22	-53.37	-12.28	-18.09	-11.74	-12.20	-11.70	-12.07	-11.53
100	-50.45	-50.69	-49.63	-10.78	-16.49	-11.50	-12.41	-12.05	-12.70	-12.67
200	-39.88	-44.62	-44.11	-11.08	-15.20	-11.09	-12.50	-12.21	-13.61	-14.07
400	-36.92	-38.30	-37.50	-18.84	-14.92	-8.41	-10.23	-11.35	-10.67	-12.61
600	-29.74	-32.77	-33.68	-22.26	-15.43	-10.59	-11.39	-12.78	-10.47	-13.54
800	-26.58	-26.99	-28.26	-16.78	-12.95	-9.65	-9.97	-11.44	-9.01	-12.05
1000	-24.45	-24.57	-25.10	-17.28	-13.27	-10.36	-10.08	-11.23	-9.75	-12.11
1200	-24.00	-22.90	-21.84	-20.53	-14.56	-11.57	-10.30	-9.57	-13.28	-11.62
1400	-8.54	-7.94	-6.87	-6.67	-7.79	-17.59	-17.67	-17.15	-21.35	-21.01
1600	-7.13	-7.35	-7.15	-8.78	-8.47	-16.81	-17.16	-17.42	-25.97	-19.67
1800	-6.66	-7.19	-7.22	-11.35	-9.39	-16.30	-17.48	-18.48	-20.62	-17.70
2000	-13.20	-14.34	-15.21	-14.92	-16.60	-10.15	-11.39	-12.37	-14.38	-12.02
2200	-13.27	-13.97	-14.62	-15.76	-16.86	-13.30	-13.39	-14.04	-15.01	-12.31
2400	-14.25	-14.39	-15.00	-17.42	-16.97	-11.42	-13.85	-15.60	-15.37	-12.63
2600	-14.13	-14.94	-15.99	-20.70	-16.27	-15.43	-16.06	-16.78	-14.97	-13.10
2800	-14.37	-15.38	-16.56	-23.21	-15.31	-14.48	-16.61	-18.21	-15.26	-13.53
3000	-14.78	-15.93	-17.10	-21.96	-14.80	-18.51	-19.44	-20.34	-15.68	-13.69
3250	-16.83	-16.74	-17.38	-21.91	-14.93	-21.81	-22.99	-24.29	-17.30	-13.75
3500	-13.54	-15.52	-17.24	-22.11	-15.22	-24.62	-26.16	-27.79	-18.25	-13.98
3750	-14.44	-15.32	-16.42	-19.19	-17.06	-26.53	-28.52	-29.49	-18.71	-13.19
4000	-18.77	-17.91	-16.32	-17.26	-17.89	-24.36	-28.62	-31.66	-21.53	-13.43
4250	-9.85	-13.04	-15.98	-18.43	-18.22	-35.14	-33.46	-34.03	-22.59	-13.12
4500	-16.01	-16.34	-16.75	-21.73	-18.23	-24.87	-29.04	-31.61	-20.69	-12.60
4750	-10.55	-13.71	-16.65	-24.63	-17.36	-20.80	-23.61	-25.94	-17.45	-12.01
5000	-17.45	-18.53	-20.24	-21.13	-16.78	-26.02	-26.40	-27.16	-21.75	-13.55
5200	-16.44	-16.71	-17.99	-20.94	-17.30	-22.89	-24.73	-25.56	-20.43	-13.18
5400	-19.05	-16.77	-16.77	-20.22	-18.02	-26.66	-26.06	-25.67	-21.42	-13.72
5600	-15.68	-15.42	-16.13	-20.10	-18.55	-20.88	-21.33	-20.38	-22.74	-13.73
5800	-11.63	-14.47	-16.46	-19.69	-18.46	-41.96	-34.58	-32.87	-23.87	-13.66
6000	-9.63	-14.40	-18.04	-19.95	-18.76	-27.36	-30.71	-33.49	-24.30	-13.80
6200	-18.05	-19.26	-19.71	-20.71	-19.39	-29.59	-32.15	-32.63	-25.21	-13.94
6400	-24.32	-21.53	-20.92	-20.80	-17.92	-38.22	-37.02	-36.11	-26.69	-14.99
6600	-23.97	-21.52	-21.92	-21.12	-17.05	-32.46	-35.83	-39.11	-27.34	-16.25
6800	-17.78	-19.44	-21.14	-20.30	-16.57	-39.01	-44.18	-42.56	-26.88	-16.47
7000	-12.78	-15.85	-18.46	-19.31	-15.46	-39.72	-41.76	-45.60	-27.63	-17.08
7200	-11.47	-14.91	-16.86	-17.83	-15.41	-34.74	-40.65	-44.47	-27.85	-18.06
7400	-18.56	-19.27	-19.13	-21.07	-15.96	-37.19	-44.16	-47.27	-28.69	-18.28
7600	-16.23	-16.18	-16.19	-21.56	-15.22	-32.17	-33.50	-44.72	-28.88	-18.43
7800	-11.81	-13.66	-14.22	-21.61	-14.77	-25.68	-31.67	-42.30	-30.04	-18.25
8000	-13.82	-15.41	-14.47	-21.96	-15.22	-38.78	-39.59	-45.94	-31.44	-19.49
8200	-18.68	-15.27	-12.95	-22.31	-15.04	-43.85	-42.27	-53.60	-31.08	-19.99
8400	-10.66	-8.82	-6.44	-23.24	-15.32	-34.73	-38.64	-52.27	-32.65	-19.39
8600	-20.78	-20.60	-16.01	-25.07	-15.88	-34.56	-39.94	-58.83	-35.35	-18.82
8800	-21.46	-22.19	-20.50	-26.00	-15.68	--	--	--	--	--
9000	-12.30	-18.37	-19.52	-28.52	-16.69	--	--	--	--	--

Signal Generator

SSG-9GD-RC

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 0°C.

Freq. (MHz)	Phase Noise vs. Output Frequency (dBc / Hz)			
	1 kHz	10 kHz	100 kHz	1 MHz
10	-118.67	-125.33	-130.68	-133.71
50	-123.44	-130.07	-135.46	-137.13
100	-124.38	-130.75	-135.67	-138.17
200	-124.87	-130.92	-136.13	-139.21
400	-122.20	-130.68	-136.46	-139.40
600	-119.71	-129.02	-134.20	-138.50
800	-119.26	-127.18	-132.81	-139.57
1000	-116.44	-126.50	-131.44	-137.19
1200	-114.91	-124.73	-129.94	-135.41
1400	-113.65	-124.05	-129.05	-135.71
1600	-112.42	-122.99	-127.94	-133.94
1800	-113.07	-121.72	-126.79	-132.32
2000	-110.67	-121.17	-126.36	-132.67
2200	-109.80	-120.24	-125.14	-131.80
2400	-108.45	-119.83	-124.18	-130.74
2600	-108.79	-118.66	-123.25	-130.07
2800	-106.78	-117.70	-122.99	-130.09
3000	-108.08	-117.42	-122.56	-126.06
3250	-107.39	-116.72	-121.76	-123.71
3500	-107.13	-116.37	-121.15	-124.99
3750	-104.94	-115.30	-120.13	-123.16
4000	-104.97	-115.44	-120.50	-126.52
4250	-105.56	-114.99	-119.58	-124.19
4500	-104.10	-113.91	-118.91	-126.93
4750	-104.32	-113.27	-118.09	-125.36
5000	-103.06	-113.24	-117.88	-125.73
5200	-101.65	-112.54	-117.58	-125.19
5400	-101.35	-112.60	-117.05	-123.92
5600	-101.96	-111.88	-116.70	-123.27
5800	-101.21	-112.13	-116.86	-121.56
6000	-101.20	-111.43	-116.54	-120.85
6200	-100.58	-110.77	-116.38	-118.20
6400	-100.50	-111.06	-115.90	-117.85
6600	-100.54	-110.15	-115.27	-119.80
6800	-99.71	-110.62	-115.61	-118.67
7000	-101.15	-109.97	-115.28	-117.93
7200	-98.92	-109.71	-114.83	-118.33
7400	-99.11	-109.32	-114.40	-116.84
7600	-99.88	-109.85	-114.23	-122.19
7800	-101.33	-109.21	-113.98	-121.90
8000	-97.63	-108.81	-114.56	-120.21
8200	-98.81	-108.71	-113.85	-120.12
8400	-99.92	-108.19	-113.48	-120.35
8600	-97.34	-108.63	-112.91	-121.67
8800	-97.19	-108.31	-112.88	-120.40
9000	-96.93	-108.41	-112.70	-120.38

Freq. (MHz)	Power (dBM) Max
10	23.45
50	23.89
100	23.78
200	23.63
400	22.93
600	23.29
800	22.36
1000	22.59
1200	22.76
1400	21.55
1600	21.66
1800	21.85
2000	22.86
2200	22.81
2400	22.80
2600	22.68
2800	22.49
3000	22.44
3250	22.32
3500	22.29
3750	22.21
4000	22.28
4250	22.23
4500	22.06
4750	21.79
5000	21.86
5200	21.81
5400	21.73
5600	21.74
5800	21.75
6000	21.66
6200	21.58
6400	21.70
6600	21.62
6800	21.51
7000	21.58
7200	21.70
7400	21.51
7600	21.79
7800	21.47
8000	21.65
8200	21.47
8400	21.33
8600	21.23
8800	21.11
9000	20.94

Signal Generator

SSG-9GD-RC

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 0°C.

Freq. Offsets (kHz)	Phase Noise vs. Offset Frequency (dBc / Hz)				
	1000 MHz	3000 MHz	5000 MHz	7000 MHz	9000 MHz
1	-116.44	-108.08	-103.06	-101.15	-96.93
10	-126.50	-117.42	-113.24	-109.97	-108.41
100	-131.44	-122.56	-117.88	-115.28	-112.70
1000	-137.19	-126.06	-125.73	-117.93	-120.38

Freq. (MHz)	Spurious (dBc)	
	Far	Near
10	-69.62	-77.41
50	-69.82	-80.04
100	-69.84	-79.75
200	-69.77	-79.32
400	-68.43	-78.18
600	-68.86	-78.83
800	-68.36	-78.67
1000	-69.17	-78.87
1200	-67.71	-78.55
1400	-68.16	-78.91
1600	-68.05	-77.22
1800	-66.85	-78.10
2000	-67.75	-78.36
2200	-66.69	-75.90
2400	-66.60	-77.32
2600	-65.87	-77.64
2800	-66.09	-76.30
3000	-66.06	-75.80
3250	-65.29	-76.35
3500	-65.45	-74.89
3750	-65.50	-70.14
4000	-65.91	-71.64
4250	-66.88	-72.07
4500	-65.94	-71.11
4750	-65.06	-72.19
5000	-65.59	-71.96
5200	-66.60	-69.21
5400	-65.79	-69.69
5600	-65.93	-70.24
5800	-65.70	-67.91
6000	-65.52	-69.50
6200	-66.86	-69.21
6400	-64.19	-69.77
6600	-65.70	-68.18
6800	-65.41	-67.78
7000	-65.68	-68.66
7200	-65.05	-68.26
7400	-65.53	-68.85
7600	-65.35	-68.13
7800	-66.10	-68.09
8000	-65.69	-66.30
8200	-65.67	-65.91
8400	-66.30	-65.97
8600	-66.47	-68.86
8800	-65.93	-64.35
9000	-66.19	-67.50

Note: Spurious was measured in Close offsets of 1 kHz to 100 kHz and Far offsets of 100 kHz to 150 MHz.

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 25°C.

Freq. (MHz)	Power deviation from nominal vs. Output Frequency (dB)									
	-50 dBm	-45 dBm	-40 dBm	-30 dBm	-20 dBm	-10 dBm	0 dBm	+10 dBm	+15 dBm	+20 dBm
10	-0.35	-0.02	-0.04	0.08	0.07	0.03	0.32	0.26	0.50	0.09
50	0.20	0.22	0.09	0.18	0.16	0.06	0.28	0.24	0.52	0.19
100	0.12	0.14	0.11	0.12	0.15	0.12	0.23	0.29	0.45	0.13
200	0.00	-0.02	0.06	0.05	0.09	0.13	0.16	0.35	0.34	0.09
400	0.14	0.18	0.19	0.34	0.37	0.51	0.26	0.31	0.39	0.31
600	0.01	-0.03	0.07	0.19	0.25	0.38	0.17	0.27	0.40	0.29
800	-0.21	-0.20	-0.12	0.00	0.01	0.23	-0.07	0.16	0.21	0.04
1000	-0.12	-0.02	0.02	0.15	0.17	0.40	0.06	0.30	0.38	0.15
1200	-0.07	-0.09	-0.05	0.00	0.05	0.25	-0.01	0.10	0.16	0.07
1400	0.00	0.05	0.11	0.20	0.22	0.14	0.03	0.25	0.29	0.09
1600	-0.01	0.02	0.05	0.07	0.13	0.12	0.02	0.18	0.25	0.05
1800	-0.03	0.00	0.05	0.10	0.09	0.09	0.00	0.15	0.23	0.05
2000	-0.06	-0.04	0.02	0.11	0.13	0.08	0.05	0.17	0.14	0.07
2200	-0.11	-0.09	-0.05	0.03	0.07	0.04	-0.03	0.10	0.08	0.01
2400	-0.10	-0.08	-0.05	0.07	0.10	0.07	-0.01	0.09	0.05	0.02
2600	-0.06	-0.07	-0.05	0.06	0.08	0.11	-0.03	0.09	0.07	0.03
2800	-0.07	-0.02	0.00	0.08	0.10	0.11	-0.08	0.04	0.04	-0.02
3000	-0.09	-0.07	-0.03	0.06	0.10	0.17	0.02	0.11	0.08	0.07
3250	0.00	0.05	0.06	0.12	0.17	0.24	0.02	0.06	0.07	0.04
3500	-0.12	-0.07	-0.04	0.04	0.09	0.18	-0.16	-0.08	0.01	-0.06
3750	0.04	0.08	0.15	0.22	0.32	0.34	-0.01	0.02	0.18	0.07
4000	0.02	-0.02	0.02	0.12	0.17	0.22	0.06	0.04	0.14	0.09
4250	-0.06	-0.02	0.03	0.11	0.16	0.19	-0.04	-0.03	0.13	0.05
4500	-0.06	-0.05	-0.02	0.11	0.13	0.15	-0.01	-0.01	0.11	0.00
4750	-0.10	-0.10	-0.06	0.03	0.04	0.04	-0.21	-0.16	0.01	-0.08
5000	-0.08	-0.04	0.02	0.13	0.16	0.12	0.04	0.11	0.16	0.05
5200	-0.11	-0.08	-0.03	0.04	0.05	-0.01	-0.06	0.05	0.07	0.03
5400	0.01	-0.04	0.00	0.13	0.12	0.07	-0.08	0.01	-0.02	0.02
5600	0.04	0.01	0.02	0.18	0.13	0.13	-0.06	0.05	0.10	0.08
5800	-0.19	-0.09	-0.06	0.02	0.00	-0.08	0.04	0.04	0.18	0.12
6000	-0.16	-0.15	-0.10	0.07	0.08	0.02	-0.09	-0.04	0.07	0.01
6200	0.11	0.10	0.14	0.30	0.31	0.22	0.08	0.15	0.16	0.07
6400	-0.17	-0.04	-0.02	0.08	0.12	0.19	0.04	0.14	0.13	0.14
6600	-0.19	-0.08	-0.07	0.08	0.12	0.06	-0.10	0.02	-0.03	0.07
6800	-0.11	-0.03	0.01	0.08	0.15	0.08	0.01	0.06	0.06	0.03
7000	-0.09	-0.07	-0.03	0.13	0.19	0.07	-0.04	0.03	0.07	0.05
7200	-0.10	-0.06	-0.02	-0.02	0.07	0.21	0.08	0.15	0.16	0.12
7400	0.04	0.01	0.07	0.29	0.30	0.03	-0.05	-0.01	0.08	0.01
7600	-0.19	-0.10	-0.10	0.00	0.05	0.10	-0.01	0.01	0.12	0.06
7800	-0.06	-0.06	-0.04	0.03	0.05	0.01	-0.08	-0.06	0.01	-0.02
8000	-0.23	-0.14	-0.12	0.00	0.01	0.08	-0.01	0.07	0.05	0.07
8200	-0.05	-0.03	-0.04	-0.01	0.04	-0.01	-0.08	0.03	-0.04	0.06
8400	0.10	0.12	0.07	0.10	0.22	0.09	0.02	0.14	0.03	0.05
8600	0.01	0.07	0.13	0.20	0.40	0.17	0.11	0.22	0.17	0.14
8800	-0.10	-0.06	-0.07	0.04	0.23	-0.03	-0.09	0.04	-0.02	0.02
9000	-0.19	-0.16	-0.09	0.00	0.14	-0.09	-0.12	-0.04	0.00	-0.03

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 25°C.

Power (dBm)	Power deviation from nominal vs. Output Power (dB)									
	500 MHz	1000 MHz	2000 MHz	3000 MHz	4000 MHz	5000 MHz	6000 MHz	7000 MHz	8000 MHz	9000 MHz
-50	0.36	-0.06	0.00	-0.20	0.13	-0.09	-0.26	-0.07	-0.26	-0.26
-49	0.36	-0.04	0.00	-0.19	0.12	-0.08	-0.24	-0.06	-0.23	-0.25
-48	0.36	-0.02	0.01	-0.18	0.11	-0.08	-0.23	-0.05	-0.21	-0.24
-47	0.37	0.00	0.01	-0.17	0.10	-0.08	-0.21	-0.05	-0.18	-0.22
-46	0.37	0.02	0.01	-0.15	0.09	-0.07	-0.20	-0.04	-0.16	-0.21
-45	0.37	0.04	0.01	-0.14	0.08	-0.07	-0.18	-0.03	-0.13	-0.20
-44	0.38	0.05	0.02	-0.13	0.08	-0.05	-0.16	-0.02	-0.13	-0.19
-43	0.39	0.06	0.04	-0.11	0.08	-0.03	-0.15	-0.01	-0.12	-0.17
-42	0.41	0.07	0.05	-0.10	0.09	-0.02	-0.13	0.00	-0.12	-0.16
-41	0.42	0.08	0.06	-0.08	0.09	0.00	-0.11	0.01	-0.11	-0.14
-40	0.43	0.09	0.07	-0.07	0.09	0.02	-0.10	0.02	-0.10	-0.13
-38	0.45	0.10	0.09	-0.04	0.10	0.03	-0.08	0.02	-0.09	-0.12
-36	0.48	0.11	0.10	-0.02	0.11	0.04	-0.07	0.03	-0.08	-0.12
-34	0.51	0.13	0.11	0.01	0.14	0.07	-0.04	0.05	-0.06	-0.11
-32	0.55	0.16	0.13	0.05	0.17	0.11	0.00	0.09	-0.02	-0.08
-30	0.59	0.19	0.15	0.08	0.20	0.16	0.04	0.13	0.02	-0.06
-28	0.58	0.19	0.16	0.07	0.22	0.16	0.03	0.12	0.01	-0.04
-26	0.57	0.19	0.17	0.07	0.25	0.15	0.03	0.11	0.01	-0.03
-24	0.58	0.19	0.18	0.07	0.26	0.16	0.04	0.13	0.01	0.00
-22	0.60	0.19	0.19	0.08	0.26	0.17	0.04	0.16	0.01	0.04
-20	0.62	0.19	0.19	0.08	0.26	0.18	0.05	0.20	0.01	0.08
-18	0.64	0.22	0.17	0.09	0.27	0.18	0.09	0.18	0.03	0.03
-16	0.66	0.25	0.16	0.09	0.28	0.18	0.14	0.16	0.06	-0.02
-14	0.73	0.29	0.15	0.11	0.29	0.17	0.13	0.13	0.07	-0.07
-12	0.85	0.35	0.14	0.14	0.31	0.16	0.05	0.09	0.08	-0.12
-10	0.97	0.40	0.13	0.17	0.32	0.14	-0.02	0.05	0.08	-0.17
-8	0.83	0.32	0.15	0.12	0.25	0.10	-0.03	0.02	0.07	-0.18
-6	0.69	0.23	0.16	0.07	0.17	0.06	-0.03	-0.02	0.05	-0.18
-4	0.60	0.17	0.16	0.04	0.13	0.04	-0.04	-0.04	0.03	-0.18
-2	0.56	0.12	0.12	0.04	0.13	0.02	-0.05	-0.04	0.02	-0.19
0	0.53	0.08	0.09	0.04	0.13	0.01	-0.07	-0.05	0.01	-0.19
+2	0.57	0.10	0.10	0.03	0.10	0.02	-0.08	-0.03	0.01	-0.18
+4	0.61	0.12	0.10	0.03	0.08	0.03	-0.09	-0.01	0.02	-0.16
+6	0.62	0.17	0.13	0.05	0.08	0.04	-0.09	0.00	0.03	-0.14
+8	0.61	0.25	0.17	0.09	0.09	0.06	-0.08	0.01	0.05	-0.12
+10	0.60	0.33	0.21	0.13	0.10	0.07	-0.07	0.03	0.06	-0.09
+11	0.63	0.35	0.21	0.12	0.12	0.08	-0.03	0.03	0.07	-0.09
+12	0.66	0.36	0.20	0.12	0.14	0.10	0.00	0.04	0.07	-0.08
+13	0.69	0.37	0.20	0.11	0.17	0.11	0.04	0.05	0.07	-0.08
+14	0.72	0.39	0.19	0.11	0.19	0.12	0.07	0.05	0.07	-0.07
+15	0.75	0.40	0.19	0.10	0.21	0.13	0.10	0.06	0.07	-0.07
+16	0.72	0.36	0.18	0.10	0.20	0.11	0.09	0.06	0.07	-0.07
+17	0.70	0.32	0.16	0.09	0.19	0.09	0.08	0.05	0.07	-0.07
+18	0.68	0.27	0.15	0.08	0.18	0.07	0.07	0.05	0.06	-0.07
+19	0.65	0.23	0.13	0.07	0.17	0.05	0.05	0.04	0.06	-0.06
+20	0.63	0.18	0.12	0.07	0.16	0.03	0.04	0.04	0.05	-0.06

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 25°C.

Freq. (MHz)	Harmonics levels vs. Output Frequency (dBc)									
	F2					F3				
	-50 dBm	-40 dBm	-20 dBm	0 dBm	+20 dBm	-50 dBm	-40 dBm	-20 dBm	0 dBm	+20 dBm
10	-38.05	-44.97	-41.29	-3.22	-10.57	-8.59	-8.44	-8.44	-7.35	-12.13
50	-44.65	-44.54	-52.21	-12.23	-18.24	-11.75	-12.11	-11.40	-12.00	-11.69
100	-48.04	-50.33	-49.50	-10.80	-16.52	-11.44	-12.35	-11.90	-12.67	-12.74
200	-39.05	-45.63	-45.50	-11.19	-15.11	-10.96	-12.56	-12.24	-13.69	-14.07
400	-36.44	-36.49	-37.08	-19.41	-14.89	-8.26	-10.10	-11.26	-10.55	-12.48
600	-29.68	-31.89	-33.30	-22.84	-15.35	-10.57	-11.27	-12.68	-10.37	-13.47
800	-26.46	-26.75	-28.11	-17.02	-12.92	-9.68	-10.02	-11.37	-8.93	-11.96
1000	-23.89	-24.30	-24.81	-17.45	-13.25	-10.42	-10.15	-11.23	-9.81	-12.16
1200	-25.05	-22.59	-21.65	-20.40	-14.53	-11.53	-10.38	-9.60	-13.38	-11.64
1400	-8.66	-7.97	-6.87	-6.79	-7.79	-17.40	-17.89	-17.22	-21.67	-21.21
1600	-7.06	-7.35	-7.20	-9.02	-8.52	-16.58	-17.25	-17.50	-26.34	-19.82
1800	-6.45	-7.17	-7.23	-11.52	-9.35	-15.84	-17.19	-18.34	-20.68	-17.60
2000	-12.85	-14.42	-15.11	-14.88	-16.73	-10.08	-11.50	-12.51	-14.63	-12.12
2200	-12.88	-14.00	-14.53	-15.70	-16.96	-13.21	-13.50	-14.20	-15.30	-12.41
2400	-13.98	-14.35	-14.98	-17.48	-17.11	-11.29	-13.82	-15.57	-15.49	-12.60
2600	-13.70	-14.96	-15.83	-20.79	-16.29	-15.50	-15.83	-16.67	-15.04	-12.99
2800	-13.82	-15.21	-16.21	-23.62	-15.16	-14.12	-16.38	-18.12	-15.25	-13.42
3000	-14.32	-15.71	-16.74	-22.52	-14.69	-18.57	-19.50	-20.42	-15.72	-13.63
3250	-16.19	-16.37	-16.87	-22.32	-14.46	-22.55	-23.97	-24.75	-17.39	-13.77
3500	-13.13	-15.19	-16.92	-22.35	-15.33	-25.04	-26.65	-28.06	-18.47	-13.94
3750	-14.64	-15.73	-16.64	-19.60	-17.12	-26.35	-28.21	-30.00	-19.01	-13.42
4000	-18.70	-17.56	-16.11	-17.09	-17.90	-24.79	-28.05	-31.85	-21.77	-13.37
4250	-9.86	-12.96	-15.79	-18.24	-18.31	-37.02	-33.66	-34.31	-22.97	-13.17
4500	-16.31	-16.52	-16.81	-21.78	-18.24	-24.90	-29.05	-31.68	-21.10	-12.73
4750	-11.31	-14.32	-17.18	-26.05	-17.79	-20.90	-23.99	-26.40	-18.01	-12.18
5000	-17.07	-18.44	-20.23	-21.78	-16.71	-26.31	-27.59	-27.35	-21.97	-13.50
5200	-17.23	-17.11	-17.98	-21.56	-17.51	-23.60	-25.36	-26.11	-20.96	-13.37
5400	-18.93	-16.51	-16.61	-20.57	-17.86	-26.30	-25.84	-25.62	-21.29	-13.25
5600	-15.85	-15.40	-16.16	-20.33	-18.26	-20.79	-20.85	-20.07	-22.31	-13.06
5800	-11.94	-14.83	-16.91	-20.14	-19.09	-38.03	-34.66	-33.29	-24.35	-13.68
6000	-10.16	-15.03	-18.72	-20.50	-19.47	-27.82	-31.23	-34.20	-24.52	-13.51
6200	-18.60	-19.67	-19.86	-20.74	-18.73	-31.33	-33.34	-32.74	-24.99	-13.60
6400	-24.92	-22.22	-21.41	-21.26	-18.31	-39.56	-35.36	-36.05	-26.86	-14.69
6600	-24.20	-22.26	-22.64	-21.65	-17.72	-32.35	-36.30	-40.51	-27.43	-15.89
6800	-18.31	-19.79	-21.15	-20.50	-16.70	-40.30	-38.75	-42.67	-27.08	-16.32
7000	-12.99	-15.95	-18.60	-19.41	-15.83	-39.64	-35.59	-44.90	-27.54	-16.45
7200	-12.55	-15.89	-17.56	-18.54	-15.81	-35.49	-34.97	-45.35	-27.66	-17.51
7400	-19.08	-19.05	-18.89	-20.95	-15.52	-37.00	-35.44	-43.98	-27.84	-17.08
7600	-16.79	-16.94	-17.21	-22.64	-16.23	-32.94	-38.59	-45.86	-29.56	-18.53
7800	-12.43	-14.12	-14.93	-22.27	-15.28	-26.11	-31.29	-43.33	-30.06	-18.16
8000	-13.75	-15.33	-14.24	-21.60	-14.53	-42.17	-37.06	-46.70	-31.02	-19.25
8200	-18.96	-15.46	-12.96	-22.25	-15.12	-42.52	-35.85	-51.18	-31.24	-19.36
8400	-10.34	-8.64	-6.28	-22.99	-14.78	-35.85	-35.11	-48.37	-33.19	-19.58
8600	-20.91	-19.59	-15.69	-24.62	-15.07	-36.93	-37.30	-55.67	-35.94	-18.98
8800	-20.34	-22.87	-20.43	-25.64	-15.59	--	--	--	--	--
9000	-11.72	-17.17	-19.11	-28.16	-16.36	--	--	--	--	--

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 25°C.

Freq. (MHz)	Phase Noise vs. Output Frequency (dBc / Hz)			
	1 kHz	10 kHz	100 kHz	1 MHz
10	-121.00	-130.53	-133.69	-134.23
50	-128.38	-135.02	-137.27	-138.39
100	-128.06	-134.52	-137.53	-138.55
200	-126.26	-133.71	-137.82	-139.41
400	-122.34	-131.90	-135.70	-140.89
600	-119.29	-129.04	-133.90	-138.99
800	-117.63	-127.15	-132.19	-139.12
1000	-115.76	-126.13	-130.80	-138.07
1200	-114.63	-124.01	-129.33	-136.28
1400	-113.25	-123.40	-128.31	-135.37
1600	-112.26	-122.02	-126.65	-134.42
1800	-111.70	-121.12	-125.92	-131.60
2000	-110.19	-120.41	-125.86	-132.02
2200	-108.43	-118.97	-123.63	-133.09
2400	-109.20	-118.12	-123.60	-129.91
2600	-106.95	-118.07	-122.79	-129.71
2800	-106.44	-117.59	-122.24	-128.07
3000	-106.38	-116.64	-122.52	-125.05
3250	-104.86	-116.00	-120.96	-125.08
3500	-104.99	-115.54	-120.32	-123.95
3750	-103.43	-114.55	-119.88	-123.54
4000	-104.39	-114.30	-119.25	-126.07
4250	-102.09	-113.91	-118.59	-128.11
4500	-103.57	-113.54	-118.02	-126.34
4750	-103.89	-112.16	-117.78	-124.82
5000	-101.95	-112.21	-117.12	-125.42
5200	-101.56	-111.83	-116.97	-124.74
5400	-100.66	-111.35	-116.39	-123.22
5600	-100.21	-110.98	-116.57	-123.26
5800	-100.71	-110.81	-115.98	-121.37
6000	-100.02	-110.98	-115.69	-119.76
6200	-100.46	-110.48	-115.59	-118.65
6400	-99.89	-110.51	-115.43	-118.26
6600	-99.21	-109.66	-115.30	-118.90
6800	-99.93	-109.84	-114.81	-118.01
7000	-98.08	-109.47	-114.16	-118.20
7200	-99.59	-109.43	-114.14	-118.14
7400	-99.63	-109.10	-114.01	-117.13
7600	-97.45	-108.39	-113.67	-122.04
7800	-97.95	-108.22	-113.33	-122.36
8000	-97.51	-108.20	-113.87	-120.86
8200	-97.92	-107.66	-112.98	-119.87
8400	-96.68	-107.88	-113.13	-119.66
8600	-96.77	-107.67	-112.67	-121.28
8800	-97.60	-107.23	-112.55	-120.14
9000	-96.86	-106.73	-111.84	-120.07

Freq. (MHz)	Power (dBM) Max
10	23.28
50	23.83
100	23.71
200	23.56
400	22.83
600	23.23
800	22.28
1000	22.51
1200	22.66
1400	21.49
1600	21.60
1800	21.79
2000	22.78
2200	22.74
2400	22.72
2600	22.61
2800	22.43
3000	22.38
3250	22.26
3500	22.23
3750	22.13
4000	22.22
4250	22.11
4500	21.97
4750	21.67
5000	21.75
5200	21.71
5400	21.64
5600	21.65
5800	21.63
6000	21.57
6200	21.51
6400	21.58
6600	21.52
6800	21.43
7000	21.47
7200	21.58
7400	21.40
7600	21.61
7800	21.36
8000	21.43
8200	21.37
8400	21.23
8600	21.14
8800	20.99
9000	20.80

Signal Generator

SSG-9GD-RC

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 25°C.

Freq. Offsets (kHz)	Phase Noise vs. Offset Frequency (dBc / Hz)				
	1000 MHz	3000 MHz	5000 MHz	7000 MHz	9000 MHz
1	-115.76	-106.38	-101.95	-98.08	-96.86
10	-126.13	-116.64	-112.21	-109.47	-106.73
100	-130.80	-122.52	-117.12	-114.16	-111.84
1000	-138.07	-125.05	-125.42	-118.20	-120.07

Freq. (MHz)	Spurious (dBc)	
	Far	Near
10	-68.92	-79.02
50	-66.91	-79.61
100	-65.75	-80.07
200	-69.18	-79.75
400	-65.27	-80.03
600	-67.39	-78.52
800	-63.41	-79.29
1000	-68.76	-79.59
1200	-64.09	-77.85
1400	-68.75	-77.34
1600	-65.61	-76.32
1800	-67.60	-77.12
2000	-66.23	-76.36
2200	-65.89	-81.40
2400	-65.98	-79.20
2600	-65.20	-78.13
2800	-65.36	-78.62
3000	-65.06	-76.07
3250	-64.23	-71.74
3500	-67.33	-69.36
3750	-65.14	-71.11
4000	-67.46	-70.76
4250	-66.89	-71.55
4500	-67.95	-66.85
4750	-65.73	-71.55
5000	-66.52	-72.85
5200	-65.10	-65.20
5400	-65.06	-68.75
5600	-65.79	-72.19
5800	-65.86	-74.68
6000	-65.17	-64.53
6200	-65.14	-68.29
6400	-66.65	-77.02
6600	-67.02	-67.73
6800	-65.51	-73.74
7000	-66.36	-71.09
7200	-66.57	-67.42
7400	-67.12	-59.87
7600	-66.13	-62.06
7800	-67.28	-63.82
8000	-64.79	-72.16
8200	-64.63	-71.54
8400	-66.73	-67.37
8600	-66.54	-67.50
8800	-65.42	-66.35
9000	-65.37	-64.26

Note: Spurious was measured in Close offsets of 1 kHz to 100 kHz and Far offsets of 100 kHz to 150 MHz.

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 50°C.

Freq. (MHz)	Power deviation from nominal vs. Output Frequency (dB)									
	-50 dBm	-45 dBm	-40 dBm	-30 dBm	-20 dBm	-10 dBm	0 dBm	+10 dBm	+15 dBm	+20 dBm
10	-0.48	-0.21	-0.16	-0.11	-0.08	-0.02	0.24	0.20	0.46	0.15
50	-0.31	-0.03	-0.11	-0.05	-0.03	-0.12	0.36	0.31	0.30	0.07
100	-0.25	-0.16	-0.13	-0.09	-0.06	-0.02	0.16	0.15	0.24	0.11
200	-0.25	-0.31	-0.22	-0.13	-0.09	-0.03	-0.04	0.08	0.21	0.10
400	-0.09	0.03	0.01	0.09	0.15	0.40	0.07	0.21	0.31	0.26
600	-0.23	-0.14	-0.11	0.00	0.09	0.26	0.01	0.14	0.22	0.23
800	-0.43	-0.38	-0.33	-0.19	-0.16	0.03	-0.18	0.02	0.13	0.01
1000	-0.32	-0.22	-0.20	-0.07	-0.04	0.17	-0.10	0.12	0.24	0.13
1200	-0.28	-0.26	-0.25	-0.16	-0.07	0.29	-0.12	-0.05	0.00	0.03
1400	-0.20	-0.15	-0.10	0.01	0.07	0.05	-0.03	0.13	0.18	0.09
1600	-0.21	-0.18	-0.15	-0.11	0.03	0.03	-0.13	0.04	0.14	0.07
1800	-0.25	-0.23	-0.20	-0.10	0.00	0.05	-0.10	0.04	0.15	0.09
2000	-0.29	-0.26	-0.22	-0.05	-0.01	0.08	-0.11	0.00	0.04	0.03
2200	-0.30	-0.29	-0.27	-0.10	-0.09	0.02	-0.14	-0.08	-0.04	-0.04
2400	-0.21	-0.26	-0.26	-0.10	-0.09	0.05	-0.14	-0.09	-0.04	-0.01
2600	-0.24	-0.27	-0.22	-0.08	-0.06	0.07	-0.16	-0.06	-0.03	0.00
2800	-0.21	-0.19	-0.20	-0.09	-0.07	0.03	-0.21	-0.14	-0.08	-0.06
3000	-0.27	-0.26	-0.21	-0.08	-0.09	0.03	-0.15	-0.12	0.03	0.02
3250	-0.22	-0.18	-0.15	-0.05	0.00	0.05	-0.15	-0.10	0.04	-0.01
3500	-0.32	-0.27	-0.25	-0.14	-0.11	0.03	-0.29	-0.23	-0.04	-0.05
3750	-0.07	-0.04	0.00	0.09	0.13	0.17	-0.16	-0.02	0.13	0.06
4000	-0.25	-0.25	-0.22	-0.07	-0.04	0.02	-0.11	-0.02	0.08	0.03
4250	-0.31	-0.26	-0.22	-0.10	-0.10	-0.05	-0.23	-0.07	0.00	-0.04
4500	-0.27	-0.27	-0.20	-0.08	-0.08	-0.06	-0.09	-0.01	0.04	-0.04
4750	-0.33	-0.35	-0.31	-0.21	-0.21	-0.10	-0.34	-0.21	-0.14	-0.14
5000	-0.25	-0.23	-0.18	-0.09	-0.04	0.05	-0.15	0.02	-0.01	0.05
5200	-0.30	-0.26	-0.23	-0.17	-0.10	-0.04	-0.26	-0.10	-0.03	0.02
5400	-0.20	-0.20	-0.19	-0.07	-0.02	-0.01	-0.19	-0.18	-0.03	0.00
5600	-0.22	-0.19	-0.19	-0.04	0.04	0.10	-0.17	-0.11	0.10	0.05
5800	-0.33	-0.36	-0.30	-0.25	-0.10	-0.15	-0.11	-0.01	0.09	0.13
6000	-0.33	-0.34	-0.27	-0.12	-0.03	-0.06	-0.21	-0.06	-0.04	0.04
6200	-0.11	-0.07	-0.03	0.12	0.24	0.05	-0.05	0.04	0.01	0.06
6400	-0.31	-0.29	-0.23	-0.16	-0.07	0.00	-0.09	-0.03	0.04	0.10
6600	-0.41	-0.36	-0.32	-0.13	-0.05	-0.06	-0.17	-0.12	0.00	0.05
6800	-0.11	-0.10	-0.11	-0.07	0.03	0.04	-0.08	-0.09	0.06	0.01
7000	-0.22	-0.29	-0.24	-0.10	-0.03	0.03	-0.12	-0.11	0.06	0.06
7200	-0.27	-0.25	-0.21	-0.23	-0.14	0.06	-0.06	-0.03	0.11	0.13
7400	-0.26	-0.22	-0.21	-0.01	0.05	-0.13	-0.22	-0.16	-0.06	0.02
7600	-0.46	-0.39	-0.36	-0.24	-0.16	-0.06	-0.12	-0.05	0.04	0.08
7800	-0.17	-0.18	-0.13	-0.15	-0.04	-0.09	-0.20	-0.10	-0.13	-0.04
8000	-0.40	-0.34	-0.33	-0.20	-0.02	-0.04	-0.10	-0.03	-0.02	0.04
8200	-0.07	-0.14	-0.19	-0.12	-0.01	-0.13	-0.21	-0.08	-0.05	0.06
8400	-0.07	-0.10	-0.08	-0.04	0.13	0.01	-0.11	-0.01	0.03	0.07
8600	-0.19	-0.15	-0.07	0.05	0.24	0.05	-0.02	0.06	0.17	0.14
8800	-0.40	-0.37	-0.28	-0.12	0.03	-0.11	-0.17	-0.13	-0.06	0.04
9000	-0.34	-0.32	-0.32	-0.16	-0.10	-0.21	-0.25	-0.23	-0.11	0.03

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 50°C.

Power (dBm)	Power deviation from nominal vs. Output Power (dB)									
	500 MHz	1000 MHz	2000 MHz	3000 MHz	4000 MHz	5000 MHz	6000 MHz	7000 MHz	8000 MHz	9000 MHz
-50	0.16	-0.26	-0.23	-0.31	-0.17	-0.28	-0.31	-0.17	-0.48	-0.43
-49	0.19	-0.25	-0.22	-0.30	-0.17	-0.27	-0.32	-0.18	-0.46	-0.42
-48	0.22	-0.23	-0.21	-0.30	-0.17	-0.26	-0.32	-0.19	-0.45	-0.42
-47	0.25	-0.21	-0.20	-0.29	-0.17	-0.25	-0.33	-0.21	-0.43	-0.41
-46	0.28	-0.19	-0.19	-0.29	-0.17	-0.24	-0.33	-0.22	-0.41	-0.41
-45	0.31	-0.17	-0.18	-0.28	-0.17	-0.23	-0.34	-0.23	-0.40	-0.41
-44	0.30	-0.17	-0.18	-0.27	-0.17	-0.22	-0.33	-0.22	-0.39	-0.39
-43	0.30	-0.16	-0.18	-0.26	-0.16	-0.21	-0.32	-0.20	-0.38	-0.38
-42	0.29	-0.16	-0.17	-0.25	-0.15	-0.20	-0.30	-0.19	-0.37	-0.37
-41	0.28	-0.15	-0.17	-0.24	-0.14	-0.19	-0.29	-0.18	-0.35	-0.35
-40	0.27	-0.15	-0.16	-0.23	-0.14	-0.18	-0.28	-0.16	-0.34	-0.34
-38	0.28	-0.12	-0.13	-0.20	-0.11	-0.19	-0.25	-0.16	-0.32	-0.31
-36	0.29	-0.10	-0.09	-0.17	-0.08	-0.19	-0.23	-0.16	-0.30	-0.29
-34	0.31	-0.08	-0.06	-0.15	-0.05	-0.17	-0.20	-0.14	-0.27	-0.27
-32	0.32	-0.07	-0.04	-0.12	-0.02	-0.11	-0.18	-0.09	-0.25	-0.25
-30	0.34	-0.05	-0.02	-0.10	0.01	-0.05	-0.16	-0.05	-0.22	-0.24
-28	0.36	-0.06	0.00	-0.08	0.03	-0.04	-0.15	-0.04	-0.22	-0.22
-26	0.39	-0.06	0.01	-0.07	0.05	-0.03	-0.13	-0.03	-0.22	-0.20
-24	0.41	-0.06	0.02	-0.07	0.06	-0.03	-0.12	-0.02	-0.18	-0.18
-22	0.41	-0.04	0.02	-0.08	0.06	-0.03	-0.09	-0.01	-0.10	-0.16
-20	0.42	-0.03	0.02	-0.08	0.05	-0.03	-0.07	0.00	-0.03	-0.14
-18	0.44	0.00	0.04	-0.07	0.07	0.00	-0.02	0.06	-0.03	-0.15
-16	0.46	0.04	0.06	-0.05	0.08	0.03	0.04	0.11	-0.02	-0.16
-14	0.55	0.08	0.08	-0.02	0.09	0.04	0.05	0.12	-0.02	-0.19
-12	0.70	0.13	0.11	0.02	0.10	0.05	0.01	0.08	-0.01	-0.24
-10	0.86	0.19	0.13	0.06	0.11	0.05	-0.03	0.03	0.00	-0.29
-8	0.68	0.19	0.10	-0.01	0.07	-0.04	-0.09	-0.01	-0.01	-0.31
-6	0.50	0.18	0.08	-0.07	0.02	-0.13	-0.14	-0.05	-0.03	-0.33
-4	0.40	0.13	0.04	-0.11	-0.01	-0.17	-0.17	-0.08	-0.04	-0.33
-2	0.37	0.03	-0.01	-0.11	-0.03	-0.18	-0.18	-0.09	-0.05	-0.33
0	0.34	-0.07	-0.06	-0.11	-0.05	-0.19	-0.18	-0.10	-0.06	-0.32
+2	0.37	-0.07	-0.05	-0.12	-0.04	-0.18	-0.17	-0.09	-0.06	-0.32
+4	0.39	-0.06	-0.05	-0.12	-0.04	-0.17	-0.17	-0.09	-0.06	-0.32
+6	0.43	-0.02	-0.03	-0.12	-0.02	-0.13	-0.14	-0.09	-0.05	-0.32
+8	0.46	0.07	0.00	-0.11	0.01	-0.08	-0.10	-0.10	-0.02	-0.32
+10	0.50	0.16	0.03	-0.11	0.04	-0.03	-0.05	-0.12	0.01	-0.31
+11	0.52	0.18	0.04	-0.08	0.06	-0.03	-0.04	-0.08	0.01	-0.28
+12	0.54	0.20	0.06	-0.06	0.09	-0.03	-0.03	-0.04	0.00	-0.25
+13	0.56	0.22	0.07	-0.03	0.11	-0.04	-0.02	-0.01	-0.01	-0.22
+14	0.58	0.24	0.08	-0.01	0.13	-0.04	-0.01	0.03	-0.02	-0.19
+15	0.61	0.26	0.09	0.01	0.15	-0.04	0.00	0.06	-0.03	-0.16
+16	0.59	0.24	0.09	0.01	0.14	-0.03	0.01	0.06	-0.02	-0.13
+17	0.58	0.22	0.09	0.01	0.13	-0.01	0.03	0.05	-0.01	-0.11
+18	0.57	0.19	0.08	0.01	0.12	0.00	0.04	0.05	0.00	-0.08
+19	0.56	0.17	0.08	0.01	0.11	0.01	0.05	0.04	0.01	-0.05
+20	0.55	0.15	0.08	0.01	0.10	0.02	0.07	0.04	0.02	-0.02

Signal Generator

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 50°C.

Freq. (MHz)	Harmonics levels vs. Output Frequency (dBc)									
	F2					F3				
	-50 dBm	-40 dBm	-20 dBm	0 dBm	+20 dBm	-50 dBm	-40 dBm	-20 dBm	0 dBm	+20 dBm
10	-40.29	-42.49	-40.33	-3.96	-10.78	-8.61	-8.26	-8.14	-7.58	-12.44
50	-46.34	-54.08	-52.66	-13.00	-18.53	-11.78	-12.24	-11.72	-12.10	-11.72
100	-48.80	-50.45	-49.14	-11.46	-16.86	-11.52	-12.47	-12.07	-12.96	-12.72
200	-40.47	-41.89	-43.84	-11.76	-15.46	-11.12	-12.61	-12.25	-14.12	-14.00
400	-36.41	-37.60	-36.23	-20.03	-15.23	-8.42	-10.21	-11.35	-10.88	-12.49
600	-29.98	-30.44	-32.81	-23.13	-15.69	-10.56	-11.35	-12.76	-10.51	-13.44
800	-25.84	-26.38	-27.66	-17.27	-13.23	-9.64	-9.99	-11.45	-9.06	-11.94
1000	-24.86	-23.71	-24.30	-17.53	-13.51	-10.33	-10.10	-11.19	-9.89	-12.02
1200	-23.55	-22.11	-21.18	-20.25	-14.84	-11.50	-10.33	-9.59	-13.57	-11.60
1400	-8.71	-7.93	-6.93	-7.39	-7.98	-17.07	-17.07	-16.64	-22.89	-20.70
1600	-7.34	-7.43	-7.25	-9.73	-8.68	-16.47	-16.89	-17.02	-26.29	-19.36
1800	-7.02	-7.38	-7.50	-12.34	-9.65	-15.72	-17.07	-17.99	-20.76	-17.44
2000	-12.94	-13.80	-14.51	-14.93	-17.09	-10.48	-11.77	-12.60	-14.91	-12.09
2200	-12.84	-13.51	-14.12	-15.87	-17.41	-13.26	-13.52	-14.26	-15.65	-12.40
2400	-13.70	-13.85	-14.55	-17.99	-17.43	-12.25	-14.13	-15.74	-15.95	-12.76
2600	-13.50	-14.17	-15.42	-21.82	-16.56	-16.42	-16.59	-17.07	-15.61	-13.29
2800	-13.65	-14.65	-15.75	-24.69	-15.65	-15.03	-17.00	-18.61	-15.74	-13.60
3000	-14.00	-15.08	-16.21	-23.27	-15.07	-19.66	-20.38	-21.29	-16.23	-13.81
3250	-15.55	-15.79	-16.60	-22.96	-15.12	-24.34	-24.61	-26.09	-17.97	-13.94
3500	-12.69	-14.71	-16.45	-22.86	-15.55	-27.23	-28.42	-29.77	-19.13	-14.08
3750	-14.71	-14.97	-15.99	-19.70	-17.34	-26.18	-28.62	-31.26	-19.73	-13.34
4000	-19.31	-16.52	-15.69	-17.34	-18.37	-28.09	-31.29	-33.61	-22.76	-13.59
4250	-10.76	-13.45	-15.55	-18.24	-18.64	-38.41	-33.02	-35.52	-23.86	-13.35
4500	-15.74	-15.71	-16.41	-21.59	-18.66	-27.28	-29.85	-32.94	-22.45	-12.93
4750	-11.82	-14.81	-16.82	-26.50	-17.45	-22.51	-25.58	-28.06	-19.44	-12.53
5000	-17.58	-18.57	-20.18	-22.82	-17.01	-27.95	-26.92	-29.19	-23.52	-13.89
5200	-16.73	-16.98	-18.18	-22.35	-17.53	-25.57	-27.08	-27.74	-22.10	-13.56
5400	-20.72	-17.43	-17.41	-21.44	-18.38	-29.37	-28.32	-27.98	-23.00	-14.05
5600	-14.76	-15.68	-16.93	-21.16	-18.87	-23.35	-24.50	-22.93	-24.22	-14.03
5800	-12.50	-15.49	-17.46	-20.64	-18.72	-38.14	-41.14	-34.97	-25.26	-13.91
6000	-11.96	-16.64	-19.28	-20.96	-19.03	-30.14	-34.68	-35.44	-25.81	-14.10
6200	-22.55	-21.24	-21.11	-21.71	-19.62	-36.94	-38.57	-34.59	-26.77	-14.29
6400	-23.71	-21.37	-21.69	-21.76	-18.15	-40.63	-41.90	-37.35	-28.30	-15.32
6600	-21.69	-21.77	-22.55	-22.02	-17.30	-36.13	-38.31	-41.56	-29.10	-16.49
6800	-18.66	-19.82	-21.06	-20.71	-16.83	-43.99	-41.78	-44.55	-28.72	-16.55
7000	-13.54	-16.57	-18.73	-19.74	-15.85	-44.50	-36.30	-46.34	-29.23	-17.20
7200	-14.41	-16.90	-17.98	-19.50	-15.87	-38.03	-35.99	-46.90	-29.57	-18.26
7400	-20.45	-20.31	-19.85	-22.49	-16.18	-45.26	-39.59	-49.09	-30.52	-18.54
7600	-16.50	-17.51	-17.46	-23.31	-15.41	-34.35	-34.04	-49.93	-30.42	-18.66
7800	-13.81	-15.51	-15.71	-23.25	-15.00	-31.24	-32.88	-45.97	-31.55	-18.54
8000	-16.60	-17.39	-15.86	-23.57	-15.53	-48.43	-36.18	-49.08	-33.19	-19.72
8200	-18.91	-16.35	-13.88	-23.73	-15.35	-45.84	-40.01	-52.49	-32.98	-20.01
8400	-11.16	-10.22	-7.76	-24.67	-15.66	-38.46	-35.52	-55.21	-34.67	-19.44
8600	-22.50	-20.54	-17.27	-26.73	-16.13	-40.18	-41.60	-56.33	-37.40	-18.85
8800	-22.01	-22.57	-21.59	-27.72	-15.96	--	--	--	--	--
9000	-14.68	-20.46	-19.98	-30.23	-16.96	--	--	--	--	--

Signal Generator

SSG-9GD-RC

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 50°C.

Freq. (MHz)	Phase Noise vs. Output Frequency (dBc / Hz)			
	1 kHz	10 kHz	100 kHz	1 MHz
10	-120.91	-130.03	-133.31	-134.65
50	-126.28	-135.26	-137.08	-137.50
100	-127.11	-135.04	-137.21	-137.54
200	-127.28	-134.38	-137.16	-138.81
400	-121.99	-132.17	-136.47	-140.98
600	-120.16	-129.25	-134.03	-138.90
800	-117.90	-127.39	-132.62	-137.61
1000	-115.37	-125.57	-130.43	-138.26
1200	-113.84	-124.32	-129.51	-136.70
1400	-114.66	-123.53	-127.89	-134.15
1600	-111.92	-121.96	-126.95	-135.19
1800	-109.87	-121.41	-126.14	-133.85
2000	-110.51	-120.46	-125.00	-132.95
2200	-108.23	-119.52	-124.05	-131.26
2400	-109.41	-118.55	-123.49	-131.38
2600	-107.53	-118.12	-122.65	-130.12
2800	-108.46	-117.22	-121.90	-130.88
3000	-106.20	-116.43	-121.53	-128.62
3250	-106.88	-116.08	-121.18	-124.93
3500	-105.25	-115.31	-120.64	-125.04
3750	-106.01	-113.97	-119.46	-123.81
4000	-104.37	-113.99	-119.18	-127.28
4250	-104.72	-113.00	-118.16	-124.36
4500	-102.80	-112.83	-117.75	-126.81
4750	-104.27	-112.45	-117.40	-124.43
5000	-101.74	-112.46	-116.29	-126.45
5200	-101.78	-112.01	-116.17	-123.82
5400	-101.80	-111.27	-116.61	-125.40
5600	-101.19	-111.59	-116.05	-124.57
5800	-100.74	-110.71	-115.86	-123.23
6000	-101.46	-110.82	-115.87	-120.53
6200	-100.01	-110.55	-115.30	-119.15
6400	-100.14	-110.14	-115.48	-118.51
6600	-99.03	-109.41	-114.81	-120.26
6800	-99.77	-109.71	-114.42	-119.14
7000	-98.37	-109.12	-113.74	-120.35
7200	-100.29	-108.93	-113.76	-118.77
7400	-99.05	-109.08	-114.43	-118.33
7600	-97.09	-108.56	-113.66	-122.54
7800	-97.91	-108.27	-113.57	-121.82
8000	-97.36	-107.99	-113.78	-121.77
8200	-98.07	-107.89	-112.33	-120.22
8400	-97.70	-107.40	-112.63	-120.13
8600	-98.63	-107.07	-112.56	-120.71
8800	-97.46	-106.58	-111.88	-121.24
9000	-97.54	-106.42	-111.92	-120.91

Freq. (MHz)	Power (dBM) Max
10	23.07
50	23.77
100	23.65
200	23.49
400	22.77
600	23.16
800	22.20
1000	22.43
1200	22.57
1400	21.45
1600	21.54
1800	21.74
2000	22.70
2200	22.66
2400	22.65
2600	22.55
2800	22.37
3000	22.31
3250	22.18
3500	22.16
3750	22.03
4000	22.12
4250	21.98
4500	21.88
4750	21.59
5000	21.65
5200	21.62
5400	21.56
5600	21.57
5800	21.54
6000	21.49
6200	21.43
6400	21.48
6600	21.44
6800	21.35
7000	21.37
7200	21.49
7400	21.29
7600	21.50
7800	21.26
8000	21.31
8200	21.24
8400	21.11
8600	21.02
8800	20.87
9000	20.66

Signal Generator

SSG-9GD-RC

Typical Performance Data

Test Conditions: Channel 1 @ Temperature = 50°C.

Freq. Offsets (kHz)	Phase Noise vs. Offset Frequency (dBc / Hz)				
	1000 MHz	3000 MHz	5000 MHz	7000 MHz	9000 MHz
1	-115.37	-106.20	-101.74	-98.37	-97.54
10	-125.57	-116.43	-112.46	-109.12	-106.42
100	-130.43	-121.53	-116.29	-113.74	-111.92
1000	-138.26	-128.62	-126.45	-120.35	-120.91

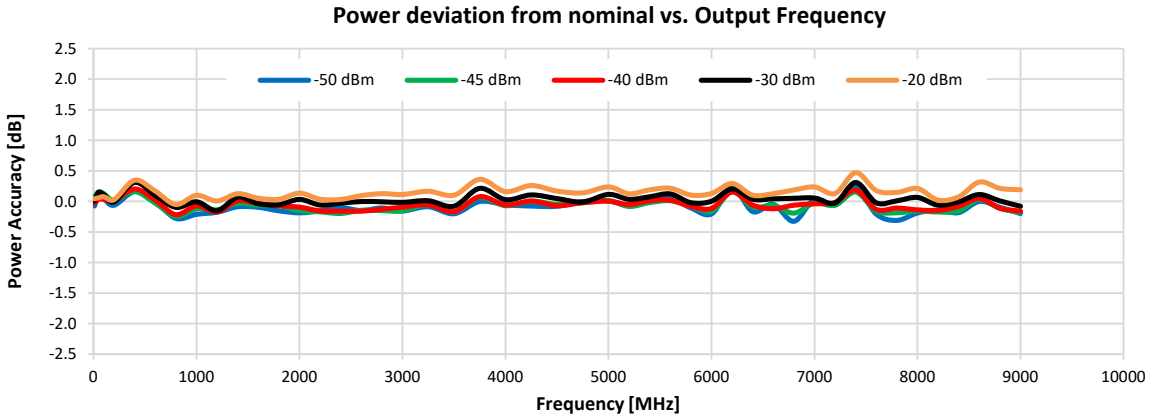
Freq. (MHz)	Spurious (dBc)	
	Far	Near
10	-70.13	-78.66
50	-69.73	-80.22
100	-69.84	-79.69
200	-69.31	-79.42
400	-68.65	-78.49
600	-68.58	-77.99
800	-67.41	-76.94
1000	-67.77	-79.36
1200	-67.48	-78.85
1400	-67.67	-78.40
1600	-67.32	-78.01
1800	-66.97	-77.85
2000	-65.96	-77.41
2200	-65.46	-77.86
2400	-66.21	-75.92
2600	-65.05	-76.98
2800	-65.37	-77.52
3000	-65.11	-77.00
3250	-65.21	-73.27
3500	-65.06	-73.50
3750	-64.89	-70.82
4000	-65.07	-71.59
4250	-65.11	-68.32
4500	-65.83	-71.29
4750	-65.27	-72.96
5000	-65.40	-70.39
5200	-65.63	-68.95
5400	-65.55	-70.54
5600	-65.11	-70.23
5800	-65.03	-66.52
6000	-66.83	-70.17
6200	-65.12	-69.79
6400	-65.50	-69.52
6600	-65.36	-68.68
6800	-65.22	-69.23
7000	-64.87	-67.92
7200	-65.60	-67.61
7400	-65.09	-68.18
7600	-64.83	-69.26
7800	-66.25	-68.77
8000	-65.72	-68.39
8200	-66.04	-68.78
8400	-65.60	-69.11
8600	-66.11	-68.07
8800	-66.03	-66.66
9000	-65.18	-66.91

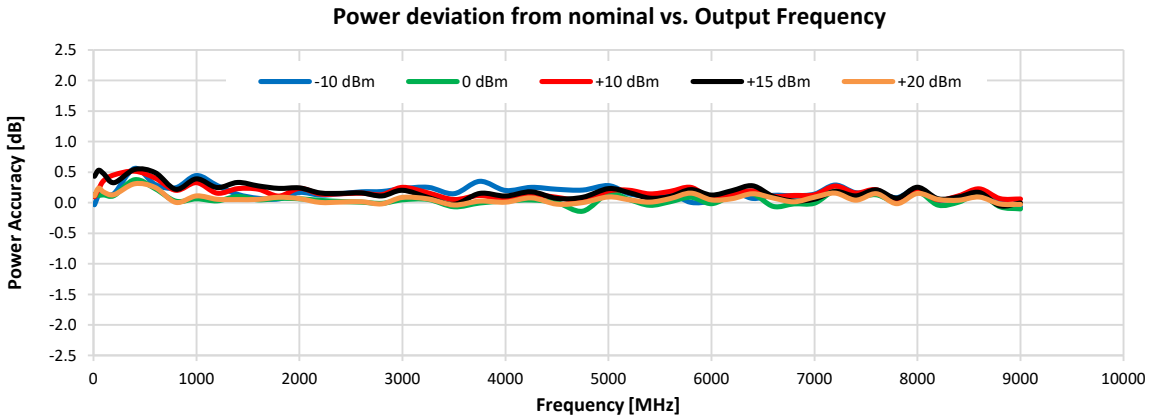
Note: Spurious was measured in Close offsets of 1 kHz to 100 kHz and Far offsets of 100 kHz to 150 MHz.

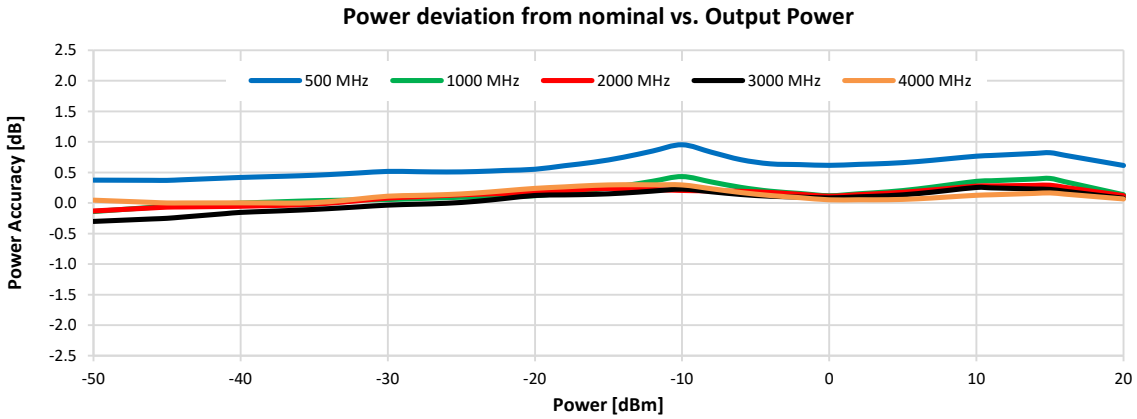
Signal Generator

Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 0°C.

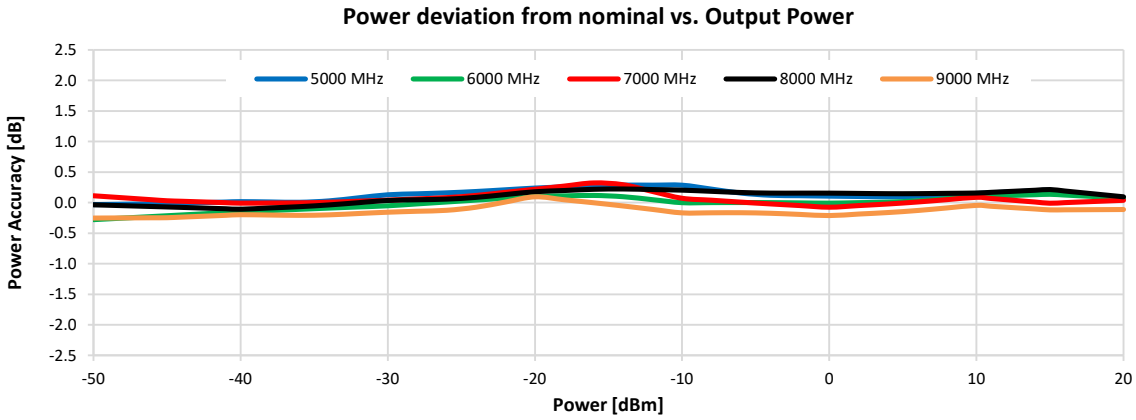


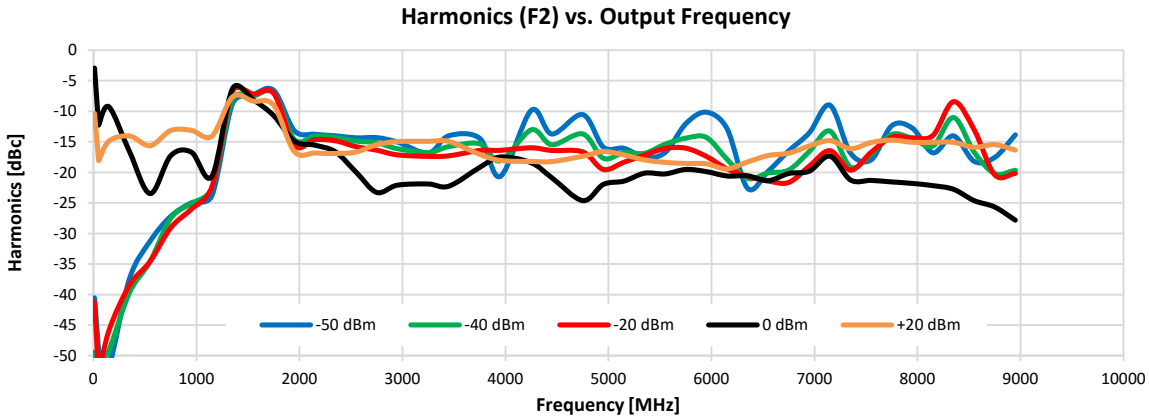


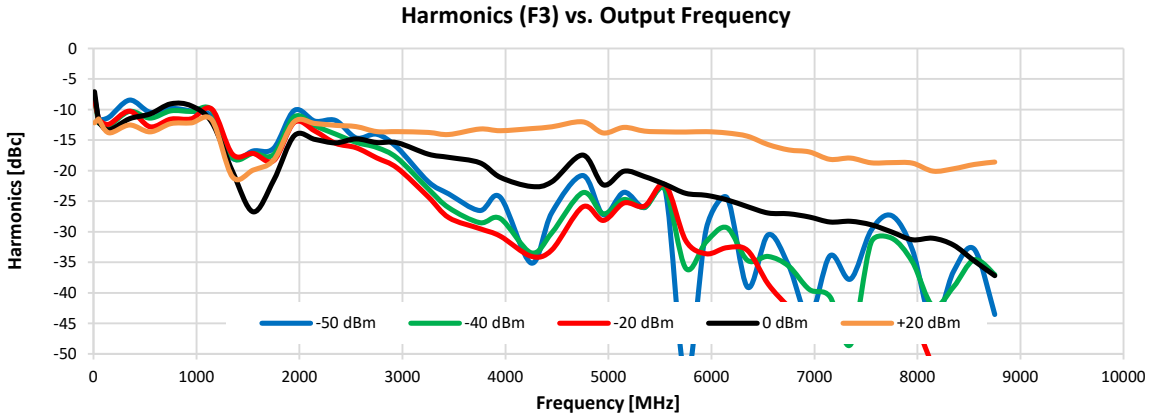


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 0°C.

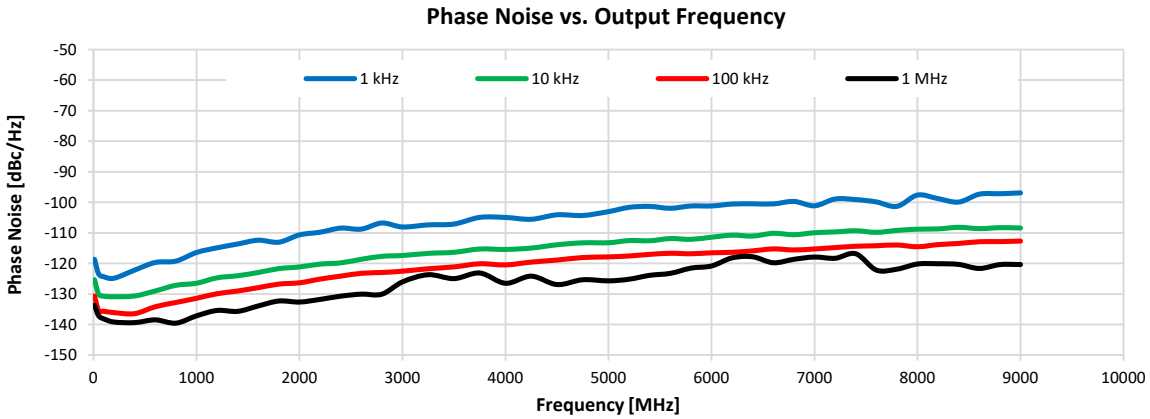


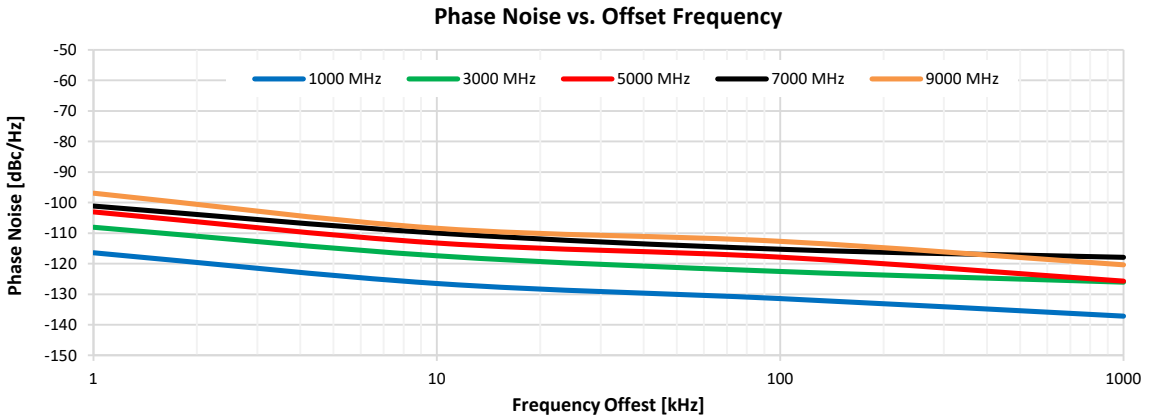


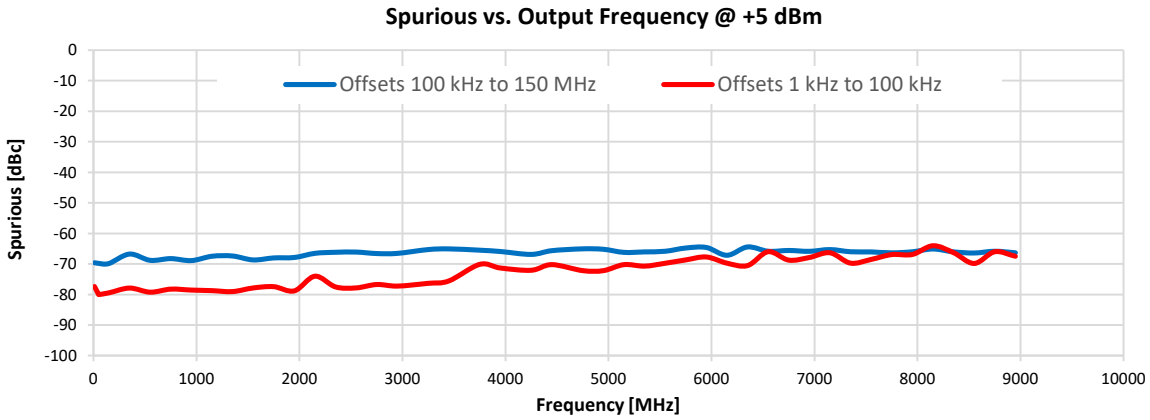


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 0°C.

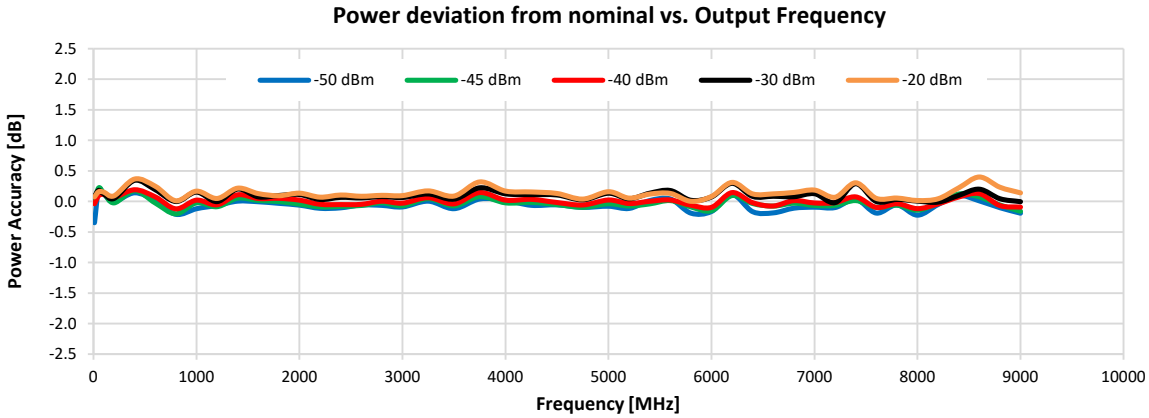


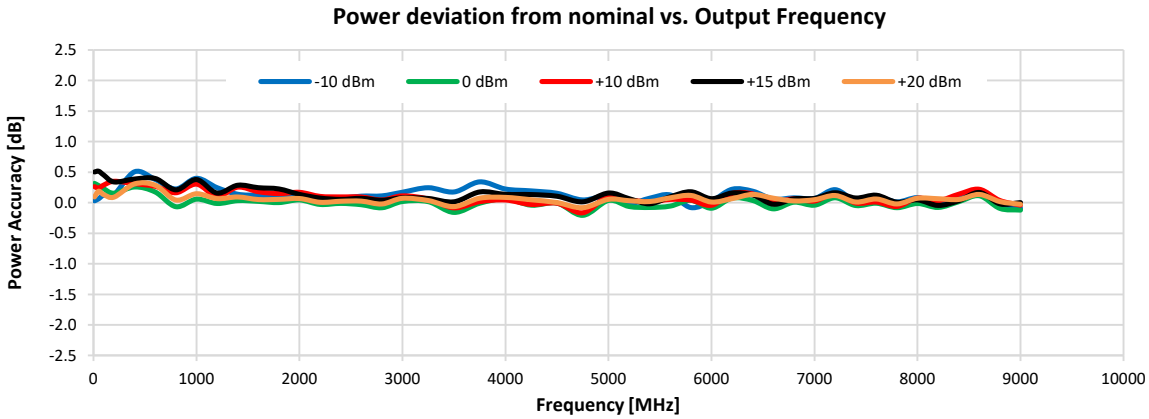


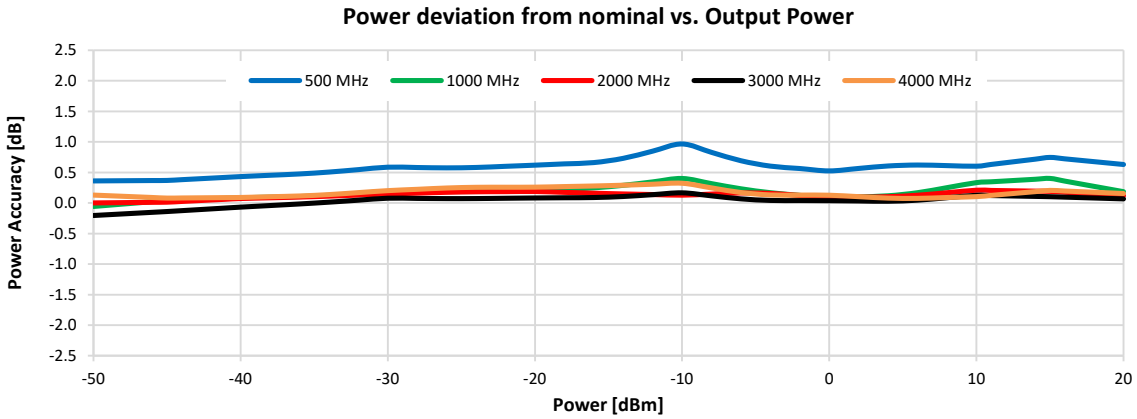


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 25°C.

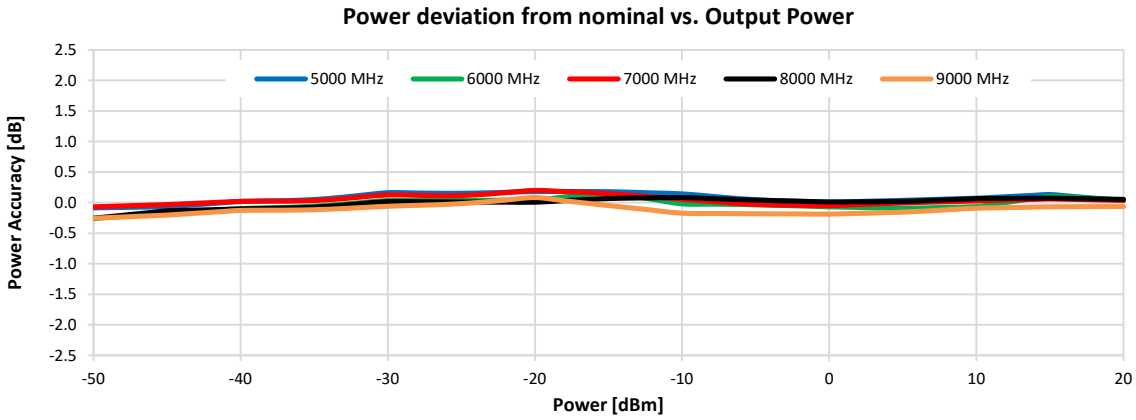


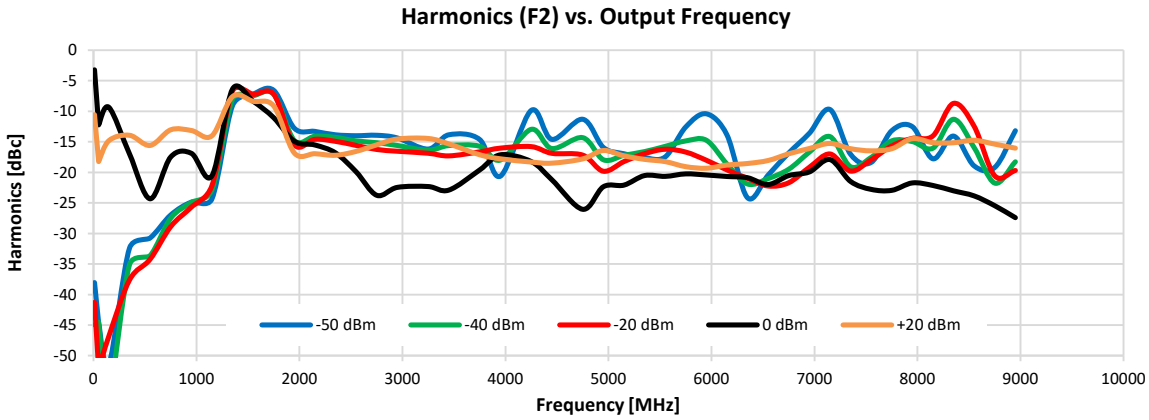


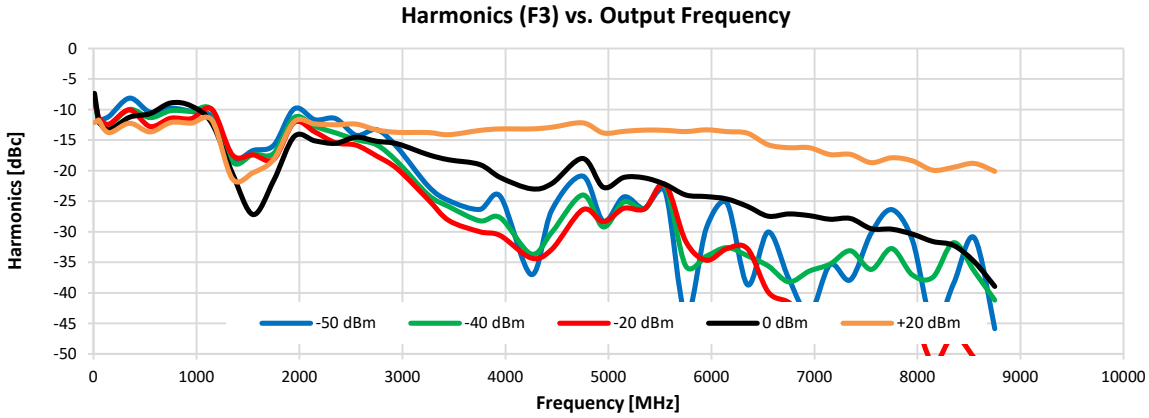


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 25°C.

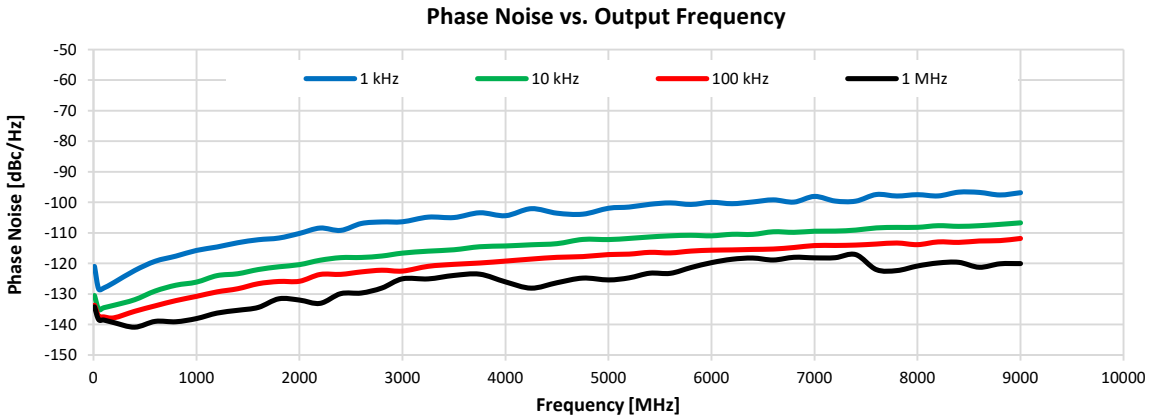


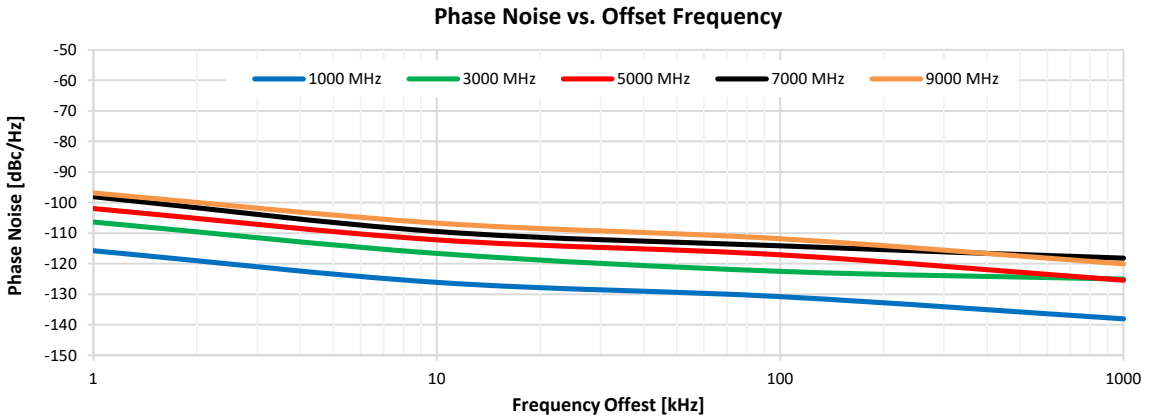


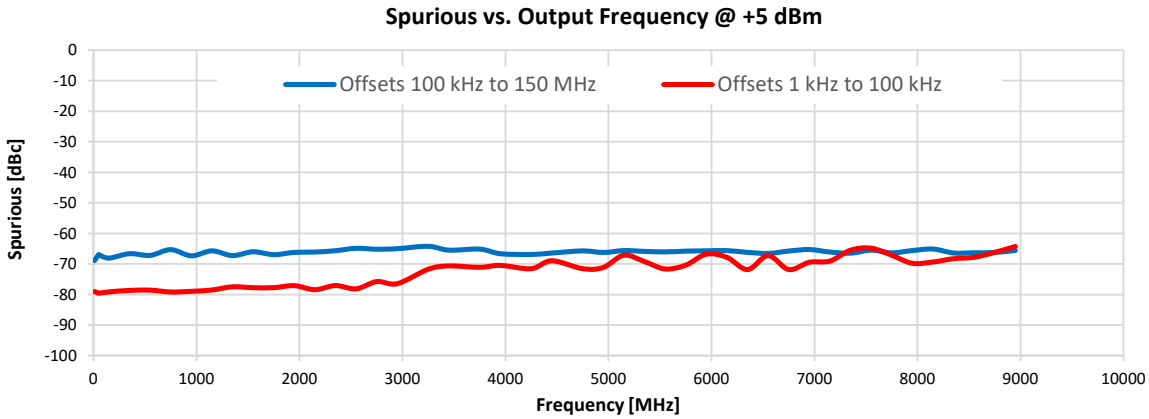


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 25°C.

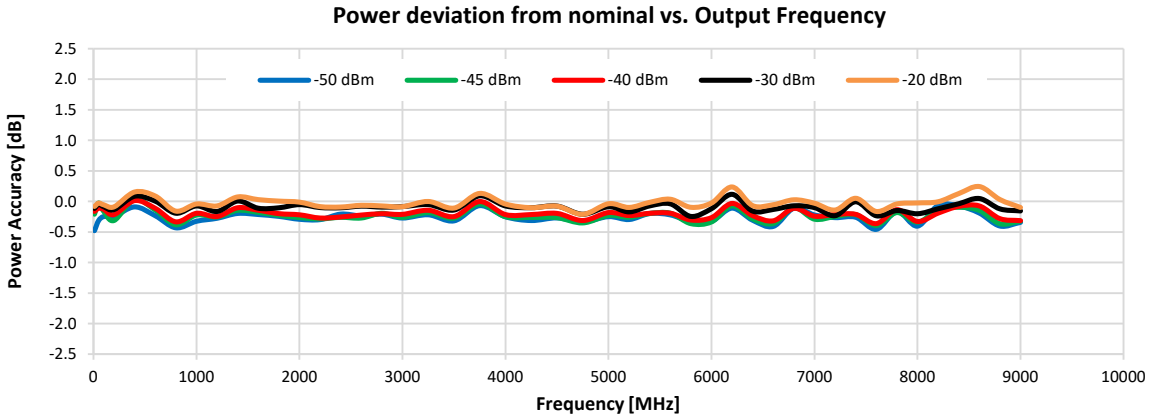


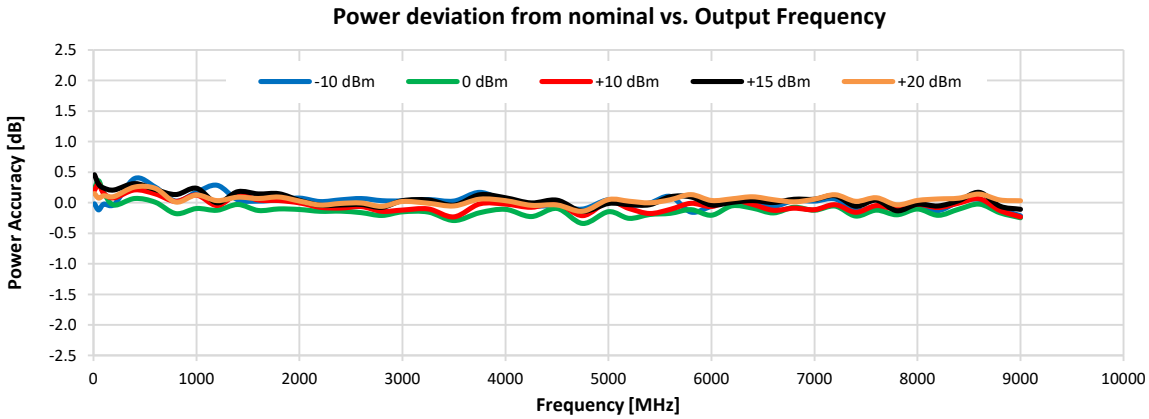


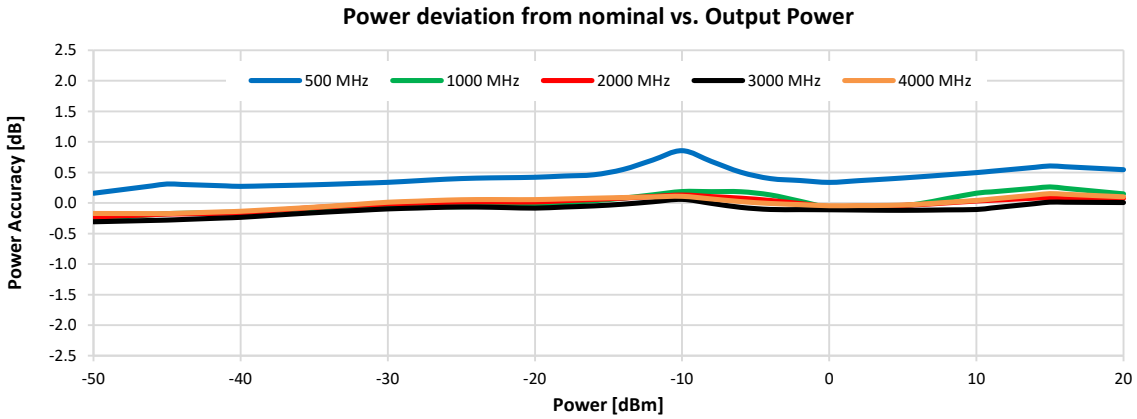


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 50°C.



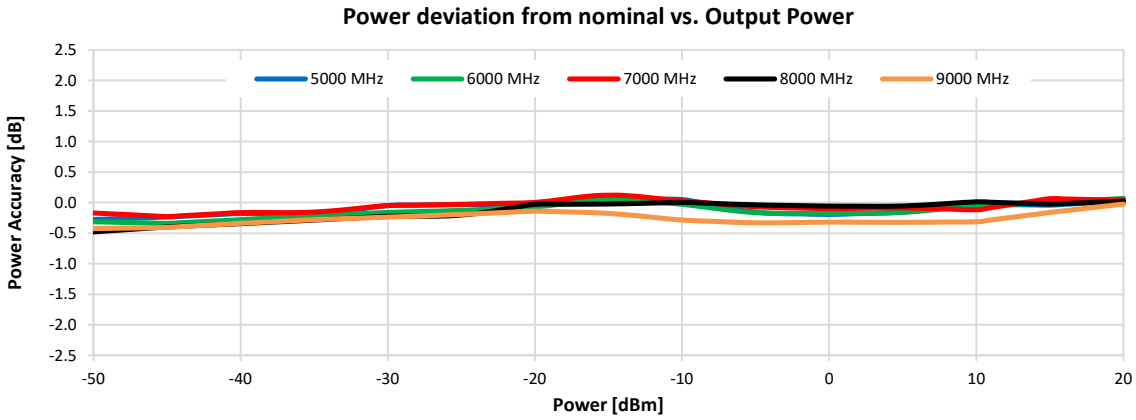


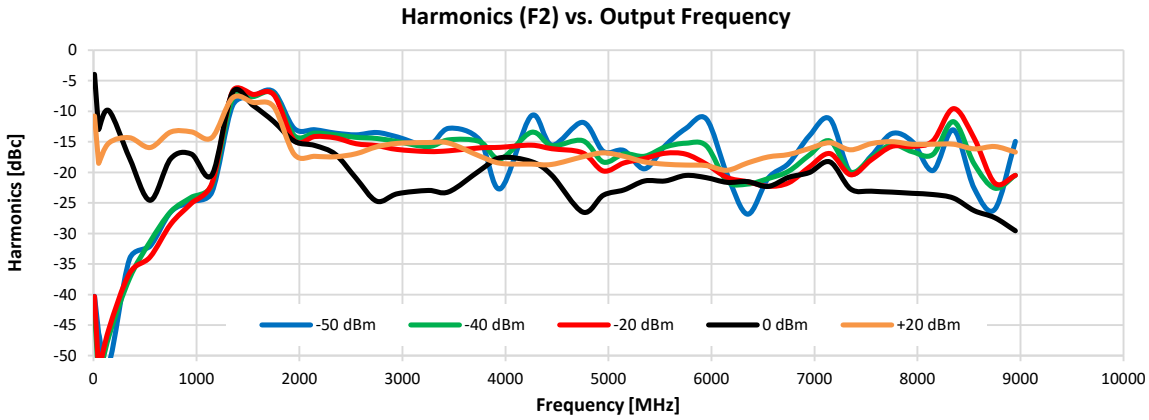


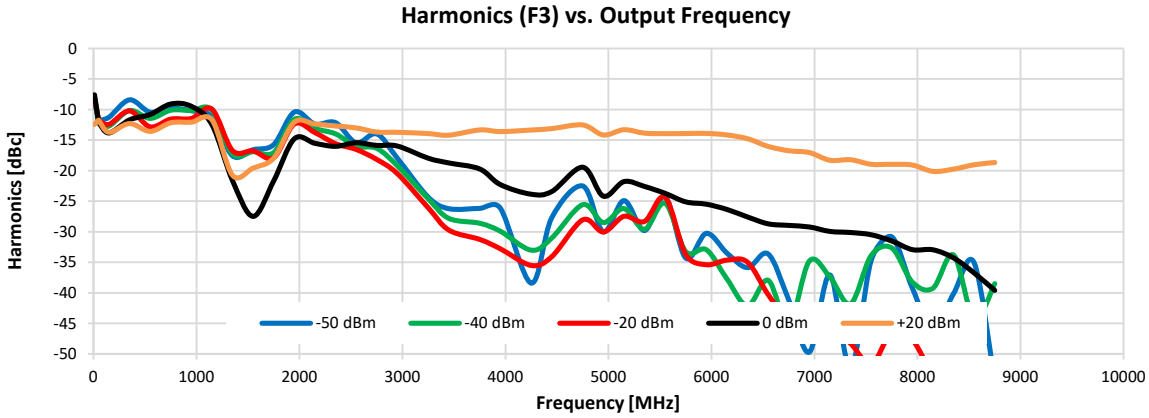
Signal Generator

Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 50°C.

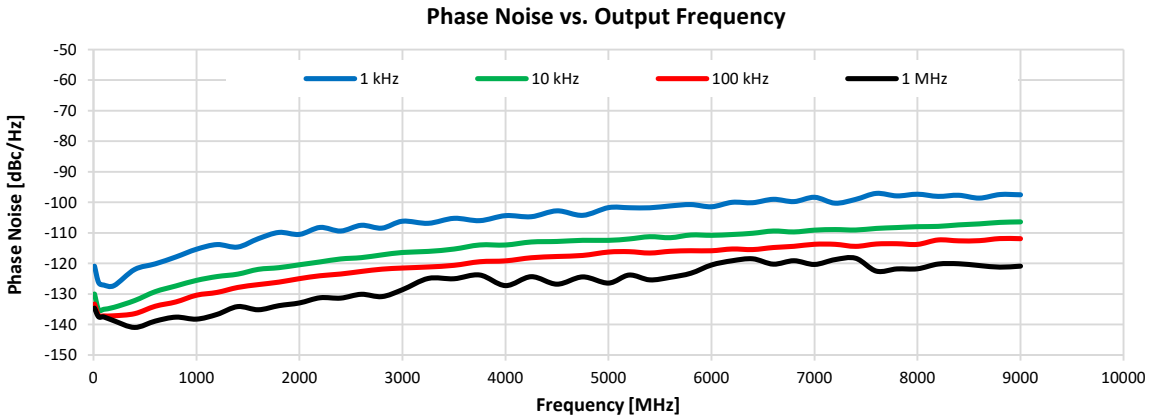


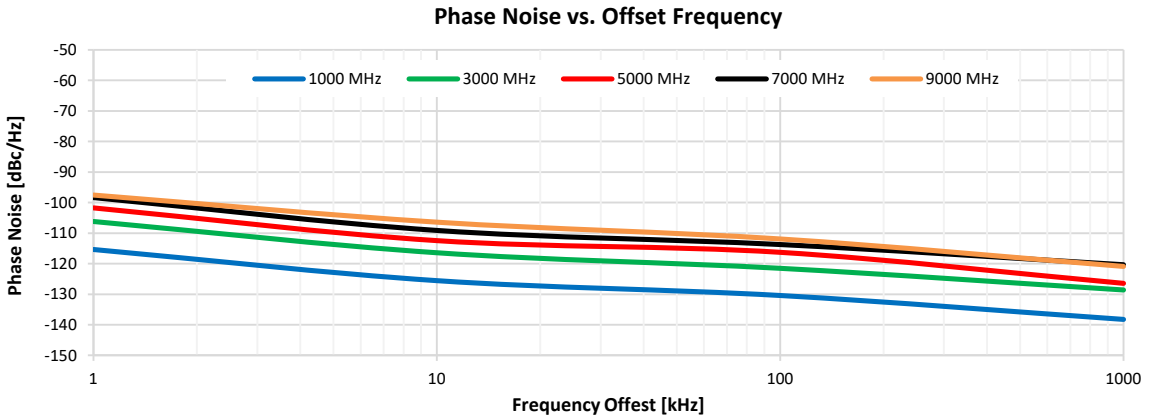


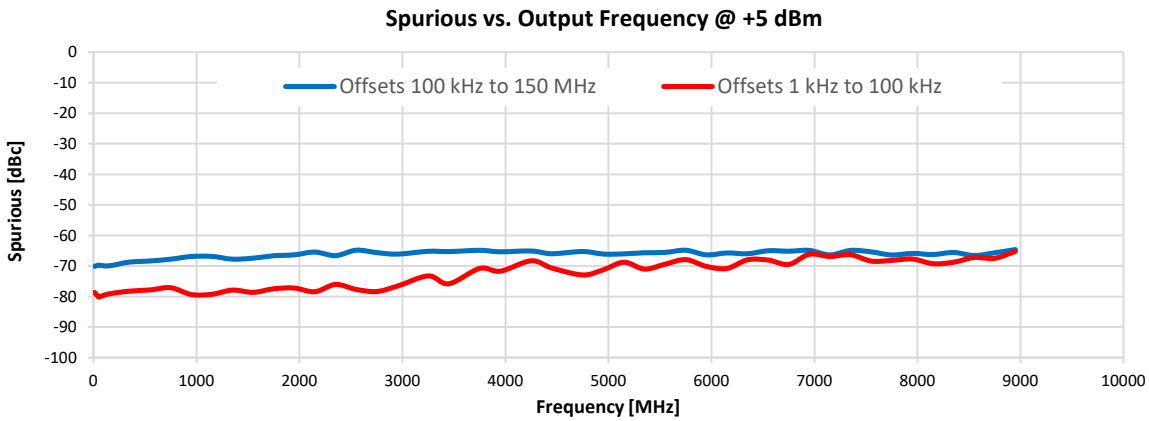


Typical Performance Graphs

Test Conditions: Channel 1 @ Temperature = 50°C.

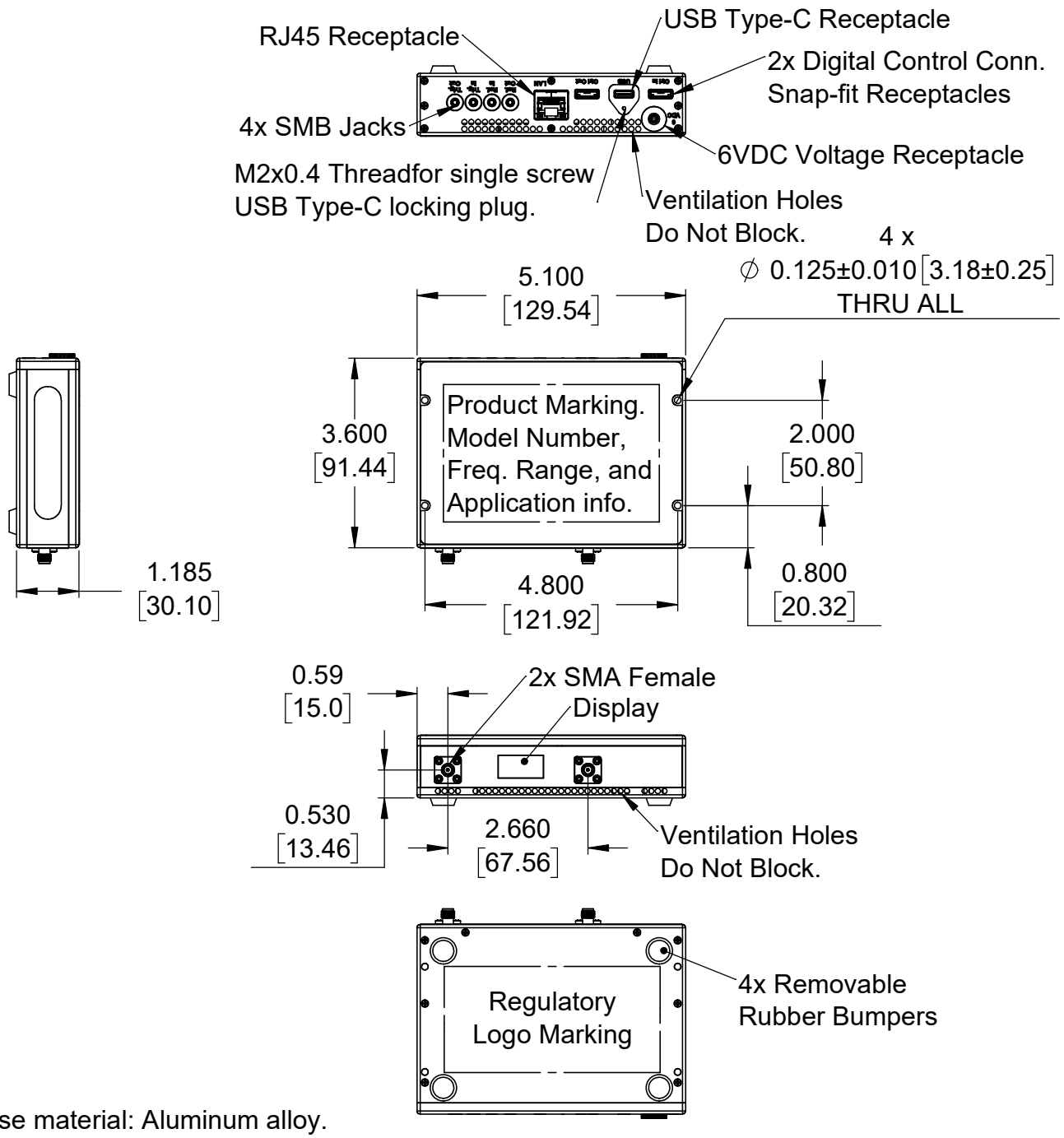






Case Style SL

Outline Dimensions SL3644



NOTES:

1. Case material: Aluminum alloy.
2. Case Finish: Nickel Plate.
3. Dimensions are in inches [mm]. Tolerances 2 Pl. ±.03 inch; 3 Pl. ±.015 inches.
4. Weight: 600 grams
5. Marking may contain other features or characters for internal lot control.

Mini-Circuits

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Environmental Specifications **ENV55**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-0° to 50° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-20° to 60° C Ambient Environment	Individual Model Data Sheet
Operating and Storage Humidity	5% to 85% RH (non-condensing)	Ambient
Bench Handling Test	Bench Top Tip 45° & Drop	MIL-PRF-28800F
Transit Drop Test	Free Fall Drop, 20 cm (7.9 inches)	MIL-PRF-28800F Class 3