GSP-9330 Specifications

The specifications apply when the GSP-9330 is powered on for at least 30 minutes under +20°C~+30°C.

Frequency			
Frequency	Range	9 kHz to 3.25 GHz	
	Resolution	1 Hz	
Frequency Reference	Accuracy	±(period since last adjustment X aging rate) + stability over temperature + supply voltage stability	
	Aging Rate	±1 ppm max.	1 year after last adjustment
	Frequency Stability over Temperature	±0.025 ppm	0 to 50 °C
	Supply Voltage Stability	±0.02 ppm	
Frequency Readout Accuracy	Start, Stop, Center, Marker	±(marker frequency indication X frequency reference accuracy + 10% x RBW + frequency resolution)	
	Trace points	Max 601 points, min 6 points	
Marker Frequency Counter	Resolution	1 Hz, 10 Hz, 100 Hz, 1 kHz	
	Accuracy	±(marker frequency indication X frequency reference accuracy + counter resolution)	RBW/Span >=0.02 ; Mkr level to DNL>30 dB
Frequency Span	Range	0 Hz (zero span), 100 Hz to 3.25 GHz	
	Resolution	1 Hz	
	Accuracy	± frequency resolution1	RBW: Auto;
Phase Noise	Offset from Carrier		Fc =1 GHz; RBW = 1 kHz, VBW = 10 Hz; Average ≥ 40
	10 kHz	<-88 dBc/Hz	Typical
	100 kHz	<-95 dBc/Hz	Typical
	1 MHz	<-113 dBc/Hz	Typical
Resolution Bandwidth (RBW) Filter	Filter Bandwidth	1 Hz to 1 MHz in 1-3-10 sequence	-3dB bandwidth
		200 Hz, 9 kHz, 120 kHz, 1MHz	-6dB bandwidth
	Accuracy	± 8%, RBW = 1MHz	Nominal
		± 5%, RBW < 1MHz	Nominal
	Shape Factor	< 4.5:1	Normal Bandwidth ratio: -60dB:-3dB
Video Bandwidth (VBW) Filter	Filter Bandwidth	1 Hz to 1 MHz in 1-3-10 sequence	-3dB bandwidth
Amplitude			
Amplitude Range	Measurement Range	100 kHz to 1 MHz	Displayed Average Noise Level (DANL) to 18 dBm
		1 MHz to 10 MHz	DANL to 21 dBm
		10 MHz to 3.25 GHz	DANL to 30 dBm
Attenuator	Input Attenuator Range	0 to 50 dB, in 1 dB step	Auto or manual setup
Maximum Safe Input Level	Average Total Power	≤ +33 dBm	Input attenuator ≥10 dB
	DC Voltage	± 50 V	
1 dB Gain Compression	Total Power at 1st Mixer	> 0 dBm	Typical;Fc ≥ 50 MHz; preamp. off
	Total Power at the Preamp	> -22 dBm	Typical;Fc ≥ 50 MHz; preamp. on
		mixer power level (dBm)= input power (dBm)-attenuation (dB)	
Displayed Average Noise Level (DANL)	Preamp off	0 dB attenuation; RF Input is terminated with a 50Ω load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60dBm; trace average ≥ 40	
	9 kHz to 100 kHz	< -93 dBm	Nominal
	100 kHz to 1 MHz	< -90 dBm - 3 x (f/100 kHz) dB	

	1 MHz to 2.7 GHz	< -122 dBm	
	2.7 GHz to 3.25 GHz	< -116 dBm	
	Preamp on	0 dB attenuation; RF Input is terminated with a 50Ω load ; RBW 10 Hz; VBW 10Hz; span 500 Hz; reference level = -60dBm; trace average ≥ 40	
	100 kHz to 1 MHz	< -108 dBm - 3 x (f/100 kHz) dB	Nominal
	1 MHz to 10 MHz	< -142 dBm	
	10 MHz to 3.25 GHz	< -142 dBm + 3 x (f/1 GHz) dB	
Level Display Range	Scales	Log, Linear	
	Units	dBm, dBmV, dBuV, V, W	
	Marker Level Readout	0.01 dB	Log scale
		0.01 % of reference level	Linear scale
	Level Display Modes	Trace, Topographic, Spectrogram	Single / split Windows
	Number of Traces	4	
	Detector	Positive-peak, negative-peak, sample, normal, RMS(not Video), Average(EMI), Quasi-Peak(EMI)	Can be setup for each trace separately
	Trace Functions	Clear & Write, Max/Min Hold, View, Blank, Average	
Absolute Amplitude Accuracy	Absolute Point	Center=160 MHz ; RBW 10 kHz; VBW 1 kHz; span 100 kHz; log scale; 1 dB/div; peak detector; 23°C±1°C; Signal at Reference Level	
	Preamp off	± 0.3 dB	Ref level 0 dBm; 10 dB RF attenuation
	Preamp on	± 0.4 dB	Ref level -30 dBm; 0 dB RF attenuation
Frequency Response	Preamp off	Attenuation: 10 dB; Reference: 160 MHz; 20 to 30°C	
	100 kHz to 2.0 GHz	± 0.5 dB	
	2GHz to 3.25 GHz	± 0.7 dB	
	Preamp on	Attenuation: 0 dB; Reference: 160 MHz; 20 to 30°C	
	1 MHz to 2 GHz	± 0.6 dB	
	2 GHz to 3.25 GHz	± 0.8 dB	
Attenuation Switching Uncertainty	Attenuator setting	0 to 50 dB in 1 dB step	
	Uncertainty	± 0.25 dB	reference: 160 MHz, 10dB attenuation
RBW Filter Switching Uncertainty	1 Hz to 1 MHz	± 0.25 dB	reference : 10 kHz RBW
Level Measurement Uncertainty	Overall Amplitude Accuracy	± 1.5 dB	20 to 30°C; frequency > 1 MHz; Signal input 0 to -50 dBm; Reference level 0 to -50 dBm; Input attenuation 10 dB; RBW 1 kHz; VBW 1 kHz; after cal; Preamp Off
		± 0.5 dB	Typical
Spurious Response	Second Harmonic Intercept		Preamp off; signal input -30dBm; 0 dB attenuation
		+35 dBm	Typical; 10 MHz < fc < 775 MHz
		+60 dBm	Typical; 775 MHz ≤ fc < 1.625 GHz
	Third-order Intercept		Preamp off; signal input -30dBm; 0 dB attenuation
		> 1dBm	300 MHz to 3.25 GHz
	Input Related Spurious	< -60 dBc	Input signal level -30 dBm, Att. Mode, Att=0dB; 20-30ºC
	Residual Response (inherent)	<-90 dBm	Input terminated; 0 dB attenuation; Preamp off

Sweep			
Sweep Time	Range	204 us to 1000 s	Span > 0 Hz
		50 us to 1000 s	Span = 0 Hz; Min Resolution = 10 us
	Sweep Mode	Continuous; Single	
	Trigger Source	Free run; Video; External	
	Trigger Slope	Positive or negative edge	
RF Preamplifier			
	Frequency Range	1 MHz to 3.25 GHz	
	Gain	18 dB	Nominal
			(installed as standard)
Front Panel Input/Output			
RF Input	Connector Type	N-type female	
	Impedance	50 ohm	Nominal
	VSWR	<1.6 :1	300 kHz to 3.25 GHz; Input attenuator ≥ 10 dB
Power for Option	Connector Type	SMB male	
	Voltage/Current	DC +7V / 500 mA max	With short-circuit protection
USB Host	Connector Type	A plug	
	Protocol	Version 2.0	Supports Full/High/Low speed
MicroSD Socket	Protocol	SD 1.1	
	Supported Cards	microSD, microSDHC	Up to 32GB capacity
Rear Panel Input/Output			
Reference Output	Connector Type	BNC female	
	Output Frequency	10 MHz	Nominal
	Output Amplitude	3.3V CMOS	
	Output Impedance	50 ohm	
Reference Input	Connector Type	BNC female	
	Input Reference Frequency	10 MHz	
	Input Amplitude	-5 dBm to +10 dBm	
	Frequency Lock Range	Within ± 5 ppm of the input reference frequency	
Alarm Output	Connector Type	BNC female	Open-collector
Trigger Input/ Gated Sweep Input	Connector Type	BNC female	
	Input Amplitude	3.3V CMOS	
	Switch	Auto selection by function	
LAN TCP/IP Interface	Connector Type	RJ-45	
	Base	10Base-T; 100Base-Tx; Auto-MDIX	
USB Device	Connector Type	B plug	For remote control only; supports USB TMC
	Protocol	Version 2.0	Supports Full/High/Low speed
IF Output	Connector Type	SMA female	
	Impedance	50 ohm	Nominal
	IF Frequency	886 MHz	Nominal
	Output level	-25 dBm	10 dB attenuation; RF input: 0 dBm @ 1 GHz
Earphone Output	Connector Type	3.5mm stereo jack, wired for mono operation	
Video Output	Connector Type	DVI-I (integrated analog and digital) , Single Link. Compatible with VGA or HDMI standard through adapter	
RS232 Interface	Connector Type	D-sub 9-pin female	Tx,Rx,RTS,CTS
GPIB Interface (Optional)	Connector Type	IEEE-488 bus connector	
AC Power Input	Power Source	AC 100 V to 240 V, 50 / 60 Hz Auto range selection	

Battery Pack (Optional)	Battery pack	6 cells, Li-Ion rechargeable, 3S2P	With UN38.3 Certification
	Voltage	DC 10.8 V	
	Capacity	5200 mAh / 56Wh	
General			
	Internal Data storage	16 MB nominal	
	Power Consumption	<65 W	
	Warm-up Time	< 30 minutes	
	Temperature Range	+5 °C to +45 °C	Operating
		-20 °C to + 70 °C	Storage
	Weight	4.5 kg (9.9 lb)	Inc. all options (Basic+TG+GPIB+Battery)
	Dimensions	210 x 350 x 100 (mm)	Approximately
		8.3 x 13.8 x 3.9 (in)	
Tracking Generator (Optional)			
	Frequency Range	100 kHz to 3.25 GHz	
	Output Power	-50 dBm to 0 dBm in 0.5 dB steps	
	Absolute Accuracy	± 0.5 dB	@160 MHz, -10 dBm, Source attenuation 10 dB, 20 to 30°C
	Output Flatness	Referenced to 160 MHz, -10 dBm	
		100 kHz to 2 GHz	± 1.5 dB
		2 GHz to 3.25 GHz	± 2 dB
	Output Level Switching Uncertainty	± 0.8 dB	Referenced to -10 dBm
	Harmonics	< -30 dBc	Typical, output level = -10 dBm
	Reverse Power	+30 dBm max.	
	Connector type	N-type female	
	Impedance	50 ohm	Nominal
	Output VSWR	< 1.6:1	300 kHz to 3.25 GHz, source attenuation ≥ 12 dB