

## -Key Features-

- 25 to 6000MHz Coverage
- Calibrated RF Power Output
- 31dB RF Output Step Attenuator
- 20dB Vernier Range
- USB COM Interface
- Industry Standard SCPI Commands
- OLED Display and Control Buttons
- Very Cost Effective
- Incredibly Compact
- Conveniently USB Powered
- Versions to 22GHz Available (LDQ)
- Harmonic Filtered Version Available
- Optional Sweep Trigger
- Built in USA

**DS Instruments**

# SG6000L R11

## PORTABLE WIDEBAND RF SIGNAL GENERATOR



### SG6000L (Rev 11) - A wideband RF Signal Generator

The SG6000L enables users to generate a high quality RF/Microwave signal in a compact package. An OLED display and interface buttons allow frequency selection, attenuator control, and RF output ON/Off without need for a host PC. The RF output covers 7 octaves from 25 to 6000MHz or to 12000MHz with the optional doubled output, or to 22GHz with option 'Q'. The produced waveform is fully synthesized using modern fractional N synthesis. The final step size of the RF output varies from a maximum of ~3KHz to less than 20Hz depending on band of operation. This synthesized source has its own internal precision 10MHz TCXO oscillator and can accept an external reference signal if needed.

Power output level can be controlled via internal step attenuator over a range of 31dB in 0.5dB steps, and also has a separate 20dB power vernier setting. RF output power is calibrated to a maximum output level of +10dBm.

### Ease of Use

The SG6000L can be controlled from its front panel interface or by the USB port and a host PC. The user simply connects a PC to the SG6000L, and with provided software all settings and functions can be remotely operated in real time.

### Signal Generator USB Operation

With the SG6000L connected to the PC via micro USB port, industry standard SCPI commands are used to fully control the instrument. The USB port is configured on the host PC as a virtual COM port. This feature allows users to control the SG6000L for automated test applications from many different operating systems and scripting languages and environments.

# SG6000L

## SPECIFICATIONS

Conditions: 25° C, Internal 10MHz Oscillator, USB supplied power

Parameter	Min	Max	Typ	Units
Output Frequency Range	25	6000		MHz
Output Power Range ( <b>calibrated</b> )	-21.5	+10		dBm
Output Power Range (Uncalibrated mode)	-30	+18		dBm
Output Flatness			<b>+/- 1.0</b>	dB
Calibration Accuracy		<b>+/- 2.5</b>	<b>+/- 1.0</b>	dB
Phase Noise @ 6000MHz, 10KHz Offset			<b>-74</b>	dBc
@ 2400MHz, 10KHz Offset			<b>-85</b>	dBc
@ 900MHz, 10KHz Offset			<b>-92</b>	dBc
@ 433MHz, 10KHz Offset			<b>-101</b>	dbc
@ 315MHz, 10KHz Offset			<b>-103</b>	dBc
Output VSWR	1.2:1	1.6:1	<b>1.3:1</b>	----
Step Size (decreases by 2 as RF band reduces)		<3000		Hz
DC Power Input thru USB Port	4.75	5.25	<b>5.0</b>	vdc
Internal RF Attenuator Step Size	0.3	0.8	<b>0.5</b>	dB
Step Attenuator Range	0	31.5		dB
Power Vernier Range	0	20		dB
Typical Vernier Minimum Increment			<b>0.05</b>	dB
Device Temperature Rating	-40	50	<b>25</b>	Deg. C
Harmonic Levels (Standard SG6000)		-9	<b>-10</b>	dBc
Harmonic Levels (Filtered "F" Version)		-20	<b>-25</b>	dBc
External MCX Sweep Trigger ("F" version)	0	5		V

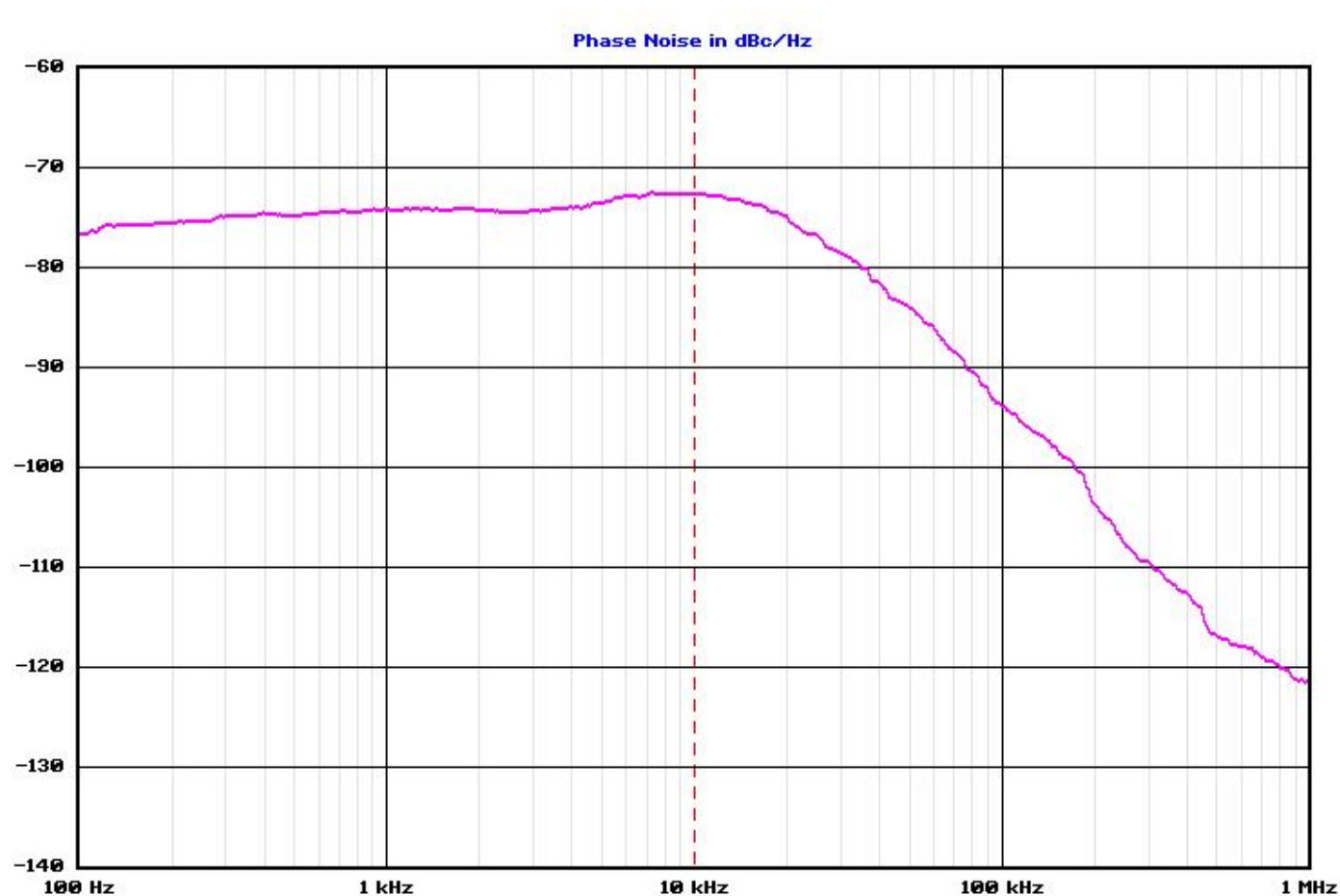
# SG6000 Signal Generator Family

	SG4400	SG4400L	SG6000	SG6000L	SG6000LF	SG6000LD	SG6000LQ	SG6000LDQ
Max Frequency (GHz)	4.4	4.4	6.0	6.0	6.0	12.0	22.0	22.0
Display & Buttons		X		X	X	X	X	X
10MHz Reference Input	X	X	X	X	X	X	X	X
Sweep Trigger					X	X	X	X
USB Powered	X	X	X	X	X	X	X	X
Harmonic Filtering					X			
Output Bands	1	1	1	1	1	2	2	3
Step Attenuator Max Frequency (GHz)	4.4	4.4	6.0	6.0	6.0	6.0	6.0	6.0
Vernier Control Max Frequency (GHz)	4.4	4.4	6.0	6.0	6.0	12.0	12.0	12.0

Note: Devices with multiple bands (LD, LQ, LDQ) have a separate extended datasheet.

# SG6000L

## SG6000L – (6GHz) Typical Phase Noise

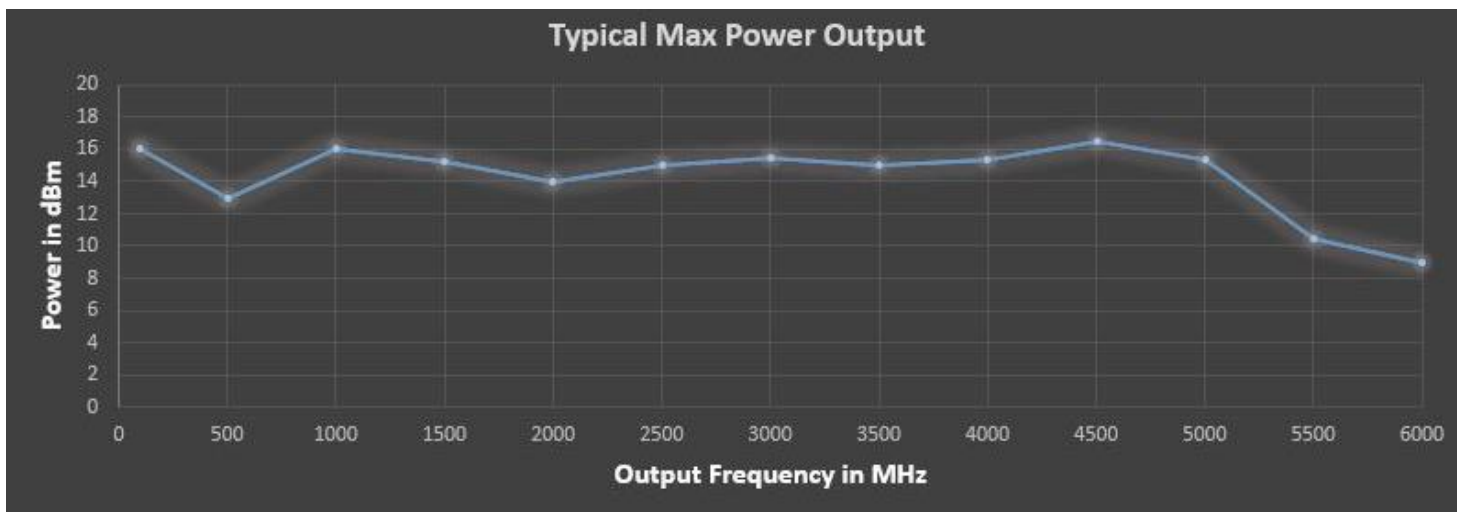


Trace	Carrier Hz	Carrier dBm	dBc/Hz at 10000 Hz	RF Atten dB	VBW/RBW	Sweep
SG6000R7-INT	6 000 000 000	8.00	-72.5	10	1.00	70s

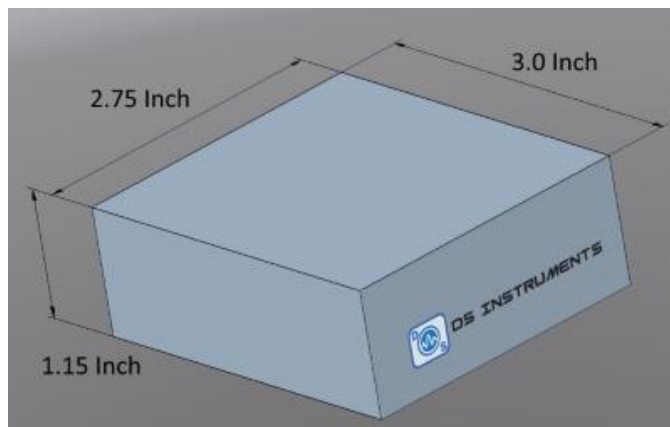
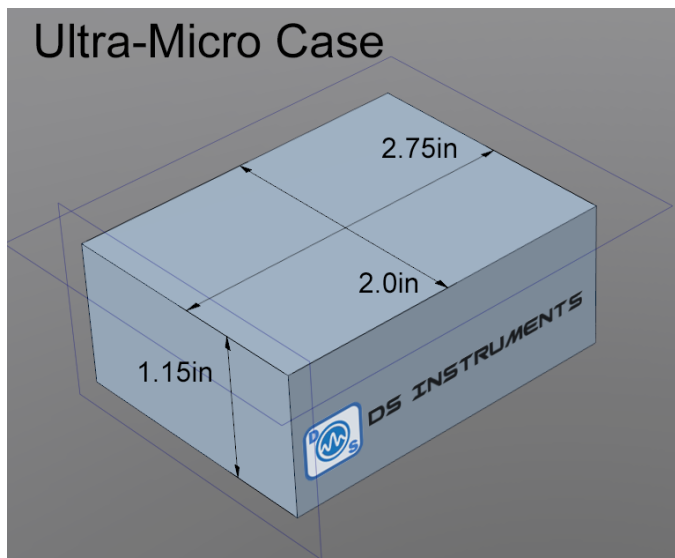


# SG6000L

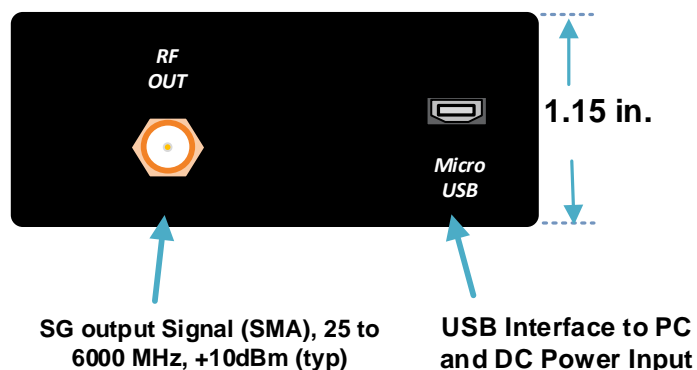
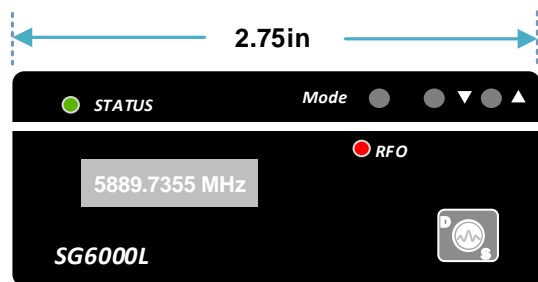
## Typical MAX Power Output (Calibration OFF)



## Case Dimensions & Front / Rear Panel Features



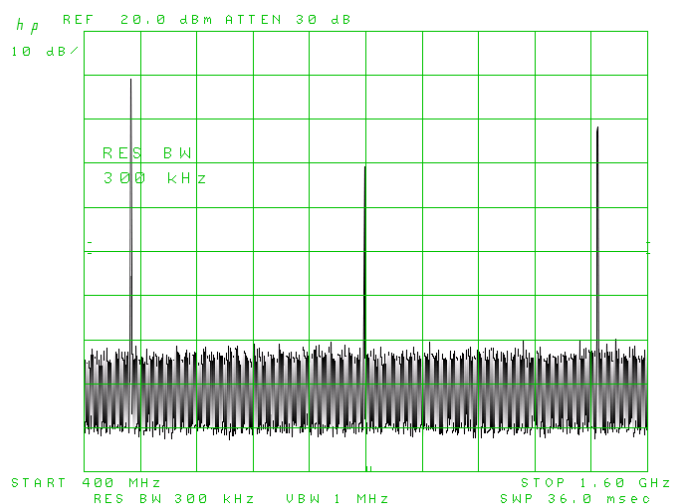
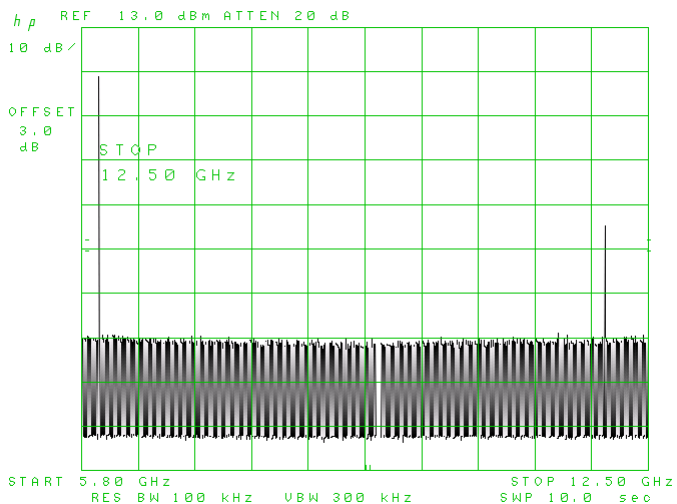
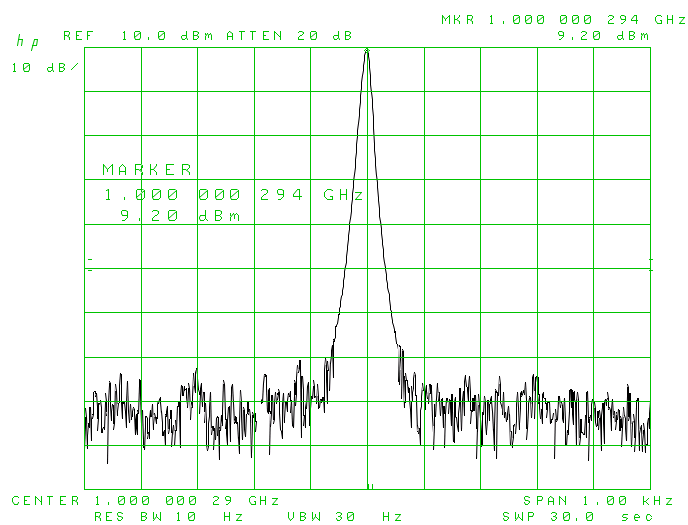
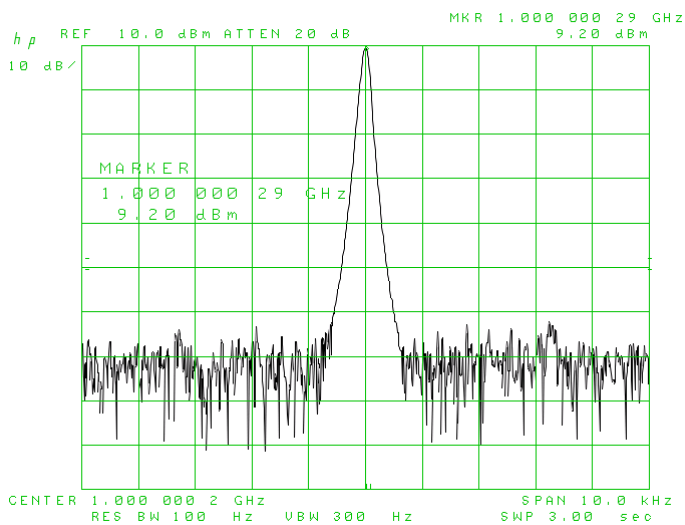
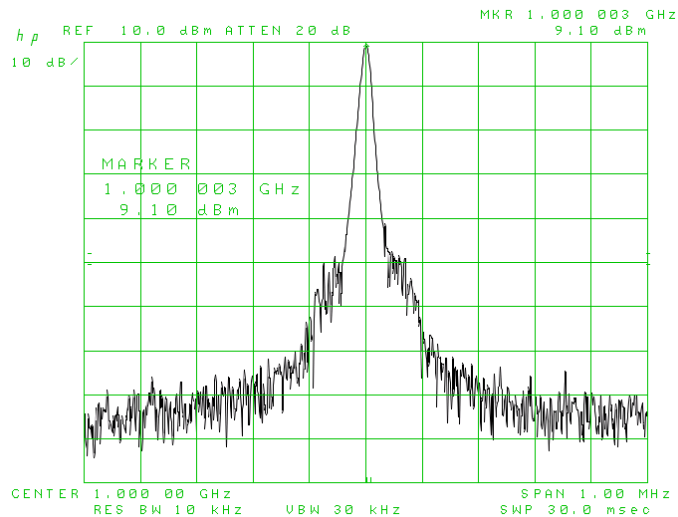
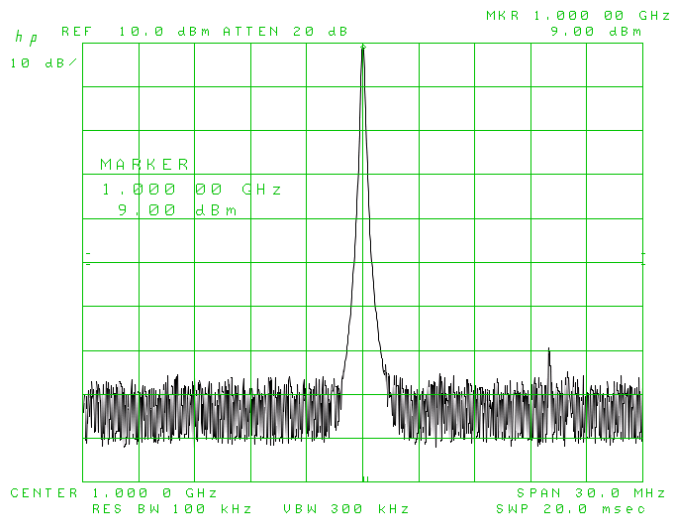
Harmonic Filtered Version



# SG6000L

## Typical Output Power Spectrums

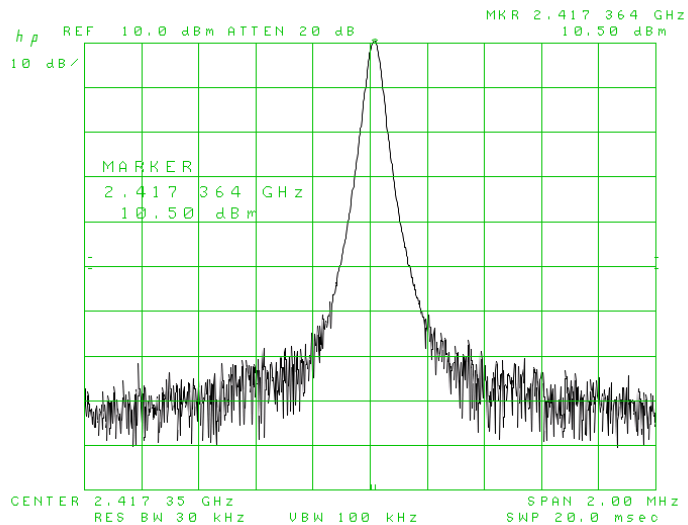
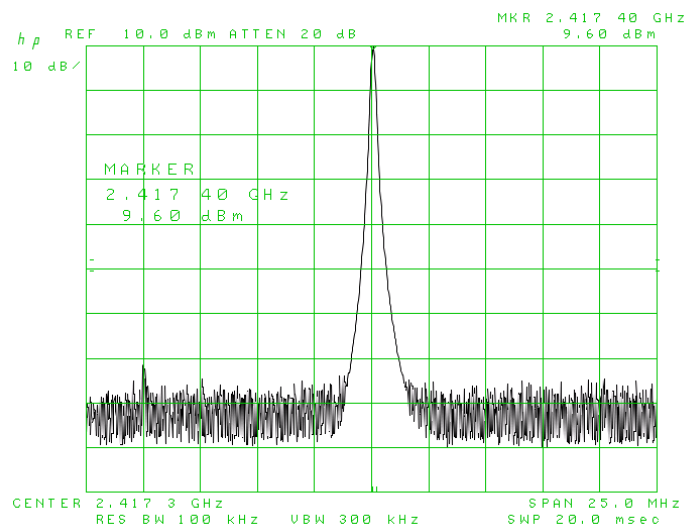
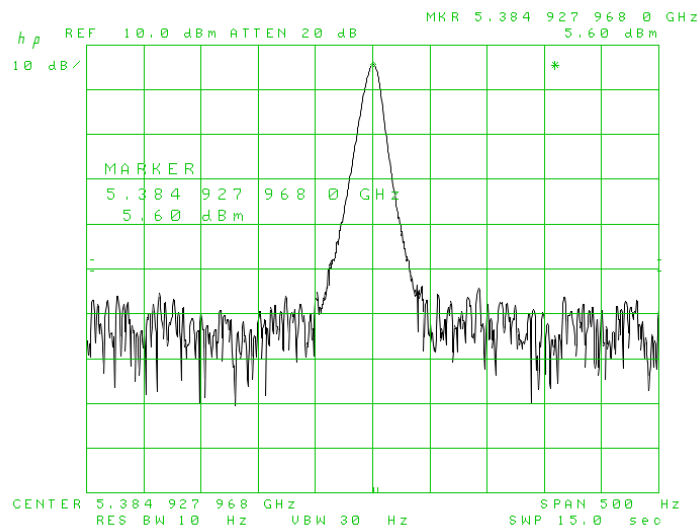
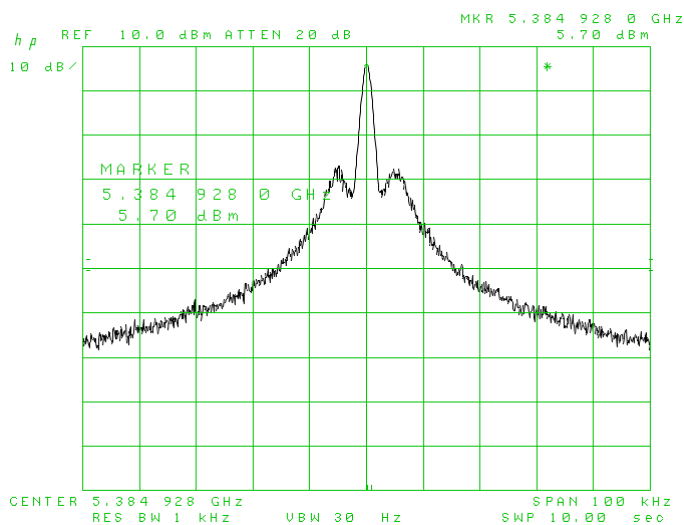
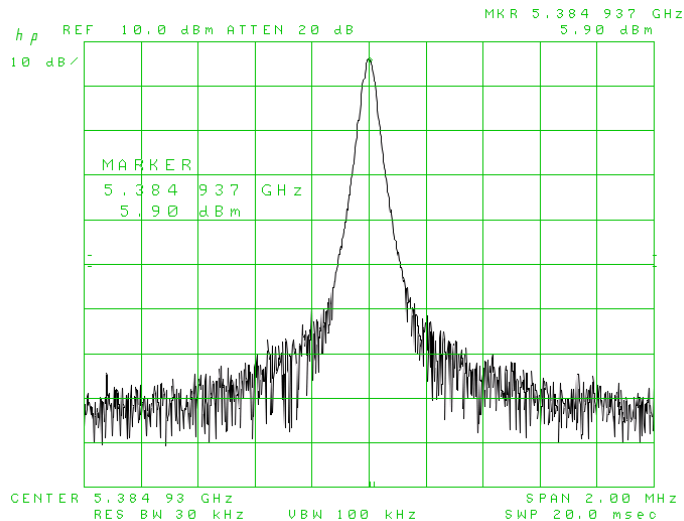
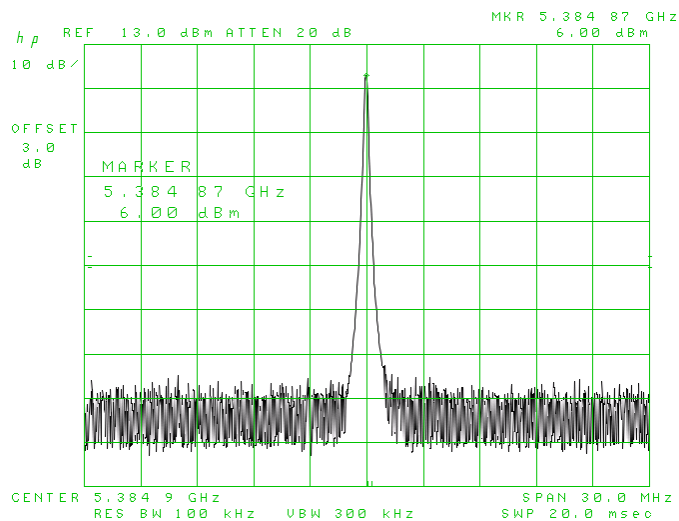
[ 25 Deg. C, USB Power , internal 10MHz ]



# SG6000L

## Typical Output Power Spectrums, Cont.

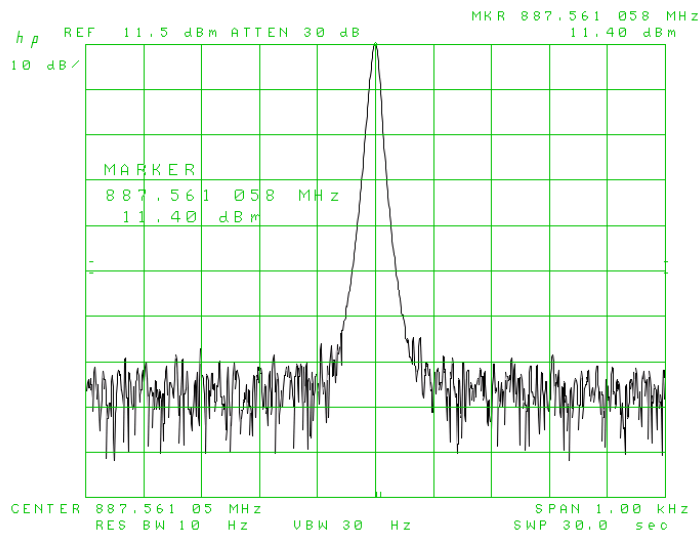
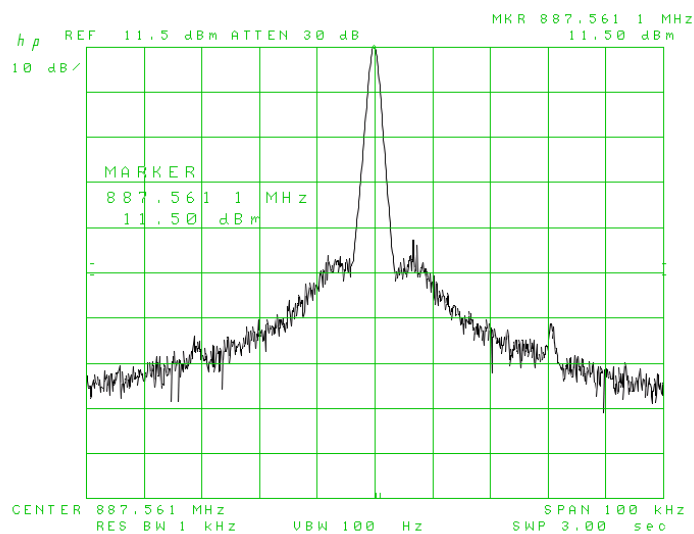
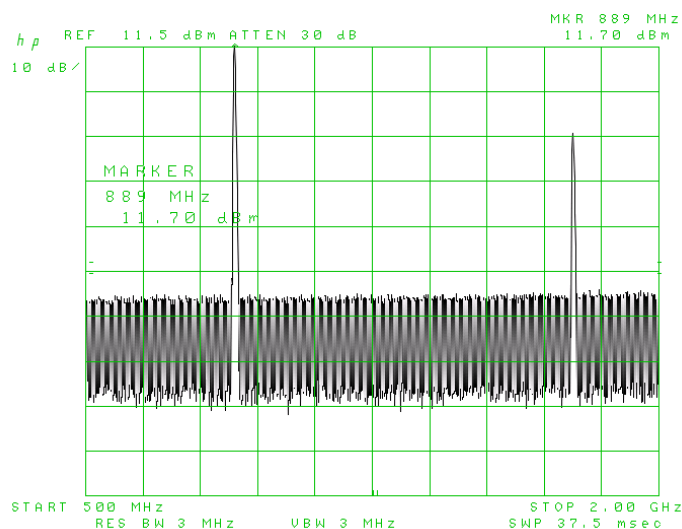
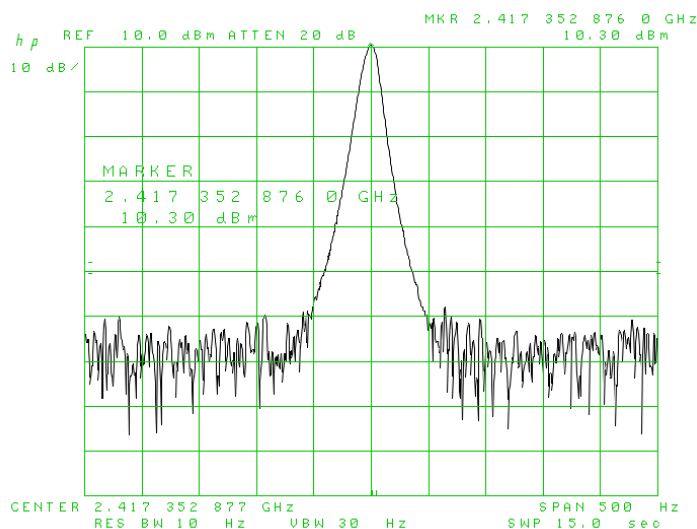
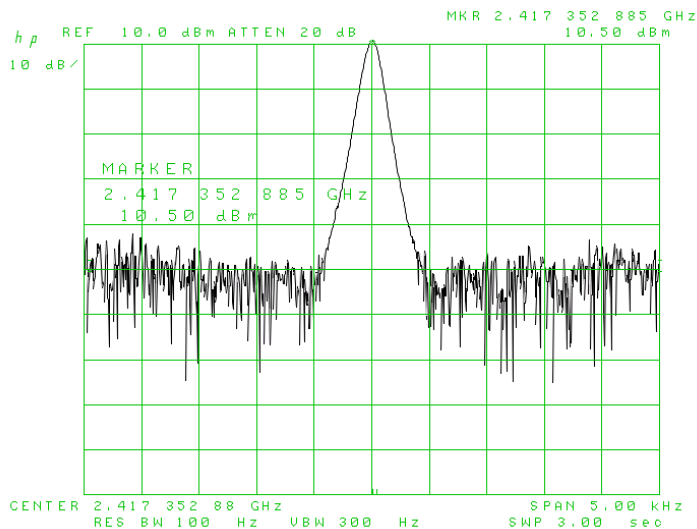
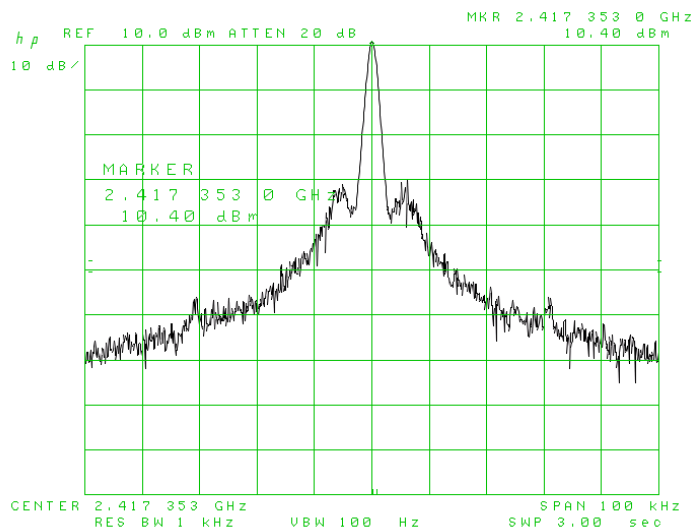
[ 25 Deg. C, USB Power , internal 10MHz ]



# SG6000L

## Typical Output Power Spectrums, Cont.

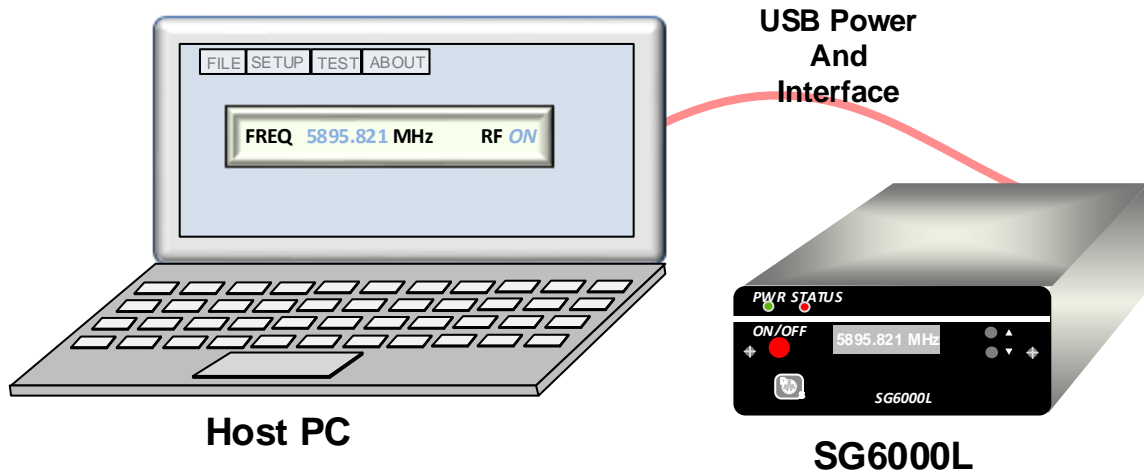
[ 25 Deg. C, USB Power, internal 10MHz ]





# SG6000L

## Windows GUI for remote Operation via USB



# SG6000L

## Product Photos

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# SG6000 Family Pricing

## Ordering Information

**SG6000 - 25 to 6000MHz - (No Display or Buttons)** (\$549.00)

**SG6000L (R11) - 6000MHz** (\$649.00)

**SG6000LF (R11) – Harmonic Filtered – 6000MHz** (779.00)

**SG6000LD – x2 Output (12000MHz)** (\$799.00)

**SG6000LQ – x4 Output (22000MHz+)** (\$1199.00)

**SG6000LDQ – x2 & x4 Output** (\$1449.00)

## Contact Information

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