



Microwave Signal Generator

OSG5000 Series

- 5 MHz to 12, 24, 40 GHz frequency range with resolution 1 Hz.
- High quality spectral performance, phase noise: -119 dBc / Hz at 10 kHz.
- Extremely high frequency stability, aging rate $< \pm 8 \times 10^{-9}$ / day.
- LAN (100 Base T); RS232 interface.

Model	OSG5012		OSG5024			OSG5040		Test Environment	
Frequency Range	5 MHz ~ 12 GHz		5 MHz ~ 24 GHz			5 MHz ~ 40 GHz			
Resolution	1 Hz								
Frequency Switch Speed	≤ 20 ms (nominal value)								
Internal Time Base	Frequency	10 MHz							
	Accuracy	< ± 0.1 ppm (nominal value)							
	Aging Rate	< ± 8 × 10 ⁻¹⁰ / days or after 30 days < ± 3 × 10 ⁻⁸ / years (nominal value)							
	Output Amplitude	10 dBm (nominal value), 50 Ω load							
	Temperature Effect	< ± 1 × 10 ⁻⁸ , -20 to +70 °C (nominal value)							
External Reference Input	Frequency	10 MHz							
	Amplitude	5 dBm ± 2 dB (nominal value)							
	Impedance	50 Ω (nominal value)							
	Waveform	Sine wave or square wave							
Amplitude switching speed	Use step attenuator ≤ 20 ms (nominal value); No use step attenuator ≤ 2 ms (nominal value)								
Amplitude Range	≤ 2 GHz	-110 ~ +25 dBm			-110 ~ +25 dBm			The technical measured at temperatures 15 °C ~ 35 °C, in the absence of harmonic options.	
	≤ 12 GHz	-110 ~ +20 dBm			-110 ~ +20 dBm				
	≤ 24 GHz				-110 ~ +20 dBm				
	≤ 40 GHz				-110 ~ +15 dBm				
Resolution	0.1 dB (nominal value)								
Absolute Accuracy	≥ -20 dBm	± 0.8 dB (f ≤ 2 GHz); ± 1.3 dB (f ≤ 40 GHz)							
	≥ -75 dBm	± 1 dB (f ≤ 2 GHz); ± 1.5 dB (f ≤ 40 GHz)							
	< 75 dBm	± 2 dB (f ≤ 2 GHz); ± 2.2 dB (f ≤ 40 GHz)							
Standing Wave	≤ 2 GHz	< 1.4							ATT = 10 dB
	≤ 24 GHz	< 1.5							
	≤ 40 GHz	< 1.6							
Phase Noise (SSB) dBc/Hz		100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz	At room temperature; Output power Rate measured at 0 dBm.	
	100 MHz	< -100	-107	-115	-127	-143	-150		
	250 MHz	< -100	-107	-115	-127	-143	-150		
	500 MHz	< -100	-107	-115	-128	-143	-150		
	1 GHz	< -100	-112	-119	-124	-131	-150		
	10 GHz	< -85	-107	-113	-112	-115	-133		
	20 GHz	< -78	-101	-108	-106	-108	-128		
Harmonic		P=10 dBm							
	70 ~ 200 MHz	< -40 dBc							
	0.2 ~ 2 GHz	< -50 dBc							
	2 ~ 20 GHz	< -50 dBc							
Non-harmonic	1 MHz ~ 2 GHz	< -80 dBc							> 1 MHz offset; Non-harmonic related to power supply line; < -60 dBc, measured in the range of 1 MHz to 40 GHz.
	≤ 12 GHz	< -70 dBc							
	≤ 24 GHz	< -65 dBc							
	≤ 40 GHz	< -60 dBc							
Pulse Modulation	Breaking Ratio	> 60 dB (typical value)							
	Minimum Pulse Width	100 ns (typical value)							
	Minimum Period	200 ns (typical value)							
External Pulse Input	Minimum Impedance	DC coupling high impedance							
	Level Logic	3.3 V-CMOS							
Internal Pulse Generator Option GASG	Square Wave Rate	0.1 Hz ~ 5 MHz (nominal value)							
	Pulse Period	20 ns ~ 10 s (rated value)							
	Pulse Width	100 ns ~ 10 s (nominal value)							
	Resolution	20 ns							100 ns ~ 10 s (nominal value)
	Adjustable Trigger Delay	5 ns ~ 10 s							20 ns
	Level Logic	3.3 V-CMOS							
Interface	LAN (100 Base T) , RS232								

Power	198 ~ 242 V (AC); 48 ~ 6.2 Hz; 70 W peak; 60 W mean general feature
Working Temperature	0 ~ 55 °C
Storage Temperature	-40 ~ 70 °C
Working and Storage Altitude	Up to 15,000 feet (or 4,600 m)
Weight	Net weight: ≤ 8 kg
Size	88 mm × 370 mm × 460 mm (H x W x D)

Options

OSG5000-A1	Pulse Modulation (with Internal Pulse Generator)
-------------------	--



RF Signal Generator

OSG25000 Series

- 250 kHz to 3 GHz /4 GHz frequency range with resolution 0.1 Hz.
- Phase Noise: ≤ -115 dBc/Hz and ≤ -105 dBc/Hz.
- $-127 \sim +13$ dBm and $-115 \sim +17$ dBm amplitude output range with 0.01 dB resolution.
- AM / FM, phase and pulse modulation.
- Standard LAN, USB and GPIB interface.

Model		OSG25313	OSG25412	OSG25417	OSG25411
Frequency Features	Frequency Range	250 kHz ~ 3 GHz	250 kHz ~ 4 GHz	250 kHz ~ 4 GHz	250 kHz ~ 4 GHz
	Resolution	0.1 Hz			
	Internal Time Base	Frequency: 10 MHz; aging rates $\leq \pm 1$ ppm/year; output amplitude ≥ 0.35 Vrms			
	Accuracy	$\leq \pm 0.1$ ppm			$< +1$ ppm
	External Reference Input	Frequency: 10 MHz; output amplitude: 0.5 ~ 2 Vrms; connect: BNC female, 50 Ω			
Output Features	Amplitude Range	-127 ~ +13 dBm		-115 ~ +17 dBm	-110 ~ +13 dBm
	Resolution	0.01 dB			
	Accuracy	$\leq \pm 1$ dB (≥ -120 dBm); $\leq \pm 1.8$ dB (≥ -127 dBm)			$\leq \pm 1$ dB
	SSB Phase Noise	≤ -115 dBc/Hz			≤ -105 dBc/Hz
	Residual FM	≤ 10 Hz peak			≤ 30 Hz peak
	Harmonics	≤ -30 dBc			
	Non-Harmonics	≤ -50 dBc			
	Output Interface	Standing wave ratio ≤ 1.8 ; impedance: 50 Ω (nominal value; N-type female)			
Modulation Features	AM Modulation	Modulation frequency: 20 Hz ~ 20 kHz; amplitude modulation 0 ~ 100% Amplitude error $\leq \pm$ (set value $\times 5\% + 0.2\%$); amplitude modulation distortion $< 2\%$			
	FM Modulation	Modulation frequency: 20 Hz ~ 80 kHz; frequency offset range of 20 Hz ~ 100 kHz Frequency deviation error: $\leq \pm$ (set value $\times 5\% + 0.2\%$) FM distortion $< 1\%$			
	PM Modulation	Modulation frequency: 0.3 ~ 20 kHz; Phase deviation: 0 ~ 10rad (< 10 kHz) 0 ~ 5 rad (≤ 20 kHz) Phase error: \pm (set value $\times 5\% + 0.2$ rad); phase distortion 1.5%			
	Pulse Modulation	Rise / fall time: ≤ 60 ns; on / off ratio ≥ 60 dB Pulse period: 1us ~ 2 s; pulse width 400 ns ~ 1 s			
External Modulation Characteristics (Specified Input Level, 1 Vp-p)	3 dB Input Bandwidth	AM / FM : 20 Hz ~ 20 kHz; PM: 300 Hz ~ 20 kHz			
	Pulse Input	Level: ≥ 1.5 VPP; cycle 10us ~ 1 s			
Rear Panel Input and Output Characteristics	Trigger Input	Waveform: sine wave, square wave; input level ≥ 2.5 VPP			
	Trigger Output	Wave: Pulse wave			
	Scan Output	Waveform: sawtooth wave; output level: 1 ~ 3.5 V			
	Pulse Output	Waveform: the same as the modulation pulse; output level: low level ≤ 0.8 V, high level ≥ 2.4 V			
Low Frequency Function Source Characteristics	Frequency and Waveform Type	20 Hz ~ 100 kHz (sine wave, triangular wave, sawtooth wave) 20 Hz ~ 20 kHz (square wave) ; 50 ms ~ 20us (pulse wave)			
	Output Characteristics	Output amplitude: 0 ~ 3 VP-P; amplitude error: $\leq 5\%$; harmonic distortion: ≤ 70 dBc			
General Features	Interface	Standard LAN, USB and GPIB interface			
	Monitor	7.0 inch TFT, 800 x 480 pixels			
	Power	Voltage : 100 V ~ 240 V (50/60 Hz);			
		Frequency: (47.5 ~ 52.5)Hz; power consumption ≤ 50 W			
	Size / Weight	Size: 426 mm \times 133 mm \times 450 mm (W \times H \times D); weight : ≤ 10 kg			
	Working Temperature Range	0 $^{\circ}$ C ~ +40 $^{\circ}$ C	-10 $^{\circ}$ C ~ +50 $^{\circ}$ C	0 $^{\circ}$ C ~ +40 $^{\circ}$ C	
Storage Temperature Range	-40 $^{\circ}$ C ~ +70 $^{\circ}$ C				



Synthesized Signal Generator

OSG1310

- Single channel.
- Frequency range: 25 MHz ~ 3 GHz.
- Up to 10 dBm output power.
- Pulse modulation function.
- Linear power and frequency sweep mode.
- USB Device, RS-232 interface.

Model	OSG1310		
Frequency	Range	25 MHz ~ 3 GHz	
	Resolution	3 Hz	
	Accuracy	±5 ppm	
	Stability	1×10 ⁻⁷	
	Reference Frequency	Reference output:	
		Frequency: 10 MHz	
		Level: >0 dBm	
		Port: BNC connector	
		Reference Input:	
		Frequency: 10 MHz	
Phase Noise	Power: -3 ~ +7 dBm		
	Input Port: BNC connector		
	Impedance (nominal): 50 Ω		
	-90 dBc ~ -115 dBc offset 20 kHz		
Spurious	Harmonic: <-35 dBc (power: ≤-5 dBm)		
	Non-harmonic: <-60 dBc		
Amplitude	Power Range	-60 dBm ~ +10 dBm	
	Resolution	0.25 dB	
	Accuracy	± (1.0+2% absolute value of setting value) dB	
		Output frequency 25 MHz ~ 2250 MHz	
		± (1.0+4% absolute value of setting value) dB	
	Input SWR (Standing-wave Ratio)	Output frequency 2250 MHz ~ 3000 MHz	
		< 1.5 typical value	
RF Output	Terminal: N type		
	Output Impedance: 50 Ω		
Pulse Modulation	Break-make Ratio	> 80 dB	
	Rising/Falling Time	< 100 ns	
	Pulse Width	0.25 s minimum	
	Pulse Period	0.5 s minimum	
Sweep	Frequency Sweep	Sweep mode: Linear	
		Min. step: 3 Hz	
Power Sweep	Sweep mode: Linear		
	Min. step: 0.25 dBm		
General Characteristics	Display	Resolution: 480 × 272	
		Size: 4.3 inch	
	Language	English	
		Voltage: 200 V ~ 240 V	
		Frequency: 50 (1±5%) Hz	
	Power	Power Consumption: <20 W	
		Warm-up: 30 minutes	
	Environment and Dimensions	Working Temperature: +10°C ~ +40 °C	
Storage Temperature: -40°C ~ +70 °C			
Relative Humidity: ≤80%			
Weight: <5 kg approx.			
		Dimension: 386 mm × 256 mm × 123mm (L x W x H)	

Accessories:

OSG1310-A1	Power Cord
OSG1310-A2	N-N Cable
OSG1310-A3	CD (Software+ User Guide)
OSG1310-A4	N-SMA adapter



Synthesized Signal Generator

OSG2113

- Dual channel.
- Frequency range: 1 μ Hz ~ 1000 MHz.
- Up to 13 dBm output power.
- Complete AM / FM / FSK / PSK modulation.
- Up to 1 ppm frequency accuracy.
- USB Device, RS, 232 interface.

Model		OSG2113	
Frequency	Range	Sine	1 μ Hz ~ 1000 MHz
		Square	1 μ Hz ~ 80 MHz
	Resolution		1 μ Hz (carrier frequency \leq 80 MHz) 1 Hz (carrier frequency >80 MHz)
	Accuracy		\pm 1 ppm, frequency \geq 1.0 kHz \pm 50 ppm, frequency < 1.0 kHz
Sine Output Level	Range	Frequency \leq 500 MHz	-127 dBm ~ +13 dBm (-127 dBm ~ -117 dBm typical)
		Frequency \leq 1000 MHz	-110 dBm ~ +13 dBm (-100 dBm ~ -110 dBm typical)
		Frequency \leq 1500 MHz	-105 dBm ~ +10 dBm (-100 dBm ~ -105 dBm typical)
	Resolution		0.1 dB
	Accuracy	Frequency \leq 300 MHz	Setting \pm 1 dBm (output level +13 dBm ~ -105 dBm)
		Frequency \leq 1500 MHz	Setting \pm 1.5 dBm (output level +13 dBm ~ -80 dBm) Setting \pm 2.5 dBm (output level -80 dBm ~ -100 dBm)
Stationary Wave Ratio (SWR)		< 1.8	
Spectrum Purity	Harmonic		< -33 dBc (output level \leq 4 dBm, typical value)
	Non-Harmonic		< -40 dBc (output level \leq 4 dBm, deviation CF \leq 5 kHz)
	Sub-Harmonic		< -40 dBc (output level \leq 4 dBm)
	Remain Modulating Frequency		< 100 Hz (BW: 0.3 ~ 3 kHz, RMS < 120 MHz)
Square	Rise/Fall Edge Time		\leq 15 ns
	Overshoot		\leq 5%
Modulation	Type		AM, FM, FSK, PSK
	External Modulation Input		Voltage Range: \pm 2.5 V, Frequency: DC to 10 kHz
Frequency Sweep	Sweep Rate		1 ms ~ 800 s Linear (carrier \leq 80 MHz) 100 ms ~ 800 s Logarithm (carrier \leq 80 MHz)
	Step Time		50 ms ~ 10 s Linear
Burst	Burst Count		1 to 10000 cycles
	Interval		0.1 ms to 800 s
	Frequency Range		1 μ Hz ~ 10 MHz
	Resolution		1 μ Hz
	Accuracy		\pm 1 ppm, Frequency \leq 1.0 kHz \pm 50 ppm, Frequency < 1.0 kHz
Waveform	Type		Sine, Square, Ramp, Pulse, Sinc, Exp, Noise, DC
	Square	Edge Time	\leq 50 ns
		Duty Cycle	0.01% ~ 99.99%
	Pulse	Edge Time	\leq 50 ns
		Pulse Width	20 ns ~ 20 s
	Ramp	Symmetry	0.0% ~ 100.0%
Output	Amplitude		1 mVpp to 10 Vpp (50 Ω), 2 mVpp to 20 Vpp (High Z)
	Offset		\pm 5 Vpk ac+dc (50 Ω), \pm 10 Vpk ac+dc (High Z)
	Resolution		5 mVpp
	Accuracy		\pm (1% of setting + 10 mVpp)
	Flatness		\pm 0.5 dB
General Characteristics	Power		AC100 V ~ 240 V, 50 (1 \pm 10%) Hz
	Dimension & Weight		254 x 103 x 374 mm; 4.2 kg

Accessories

OSG2113-A1	Power Cord
OSG2113-A2	BNC Testing Cable
OSG2113-A3	CD (Software+ User Guide)



Handheld Synthetic Radio Frequency Generator

OHSG30330

- A continuous set of 300 MHz ~ 3000 MHz covers the vast majority of mobile communication frequency band.
- Automatic uninterrupted and continuous scanning can be realized with 1 MHz step by step.
- Main output power up to 30 dBm and the power adjusting range not less than 6 dB.
- Preset with the most commonly used 10 test frequency points; Specific frequencies can be set according to user's requirements.
- Test time is greatly shortened.

Model	OHSG30330
Frequency Range	300 MHz ~ 3000 MHz
Frequency Point Resolution	1 MHz
Continuous Frequency Sweep Range	300 MHz to 3000 MHz
Frequency Accuracy	< ±20 ppm
Frequency Stability	±0.5 ppm/°C
The Main Output Power	>30 dBm/1w
The Main Output Flatness	±1 dB
The Main Output Stability	0.01 dB/°C
The Main Output Harmonic Component	< -40 dBc
The Main Output Clutter Component	< -70 dBc
The Main Output Sub-Harmonic Component	< -80 dBc
Auxiliary Output Power	>-10 dBc/0.1 mW
Auxiliary Output Flatness	±1 dB
Auxiliary Output Stability	0.01 dB/°C
Nominal Impedance	50 Ω
Output Standing Wave Ratio	<1.5
DC Tolerance	50 V (main output) / 5 V output (auxiliary output)
Internal Power	Lithium ion battery with high reliability
External Power Supply	5 V / 2 A DC
RF Connector	Type N (female)
Auxiliary Output	SMA (female)
Operation Temperature	-20 ~ +50°C (relative humidity < 95%)
Storage Temperature	-40 ~ +70°C (relative humidity < 70%)
Operation Altitude	5000 meters
Storage Altitude	14000 meters
ESD	>2KV
Dimensions	120 mm x 200 mm x 50 mm
Weight	700 g