

SPECIFICATIONS		
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 °C 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	601 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 resolution *1	RBW : Auto
PHASE NOISE		
Offset From Carrier	Fc = 1 GHz; RBW = 1 kHz, VBW = 10 Hz; Average ≥ 40	
10 kHz	< -88 dBc/Hz	Typical *2
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	-3 dB bandwidth
	200 Hz, 9 kHz, 120 kHz, 1MHz	-6 dB bandwidth
Accuracy	± 8 %, RBW = 1 MHz; ± 5 %, RBW < 1 MHz	Nominal *3
Shape Factor	< 4.5 : 1	Normal Bandwidth ratio: -60 dB : -3 dB
VIDEO BANDWIDTH (VBW) FILTER		
Filter Bandwidth	1 Hz to 1 MHz in 1-3-10 sequence	-3 dB bandwidth
[1] Frequency Resolution = Span/(Trace points - 1)		
[2] Typical specifications in this datasheet mean that the performance can be exhibited in 80 % of the units with a 95 % confidence level over the temperature range 20 °C to 30 °C. They are not covered by the product warranty.		
[3] Nominal values indicate expected performance. They are not covered by the product warranty.		
AMPLITUDE		
AMPLITUDE RANGE		
Measurement Range	100 kHz to 1 MHz 1 MHz to 10 MHz 10 MHz to 3.25 GHz	DANL to 18 dBm DANL to 21 dBm DANL to 30 dBm
ATTENUATOR		
Input Attenuator Range	0 dB to 50 dB, in 1 dB steps	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 Mixer power level (dBm) = input power (dBm) - attenuation (dB)	Typical ; Fc ≥ 50 MHz; preamp. On
DISPLAYED AVERAGE NOISE LEVEL (DANL) *4		
Preamp off	0 dB attenuation; RF Input is terminated with a 50 Ω load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60 dBm; trace average ≥ 40	
9 kHz to 100 kHz	< -93 dBm	Nominal
100 kHz to 1 MHz	< -90 dBm - 3 x (f/100 kHz) dB	Nominal
1 MHz to 2.7 GHz	< -122 dBm	Nominal
2.7 GHz to 3.25 GHz	< -116 dBm	Nominal
Preamp on	0 dB attenuation; RF Input is terminated with a 50 Ω load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60 dBm; trace average ≥ 40	
100 kHz to 1 MHz	< -108 dBm - 3 x (f/100 kHz) dB	Nominal
1 MHz to 10 MHz	< -142 dBm	Nominal
10 MHz to 3.25 GHz	< -142 dBm + 3 x (f/1 GHz) dB	Nominal
[4] DANL spec excludes spurious response.		
LEVEL DISPLAY RANGE		
Scales	Log, Linear	
Units	dBm, dBmV, dBuV, V, W	
Marker Level Readout	0.01 dB 0.01 % of reference level	Log scale 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), Quasi-Peak(EMI), Average(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 ± 5 °C; Signal at Reference Level	
Preamp Off	± 0.5 dB	Ref level 0 dBm; 10 dB RF attenuation
Preamp On	± 0.6 dB	Ref level 0 dBm; -30 dB RF attenuation
FREQUENCY RESPONSE		
Preamp Off	Attenuation : 10 dB; Reference: 160 MHz; 20 °C to 30 °C	
100 kHz to 2.0 GHz	± 0.5 dB	
2 GHz to 3.25 GHz	± 0.7 dB	
Preamp On	Attenuation: 0 dB; Reference: 160 MHz; 20 °C 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 Uncertainty	0 dB to 50 dB in 1 dB step	
	± 0.25 dB	Reference : 160 MHz, 10 dB 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 °C to 30°C; frequency > 1 MHz; Signal input 0 dBm to -50 dBm; Reference level 0 dBm 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 -30 dBm; 0 dB attenuation	
	+35 dBm +60 dBm	Typical; 10 MHz < fc < 775 MHz Typical; 775 MHz ≤ fc < 1.625 GHz
Third-order Intercept	Preamp off; signal input -30 dBm; 0 dB attenuation	
Input Related Spurious	> 1 dBm < -60 dBc	300 MHz to 3.25 GHz Input signal level -30 dBm, Att. Mode, Att = 0 dB; 20 °C to 30 °C
	< -90 dBm	Input terminated; 0 dB attenuation; Preamp off
Residual Response (Inherent)		
SWEEP		
SWEEP TIME		
Range	204 μs to 1000 s 50 μs to 1000 s	Span > 0 Hz Span = 0 Hz; Min resolution=10 μs
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 Ω	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 + 7 V/ 500 mA max	With short-circuit protection
USB HOST		
Connector Type	A plug	
Protocol	Version 2.0	Support Full/High/Low speed
MICROSD SOCKET		
Protocol	SD 1.1	
Support Cards	MicroSD, MicroSDHC	Up to 32 GB capacity
REAR PANEL INPUT/OUTPUT		
REFERENCE OUTPUT		
Connector Type	BNC female	
Output Frequency	10 MHz	Nominal
Output Amplitude	3.3 V CMOS	
Output Impedance	50 Ω	
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	3.3 V CMOS	
Switch	Auto selection by function	
LAN TCP/IP INTERFACE		
Connector Type	RJ-45	
Base	10 Base-T; 100 Base-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 Ω	Nominal
IF Frequency	886 MHz	Nominal
Output Level	-25 dBm	10 dB attenuation; RF input : 0 dBm @ 1 GHz
EARPHONE OUTPUT		
Connector Type	3.5 mm stereo jack, wired for mono operation	
RS-232C 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 Hz or 60 Hz	Auto range selection
GENERAL		
Internal Data Storage	16 MB nominal	
Power Consumption	< 65 W	
Warm-up Time	< 30 minutes	
Temperature Range	+5 °C to + 45 °C -20 °C to + 70 °C	Operating Storage
Dimensions & Weight	350(W) x 210(H) x 100(D) mm, Approx. 4.5 kg 13.8(W) x 8.3(H) x 3.9(D) inch, Approx. 9.9 lb	Inc. all options (Basic + TG + GPIB)

Calibration Cycle	The recommended calibration cycle is one year; calibration services are available through GW Instek’s authorized calibration services.	
TRACKING GENERATOR (OPTIONAL)		
Frequency Range Output Power Absolute Accuracy Output Flatness Output Level Switching Uncertainty Harmonics Reverse Power ConnectorType Impedance Output VSWR	100 kHz to 3.25 GHz -50 dBm to 0 dBm in 0.5 dB steps ± 0.5 dB Referenced to 160 MHz, -10 dBm 100 kHz to 2 GHz 2 GHz to 3.25 GHz ± 0.8 dB < -30 dBc +30 dBm max. N-type female 50 Ω < 1.6 : 1	@160 MHz, -10 dBm, Source attenuation 10 dB, 20 °C to 30 °C ± 1.5 dB ± 2 dB Referenced to -10 dBm Typical, output level = -10 dBm Nominal 300 kHz to 3.25 GHz, source attenuation ≥ 12 dB
[5] The minimum RBW filter is 10 kHz when the TG output is ON.		

Note : The specifications apply when the GSP-9330 is powered on for at least 60 minutes to warm-up to a temperature of 20 °C to 30 °C, unless specified otherwise.

ORDERING INFORMATION		
GSP-9330	3.25 GHz Spectrum Analyzer	
EMC Pretest Solution	GKT-008	EMI Near Field Probe Set
	GLN-5040A	Line Impedance Stabilization Network
	APS-7100E	1 kVA AC Power Source
	GPL-5010	Transient Limiter
ACCESSORIES :		
Power Cord x 1		
OPTION		
GSP-93T1	Tracking Generator (Factory installed option)	
GSP-93G1	GPIB Interface (Factory installed option)	
OPTIONAL ACCESSORIES		
GSC-009	Soft Carrying Case	
GSP-93G1	Rack Adapter Panel	
FREE DOWNLOAD		
SpectrumShot PC Software for Windows System (available on GW Instek website); IVI Driver Supports LabVIEW/LabWindows/CVI Programming (available on NI website)		