RF Signal Generators

RIGOL RF signal generators adopt an innovative design, breaking through the cost bottleneck of traditional products, providing users with unprecedented cost-effective products. DSG series signal generators can provide highly pure RF signals, and the typical value of phase noise can be as low as -112 dBc/Hz. The application of digital ALC circuit enables accurate control of the amplitude of output RF signals, with power accuracy up to 0.5 dB. In addition to the conventional AM/FM/ΦM modulation, the RF signal source can also provide pulse modulation and pulse train functions to meet the demand of all kinds of communication and research. DSG3000-IQ/DSG800A model also offers a variety of I/Q modulations, supporting internal or external modulation and providing IF signal output. The convenient operation and abundant functions make DSG series RF signal generators become the ideal instrument for the development and design of wireless communication, Internet of things (IoT) and consumer electronic products, and provide a cost-effective test scheme for the production and testing of RF components. The economical DSG800 series sets a new benchmark for RF testing instruments, making it possible for each engineer of college teaching experiments and basic RF development to be equipped with one such instrument.

	Frequency Range					Level Range	Accuracy	Clock Stability	Phase Noise	Std. Modulations	Pulse Train Generator	I/Q
	1.5 GHz	2.1 GHz	3 GHz	3.6 GHz	6 GHz							
DSG815	●					-110dBm-+13dBm	≤ 0.5dB (Typ.)	<2ppm <5ppb (B08 Option)	-112dBcHz Typ.	AM/FM/ΦM	DSG800-PUM DSG800-PUG (Pulse Modulation + Pulse Train)	–
DSG830			●									–
DSG821		●										Std.
DSG821A		●										–
DSG836				●								Std.
DSG836A				●								
DSG3060					●	-130dBm-+13dBm	≤ 0.5dB (Typ.)	<0.5ppm <5ppb (B08 Option)	<-105dBc/Hz (<-110dBc/Hz Typ.)	AM/FM/ ΦM/ Pulse	PUG-DSG3000	–
DSG3060-IQ					●							Std.

DSG3000 Series RF Signal Generators

DSG3000 is a high performance RF signal generator which ranges from 9 kHz to 3 GHz/6 GHz. It is designed for the customers who works in the application filed of Wireless Communication, Radar test, Audio/Video Broadcasting, General Purpose, Education, Consumer Electronics etc. Digital IQ and pulse modulations with high quality signal and stable specifications. It is a desirable choice for replacing of import products.

- Plenty of output functions
- Support multiple types of modulations
- Output amplitude level ranges from -130dBm to +13dBm
- Excellent phase noise specification
- Support internal and external I/Q modulation
- Support pulse modulation with 80dB on/off ratio

Plenty of Output Functions

9kHz~3/6GHz
+25dBm~-140dBm
CW
LF
Sine, Square, Triangle, Ramp, Swp-Sine

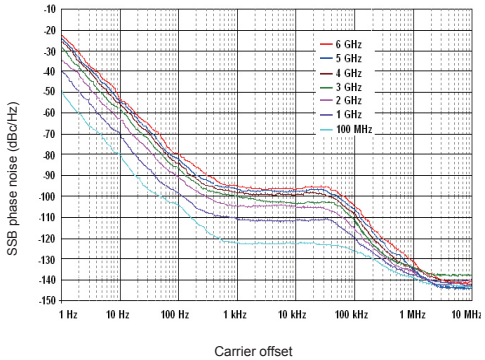
Frequency sweep, Amplitude sweep, Frequency and amplitude sweep
Sweep
PMC
Power meter controller, Test system automatic calibration

Multiple types of Modulations

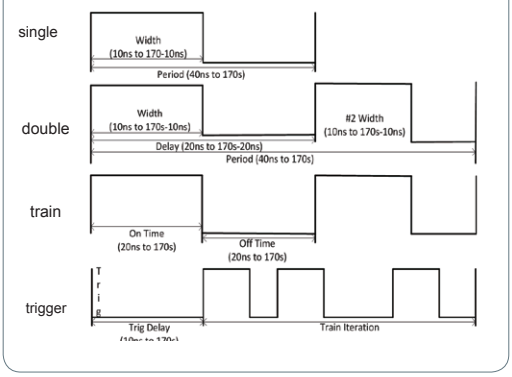
Internal modulation, External modulation
AM
FM ΦM
Internal modulation, External modulation

Internal modulation, External modulation, Pulse train generator, Pulse generator
Pulse
I/Q
Internal modulation, External modulation, I/Q baseband generator, Baseband output

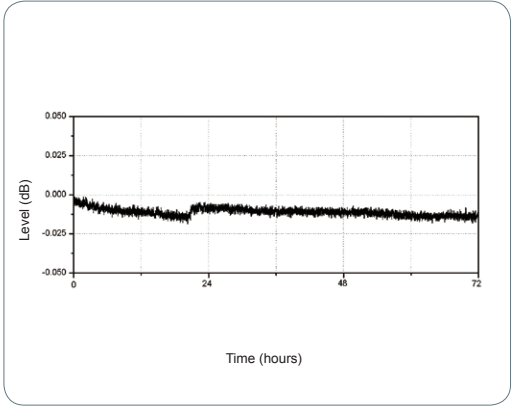
Excellent Phase Noise Specification



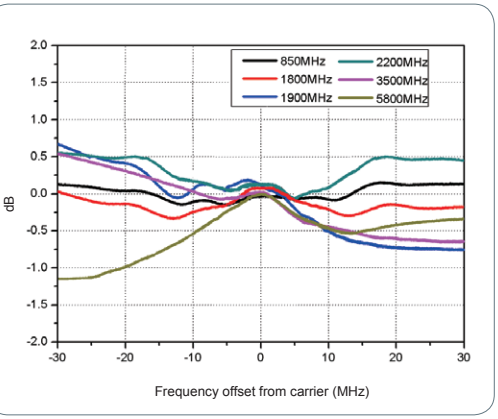
Pulse Modulation with 80dB on-off ratio



Excellent Amplitude Repeatability (6GHz，0dBm, ALC ON, 25℃)



Measured IQ modulation Bandwidth



Key Specifications

Models		DSG3060/DSG3060-IQ
Frequency range		9kHz-6GHz
Amplitude output level		-130dBm - +13dBm
Amplitude setting Level		-140dBm - +25dBm
Level uncertainty		< 0.5dB typ.
Clock stability		< 0.5ppm, <5ppb(With option OCXO-A08)
Spectral purity	SSB phase noise	Typ. <-110dBc/Hz@1GHz,20KHz offset
	Harmonic	<-30dBc; non-harmonic: typ. <-64dBc
Sweep	Sweep type	Linear sweep, Step/List sweep, Single/Continue sweep
	Sweep points	2 ~65535（Step sweep）;1-6001（List sweep）
Modulation type		AM, FM, PM, Pulse mod, I/Q mod
AM	modulation depth	0%-100%
	Uncertainty	< setting value x 4% + 1%
	Modulation frequency response	<3dB(10Hz ~ 50kHz m<80%)
FM	Max. deviation	N x 1MHz
	Uncertainty	< setting value x 2% + 20Hz
	Modulation frequency response	<3dB(10Hz ~ 100kHz)
PM	Max. deviation	3rad（f ≤ 23.4375MHz）, N x 5rad（f > 23.4375MHz）
	Uncertainty	< setting value x 1% + 0.1rad
	Modulation frequency response	<3dB(10Hz ~ 100kHz)
Pulse modulation	On/off ratio	>80dB(25MHz ≤ f <3GHz),>70dB(3GHz ≤ f ≤ 6GHz)
	Rise/fall time	10ns typ.
	Pulse mode	Single pulse, dual pulse, pulse train（option PUG-DSG3000）
I/Q modulation (Only for IQ model)	Bandwidth	External modulation: baseband (I or Q): up to 120MHz; RF(I+Q): up to 240MHz
		External modulation：baseband (I or Q): up to 30MHz; RF(I+Q): up to 60MHz
	EVM	≤ 0.7%rms(typ., 50MHz ≤ f ≤ 3GHz, output power≤ 4dBm)
		≤ 1.2%rms(typ., 3GHz < f ≤ 6GHz, output power≤ 4dBm)
General	Interfaces	Std.: USB,LAN, GPIB
		10MHz Ref In/Out, Trigger In
		I/Q In/Out(Only for IQ model), LF Out
		Ext Mod, Pulse In/Out
		Signal Valid, Sweep Out

Ordering Information

	Description	Order Number
	DSG3060 RF Signal Generator, 9kHz-6GHz	DSG3060
	DSG3060-IQ Vector Signal Generator, 9kHz-6GHz	DSG3060-IQ
Standard Accessories	Power Cable, Quick Guide (Hard Copy)	-
	DSG IQ function PC software	Ultra IQ Station
Options	Pulse Train Generator	PUG-DSG3000
	High Stable OCXO Reference Clock	OCXO-A08
	Power Meter Controller	PMC-DSG3000
	Rack Mount Kit	RM-DSG3000

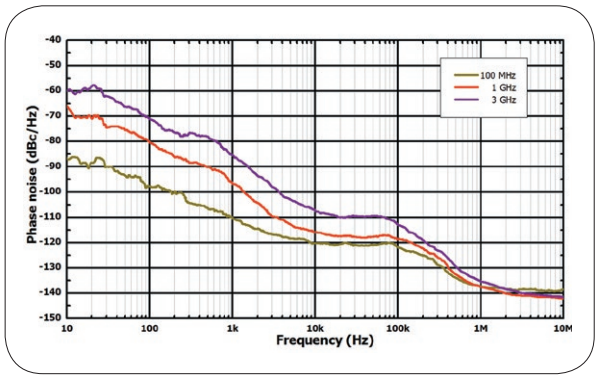
DSG800 Series RF Signal Generators

DSG800 establishes a new standard of economical RF signal generator by the unprecedented cost-effective advantage. Combining with DSA800 economical spectrum analyzer, the product pair provides a screaming solution for RF test and measurement application.

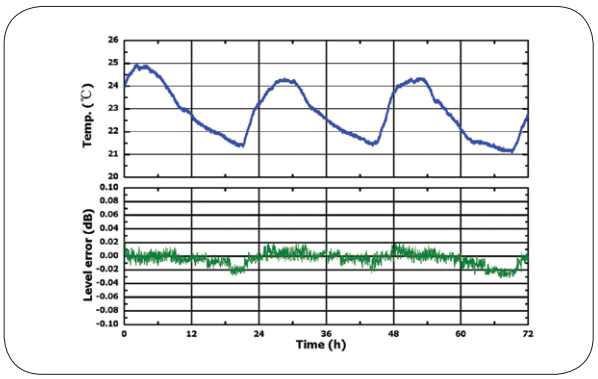
DSG800 series signal generator includes 6 models: DSG815, DSG830, DSG821, DSG836, DSG821A, and DSG836A. Its frequency ranges from 9 kHz to 1.5 GHz/2.1 GHz/3 GHz/3.6 GHz, with the typical phase noise -112 dBc/Hz, typical amplitude accuracy 0.5 dB. It provides the standard AM/FM/ØM analog modulation function. The pulse modulation and pulse train functions are also available as options. It's compact in size and easy to carry, suitable for outdoor use.

- Up to -112 dBc/Hz (typical) phase noise
- Up to +20 dBm (typical) maximum output power
- Special digital ALC circuit ensuring its stability and reliability
- Flexible frequency and amplitude sweep functions
- Open vector modulation function (for A type model)
- Powerful pulse modulation function
- Prominent portability; Simple and easy to operate

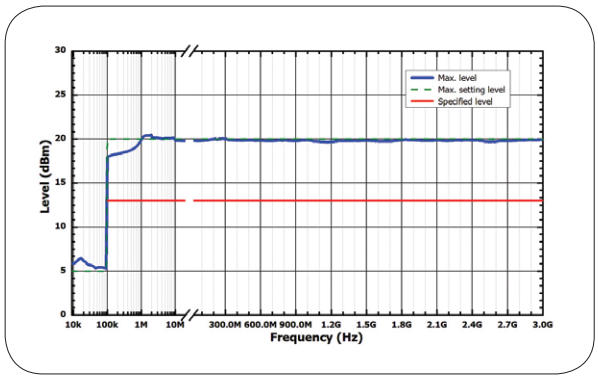
Measured SSB phase noise



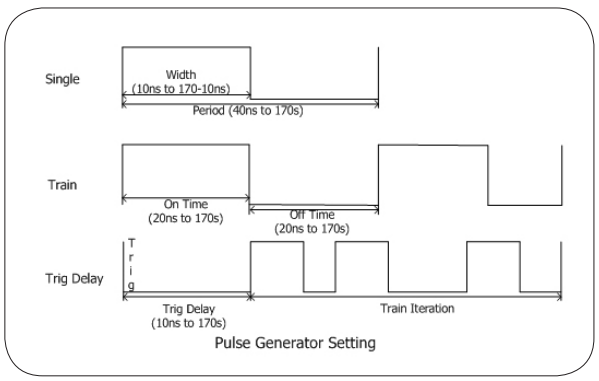
Measured level repeatability @ 1 GHz, 0 dBm



Measured maximum level vs. frequency



Powerful pulse modulation and pulse train generator



Simultaneous Modulation

	AM	FM	ØM	Pulse mod. (opt.)
AM	—	○	○	△
FM	○	—	×	○
ØM	○	×	—	○
Pulse mod. (opt.)	△	○	○	—

Note: ○: Compatible; ×: Not compatible; △ : Compatible, but the AM performance will decrease when pulse modulation is turned on.

Key Specifications

Models		DSG815	DSG830	DSG821	DSG821A	DSG836	DSG836A
Frequency range		9kHz-1.5GHz	9kHz-3GHz	9kHz- 2.1GHz	9kHz- 2.1GHz	9kHz- 3.6GHz	9kHz-3.6GHz
Amplitude Output Level		-110dBm - +13dBm					
Amplitude Setting Level		-110dBm - +20dBm					
Level uncertainty		<0.9dB (< 0.5dB typ.)					
Clock stability		< 2ppm, <5ppb(With option OCXO-B08)					
Spectral Purity	SSB phase noise	100 kHz ≤ f ≤ 1.5 GHz, <-105dBc/Hz(-112dBc/Hz typ.) 1.5 GHz < f ≤ 3.6 GHz, < -99 dBc/Hz(< -106 dBc/Hz typ.), CW mode, carrier offset = 20 kHz					
	Harmonic	<-30dBc CW mode 1MHz ≤ f ≤ 3GHz, Level≤ +13dBm					
	Non-harmonic	100KHz ≤ f ≤ 1.5GHz, <-60dBc (<-70dBc typ.); 1.5GHz ≤ f ≤ 3GHz, <-54dBc/Hz(<-64dBc/Hz typ.)					
Sweep	Sweep type	Linear sweep, Step/List sweep, Single/Continue sweep					
	Sweep points	2 ~65535(Step sweep); 1-6001 (List sweep)					
Modulation type		AM, FM, ØM, Pulse mod					
AM	modulation depth	0%-100%					
	Uncertainty	< setting value x 4% + 1%					
	Modulation frequency response	<3dB(10Hz ~ 100kHz m<80%)					
FM	Max. deviation	N x 1MHz					
	Uncertainty	< setting value x 2% + 20Hz					
	Modulation frequency response	<3dB(10Hz – 100KHz)					
PM	Max. deviation	N x 5rad					
	Uncertainty	< setting value x 1% + 0.1rad					
	Modulation frequency response	<3dB(10Hz – 100kHz)					
Pulse Modulation	On/off ratio	>70dB(100kHz ≤ f <3GHz)					
	Rise/fall time	<50ns, 10ns (typ.)					
	Pulse mode	Single pulse, pulse train (optionDSG800-PUG)					
I/Q modulation (only for A type model)	Bandwidth	Bandwidth: External modulation: baseband (I or Q): up to 60 MHz; RF(I+Q): up to 120 MHz External modulation: baseband (I or Q): up to 30MHz; RF(I+Q): up to 60MHz					
	EVM	≤ 2%rms (typ.)					
General	Interfaces	Std.: USB, LAN					
		Front Panel: RF output, Internal modulation generator (LF) output					
		Rear Panel: External trigger input, Signal valid output, Pulse input or output					
		External modulating signal input, 10MHz input/output					

Ordering Information

	Description	Order Number
Models	DSG830 RF Signal Generator, 9kHz-3GHz	DSG830
	DSG815 RF Signal Generator, 9kHz-1.5GHz	DSG815
	DGS821 RF Signal Generator, 9kHz-2.1GHz	DSG821
	DGS821A RF Signal Generator, 9kHz-2.1GHz, with I/Q modulation	DSG821A
	DGS836 RF Signal Generator, 9kHz-3.6GHz	DSG836
	DGS836 RF Signal Generator, 9kHz-3.6GHz, with I/Q modulation	DSG836A
Standard Accessories	Power Cable, Quick Guide (Hard Copy)	-
Options	Pulse Modulation, Pulse Generator	DSG800-PUM
	Pulse Train Generator (DSG800-PUM Included)	DSG800-PUG
	High Stable Reference Clock	OCXO-B08
	Rack Mount Kit (For one Instrument)	RM-1-DG1000Z
	Rack Mount Kit (For two Instrument)	RM-2-DG1000Z