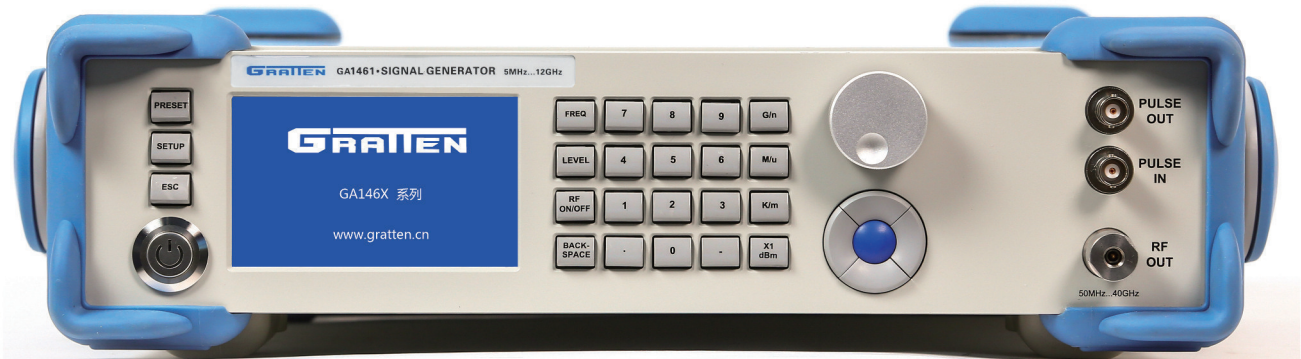


## GA146X Series Microwave Signal Generators



### Summary

GA146X Microwave Signal generator, Used the Agile variable frequency technology, Output frequency up to 40GHz, Operation more flexible, have a higher price performance.

Can be widely used in communications, radar and its automatic test system, Applicable to components, components, receivers and other electronic products in the field of production testing.

### Main features

- Stylish and lightweight design, convenient and flexible interface
- High cost performance, suitable for different user requirement
- Extremely high frequency stability, aging rate  $< \pm 8 \times 10^{-10}$  / day
- High-quality spectral performance, phase noise:  $-119\text{dBc} / \text{Hz} @ 10\text{kHz}$
- Convenient and flexible scan output: the frequency, the amplitude of a variety of scanning output combination



### Technical Parameters

Model	GA1461	GA1462	GA1464	Test environment
<b>Frequency feature</b>				
Frequency Range	5MHz - 12GHz	5MHz - 24GHz	5MHz - 40GHz	
Resolution	1Hz (Nominal value)			
Frequency switch speed	$\leq 20\text{ms}$ (Nominal value)			
Internal time base	Frequency	10MHz		
	Accuracy	$< \pm 0.1\text{ppm}$ (Nominal value)		
	Aging Rate	$< \pm 8 \times 10^{-10}$ / days or after 30 days $< \pm 3 \times 10^{-8}$ / years (Nominal value)		
	Output Amplitude	10dBm (Nominal value), 50Ω load		
	Temperature effect	$< \pm 1 \times 10^{-8}$ , -20 to +70°C (Nominal value)		
External reference input	Frequency	10MHz		
	Amplitude	5dBm $\pm 2\text{dB}$ (Nominal value)		
	Impedence	50Ω (Nominal value)		
	Waveform	Sine wave or Square wave		

## SIGNAL GENERATORS

## Technical Parameters (contd..)

Model		GA1461	GA1462	GA1464	Test environment			
<b>Amplitude Features</b>								
Amplitude switching speed		Use step attenuator $\leq 20\text{ms}$ (nominal value); No use step attenuator $\leq 2\text{ms}$ (nominal value)						
Amplitude Range	$\leq 2\text{GHz}$	-110~+25dBm		-110~+25dBm		The technical and indicators are under the temperature between 15°C ~ 35°C, the indicators in the absence of harmonic options		
	$\leq 12\text{GHz}$	-110~+20dBm		-110~+20dBm				
	$\leq 24\text{GHz}$			-110~+20dBm				
	$\leq 40\text{GHz}$			-110~+15dBm				
Resolution		0.1dB(Nominal Value)						
Absolute accuracy	$\geq -20\text{ dBm}$	$\pm 0.8\text{dB}$ ( $f \leq 2\text{GHz}$ ); $\pm 1.3\text{dB}$ ( $f \leq 40\text{GHz}$ )						
	$\geq -75\text{dBm}$	$\pm 1\text{dB}$ ( $f \leq 2\text{GHz}$ ); $\pm 1.5\text{dB}$ ( $f \leq 40\text{GHz}$ )						
	$< -75\text{ dBm}$	$\pm 2\text{dB}$ ( $f \leq 24\text{GHz}$ ); $\pm 2.2\text{dB}$ ( $f \leq 40\text{GHz}$ )						
Standing wave	$\leq 2\text{GHz}$	$< 1.4$						ATT=10dB
	$\leq 24\text{GHz}$	$< 1.5$						
	$\leq 40\text{GHz}$	$< 1.6$						
<b>Spectral Features</b>								
Phase noise (SSB)dBc/Hz		100Hz	1kHz	10kHz	100kHz	1MHz	10MHz	At room temperature, the output power Rate measured at 0dBm
	100MHz	$< -100$	-107	-115	-127	-143	-150	
	250MHz	$< -100$	-107	-115	-127	-143	-150	
	500MHz	$< -100$	-107	-115	-128	-143	-150	
	1GHz	$< -100$	-112	-119	-124	-131	-150	
	10GHz	$< -85$	-107	-113	-112	-115	-133	
	20GHz	$< -78$	-101	-108	-106	-108	-128	
40GHz	$< -72$	-96	-102	-100	-102	-122		
Harmonic		P=10dBm						
	70~200MHz	$< -40\text{dBc}$						
	0.2~2GHz	$< -50\text{dBc}$						
Non-harmonic	2~20GHz	$< -50\text{dBc}$						$> 1\text{MHz}$ offset; non-harmonic related to power supply line; $< -60\text{dBc}$ , measured in the range of 1MHz to 40GHz
	1MHz~2GHz	$< -80\text{dBc}$						
	$\leq 12\text{GHz}$	$< -70\text{dBc}$						
	$\leq 24\text{GHz}$	$< -65\text{dBc}$						
$\leq 40\text{GHz}$	$< -60\text{dBc}$							
<b>Modulation Features (Pulse modulation option)</b>								
Pulse modulation	Breaking ratio	$> 60\text{dB}$ (Typical Value)						
	Minimum pulse width	100ns (Typical Value)						
	Minimum period	200ns (Typical Value)						
External pulse input	Minimum impedance	DC coupling, High impedance						
	Level logic	3.3V-CMOS						
Internal pulse generator option GASG	Square wave rate	0.1Hz~5MHz (Nominal value)						
	Pulse period	200ns~10s (Rated value)						
	Pulse width	100ns~10s (Nominal Value)						
	Resolution	20ns						
	Adjustable trigger delay	5ns~10s						
Level logic	3.3V-CMOS							
<b>General Features</b>								
Interface		LAN (100 Base T); RS232						
Power		198~242V (AC), 48~62Hz; 70W Peak, 60W Mean						
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: $\leq 8\text{Kg}$						
Size		H x W x D: 88mm x 370mm x 460mm						