

# FAST, WHAT ELSE!

New Measurement Experience, Fastest Speed of 204  $\mu$ s.

## GSP-9330

3.25 GHz Spectrum Analyzer



### FEATURES

- Frequency Range : 9kHz ~ 3.25GHz
- 0.025ppm Frequency Stability and 1ppm Aging Rate
- RBW : 1Hz ~ 1MHz (3dB), 6dB EMI Filter : 200Hz, 9kHz, 120kHz, 1MHz
- Fastest Sweep Time : 204 $\mu$ s
- Sensitivity : -149dBm/Hz (@PreAmp on)
- Built-in Preamplifier, 50dB Attenuator, and Sequence Function
- Built-in EMC Pretest Function
- Built-in 2FSK Analysis, AM/FM/ASK/FSK Demodulation & Analysis
- Built-in P1dB Point, Harmonic, Channel Power, N-dB Bandwidth, OCBW, ACPR, SEM, TOI, CNR, CTB, CSO, Noise Marker, Frequency Counter, Time Domain Power, Gated Sweep
- Built-in Spectrogram, Topographic and Split-window Display Modes
- Remote Control EMI Measurement Software : SpectrumShot
- Remote Control Interface : LAN, USB, RS-232
- Options : Tracking Generator, GPIB Interface

**GWINSTEK**

Simply Reliable

## 3.25 GHz Spectrum Analyzer

# TESTS MUST BE FAST!

## GSP-9330 (9kHz ~ 3.25GHz)



GSP-9330, a high test speed spectrum analyzer with 3.25 GHz, provides the fastest 204  $\mu$ s sweep speed. Users, via high speed sweep time, can easily handle and analyze modulation signals. The keys to handling modulated signals are fast sweep time and signal demodulation functions. In addition to the analog AM/FM demodulation and analysis function, GSP-9330 also provides digital signal ASK/FSK, and 2FSK demodulation and analysis capabilities. Nowadays, EMC issues are very crucial to product's design processes. Therefore, GSP-9330 has incorporated the EMC pretest solution to facilitate EMC tests. The simple and easy EMC pretest procedures from GSP-9330 can tremendously shorten users' product launch timeline.

### CUSTOMERS

- Consumer Electronics
- Service and Maintenance
- Universities, Graduate Schools
- Military Industries
- Automotive Electronics
- Telecom and communications Industries
- Distributors for RF-Instruments Instrument leasing Companies

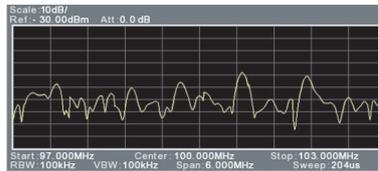
### APPLICATIONS

- For the Quick Check and Analysis of Spectral Characteristic
- EMI Pre-compliance Testing
- Analyze ASK, FSK, AM, FM Signal Characteristics
- Monitor Satellite Uplink Signals From Satellite Uplink Truck
- Test Systems That Require a Very Compact Instrument
- Measure the Frequency Response of Cable, Attenuator, Filter and Amplifier

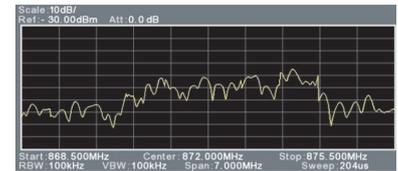
## A. FAST SIGNAL SWEEP

For spectrum analyzer, speed is the most important specification. GSP-9330 provides sweep speed up to 204  $\mu$ s. Users, via high speed sweep time, can identify and analyze various fast or transient signals such as frequency/amplitude modulation signals, Bluetooth frequency hopping signals, tuned oscillator or other interfering signals under ISM Band.

FM Signal Monitoring



Taiwan 3G Telecom Signals



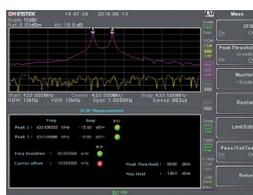
## B. MODULATED SIGNAL ANALYSIS

2FSK modulation, for its features of low design cost and low electricity consumption, is widely used by RF communications applications with low power and low data transmission speed characteristics. Nowadays, 2FSK modulation technology has been applied in various products and systems such as consumer electronics, automotive electronics, RFID, auto reading electricity meter, and industrial control devices, etc. 2FSK signal analysis measures parameters including carrier power, FSK frequency deviation, carrier frequency, and carrier frequency offset. Users can set the criterion in frequency deviation and carrier offset for fast test result determination.

RFID and optical communications systems often use Amplitude Shift Keying (ASK). Applications such as wireless telephone, paging systems, and RFID, etc. utilize Frequency Shift Keying (FSK). ASK/FSK demodulation and analysis measures parameters including AM depth, frequency deviation, carrier power, carrier frequency offset, symbol, and waveform. Users can set AM depth, frequency deviation, carrier power and carrier offset for Pass/Fail testing result. Data message is provided to determined preamble & sync function.

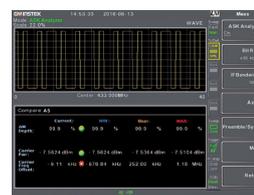
AM/FM Signal Analysis measures parameters including AM depth, frequency deviation, modulation rate, carrier power, carrier frequency offset and SINAD. Users can set the criterion in AM depth, frequency deviation, carrier power and carrier offset for fast test result determination. The GSP-9330 has a convenient AM/FM demodulation function to tune into AM or FM broadcast signals and listen to the demodulated signals.

2FSK Signal Analysis



2FSK

ASK/FSK Signal Demodulation & Analysis

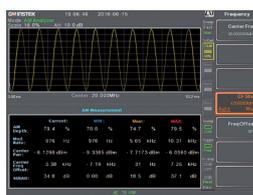


FSK

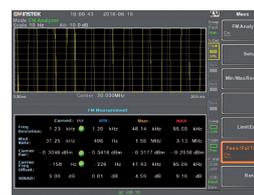


ASK

AM/FM Signal Demodulation & Analysis



FM



AM

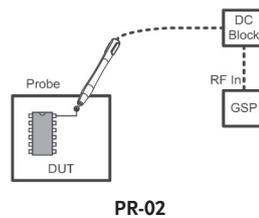
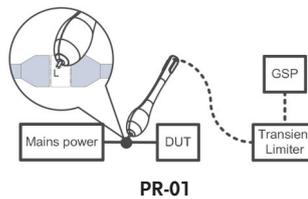
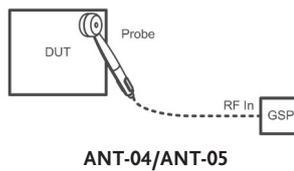
# 3.25 GHz Spectrum Analyzer

## C. EMC PRETEST SOLUTION

GSP-9330 has the built-in EMI dedicated 200/9k/120k/1MHz filter, 20dB low noise amplifier and Quasi-Peak/Average detection mode to conduct radiation and conduction tests after collocating with the probe set.

GKT-008, the radiation test probe set, provides a complete near field test probe set to simplify the complex measurement procedures and to simulate 3m/10m far field tests from the labs. Using GKT-008 can greatly save engineers' debugging time and the money for going back and forth to the labs. GKT-008 can collocate with the Tracking Generator function of GSP-9330 to conduct EMS tests.

For conduction tests, GSP-9330 can collocate with LISN and Isolation Transformer to conduct electromagnetic conduction tests. If users concern EUT's large voltage variation or complexity, applying a Transient Limiter will make test equipment safer.



EMC Pretest Instruments Provided by GW Instek Are as Follows :		
<b>GSP-9330</b>	<b>Spectrum Analyzer</b>	Built-in complete EMC pretest solution
<b>GKT-008</b>	<b>EMI Near Field Probe Set</b>	Provide probe set for near field signals, including ANT-04/ANT-05 field sensor PR-01 AC high voltage probe PR-02 Source contact probe
<b>GLN-5040A</b>	<b>LISN</b>	LISN required by EMI conduction tests and it meets CISPR16-1-2:2006 regulations
<b>GIT-5060</b>	<b>Isolation Transformer</b>	Different mains have different current leakages that will cause systems to have short circuit Isolation transformer prevents short circuit by isolating current loop
<b>GPL-5010</b>	<b>Transient Limiter</b>	Transient Limiter will make test equipment safer if EUT has large voltage variation or complexity

For more detailed information about EMC Pretest Solution, please visit "DETAILED EMC PRETEST SOLUTION" documents.

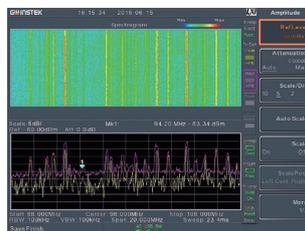
## D. GRAPHIC PROCESSING OF SIGNAL MONITORING

Spectrogram can simultaneously display power, frequency, and time. Frequency and power variation according to time changes can also be tracked. Especially, the intermittently appeared signals can be identified. Users, by using Spectrogram, can analyze the stability of signal versus time or identify the intermittently appeared interference signals in the communications system. Users can use two markers to find out the relation of power to frequency and time.

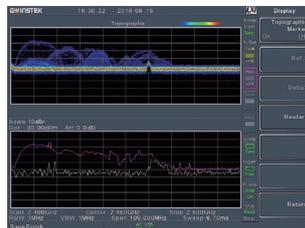
Topographic uses color shade to show the probability distribution of signal appearance. This function allows users to directly understand the process of signal variation according to time changes that is beneficial to observe intermittent feeble signals or electromagnetic interference signals. Users can use two markers to find out the relation of power to frequency and percentage.

Split-Window allows two independent observations that are very convenient for monitoring two different frequency bandwidths.

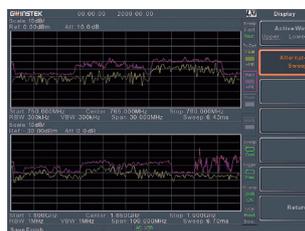
### Observe FM Signals by Spectrogram



### Observe WiFi Signals by Topographic



### Observe 4G LTE Signals by Split-Window Display



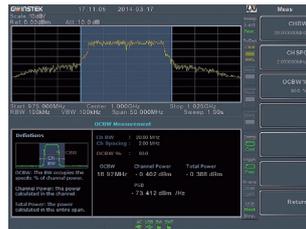
# 3.25 GHz Spectrum Analyzer

## E. SIGNAL VERIFICATION, TEST AND ANALYSIS

### Channel Power Measurement

Telecommunications and broadcasting service carriers will encounter distorted signals caused by adjacent channels' inter-modulation while transmitting modulated signals using communications channels. If the distorted signals are too large the communications quality of adjacent channels will be affected. The ACPR measurement can examine the leakage status that is conducive to identifying interference source.

The OCBW measurement can simultaneously display OCBW, channel power and PSD. OCBW's unit is shown by percentage. A measurement area containing bandwidth will be shown when OCBW is in use.



ACPR



OCBW

### Spectrum Emission Mask

SEM measures out-of-channel emission which is defined by corresponding in-channel power. Users can set main channel's parameters, out-of-channel range, and limit line, etc.

GSP-9330 has the built-in SEM settings of 3 GPP, WLAN 802.11b/g/n, Wimax 802.16 and self-defined communications system. SEM supports the Pass/Fail test function and lists frequency range for surpassing each out-of-channel limit. An alarm signal will be triggered if any measurement results that are not matched with SEM.

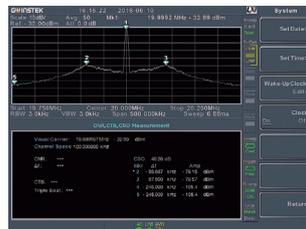


SEM

### CATV System Parameter Tests

The built-in CNR/CSO/CTB functions of GSP-9330 are ideal for measuring performance of CATV amplifier and system.

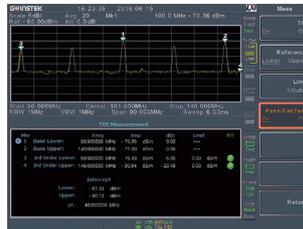
Note: General CATV is 75Ω. For GSP-9330, a 50 ~ 75 ohm adapter is needed.



CNR/CSO/CTB

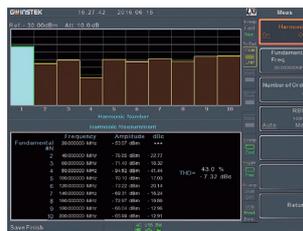
## TOI (Third Order Intercept)

Users can measure the linearity of non-linear systems and components such as receiver, low-noise amplifier and mixer by TOI which automatically tests effective carrier and measures inter-modulation sidebands.



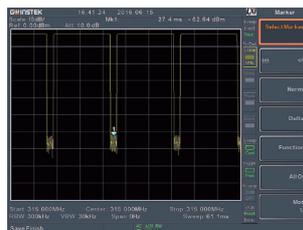
## Harmonic

Harmonic can easily measure the amplitude of fundamental frequency and as high as ten orders of harmonic frequency. This function can also measure amplitude(dBc) which is the ratio of harmonic and corresponding fundamental carrier. Total harmonic distortion(THD) can also be calculated by this function. The best harmonic information can be obtained by adjusting RBW.



## Time Domain Power

Users can go to zero span setting and open marker to observe burst signals when measuring burst signal in time domain is required.



## Phase Jitter

The Phase Jitter function can rapidly measure phase noise produced by RF signal source's and oscillator's carrier deviation. This function can directly convert signal jitter to phase (rad) and time (ns).

## Marker Noise

The marker noise function calculates the average noise level over a bandwidth of 1Hz, referenced from the marker position.

## Gated Sweep

Radar or TDMA communications systems, via intermittently turning On/Off output power, control transmission signals. In order to monitor the power spectrum during the transmission process, the Gated Sweep function can initiate measurement only when signals appear. This function is ideal for measuring burst signals such as GSM or WLAN.



## G. USER FRIENDLY DESIGN

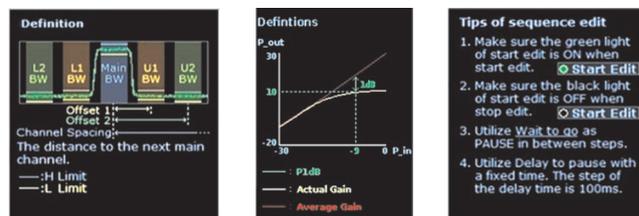
### Status Icons

Status Icons show the interface status, power status, alarm status and etc of GSP-9330. Users can easily understand the setting status and test results of the instrument.



### Definition Help

The built-in Definition Help function allows users to immediately understand the parameters of Channel Power, OCBW, ACPR, SEM, Phase Jitter, N-dB Bandwidth & P1dB items so as to save time on reading user manual.



## H.COMMUNICATIONS INTERFACE

### Various Interface

Provide USB Host, RS-232, LXI C(LAN), and GPIB(option) instrument control interface. Supported programs comply with IEEE488.2.



### File Storage

Provide USB Device, MicroSD interface for file storage. Quick Save function is also available for users to quickly retrieve display.



USB Device/MicroSD

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## I. SOFTWARE SUPPORT

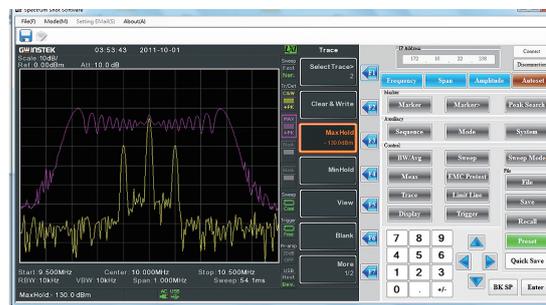
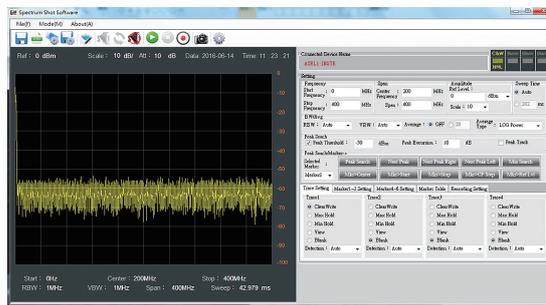
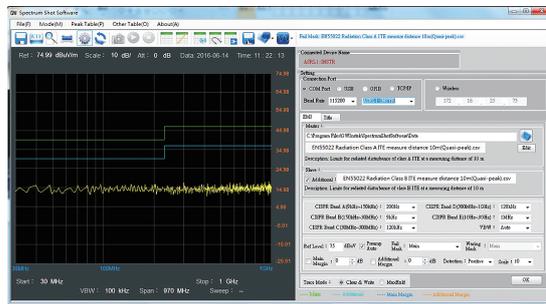
### PC Software - SpectrumShot

Users can use the external software Spectrum Shot for EMI pretest report management and assessment, remote control and waveform data recording for long periods of time.

Under the EMI Pre-test Mode, users can select the required CISPR EMI regulation for conduction and radiation measurement.

Under Get Trace mode, users can record the waveform data for long periods of time. It can be applied to spectrum monitoring for detecting any abnormal radio signals. The software will send out e-mail to inform users if any abnormal situation occurs.

Under the Remote Control mode, users can monitor wireless interference signals or observe signals for long periods of time.



### IVI Driver & LabVIEW Support

IVI Driver Supports LabVIEW & LabWindows/CVI Programming. It is available on NI website.

## J. VARIOUS AUGMENTING OPTIONS

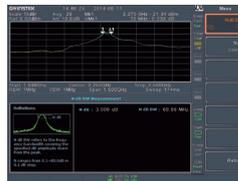
### Tracking Generator

TG option provides 0 to -50 dBm synchronized sweep output, conducts scalar network analysis (S11, S21) function as well as P1dB.



### Scalar Network Analysis

The built-in tracking generator can swiftly and easily measure frequency response of cable loss, filter bandwidth, amplifier gain, mixer conversion loss, etc. The N-dB Bandwidth function measures 3dB bandwidth of Bandpass filter. SWR bridge should be connected with tracking generator to measure the return loss of antenna or filter.



3dB frequency bandwidth



Reflection loss

### P1dB Point Measurement

All active components have linear dynamic range for power output. Once output power reaches the maximum level, active component will enter the non-linear saturated area of P1dB point and cease amplifying signal intensity as well as produce harmonic distortion. It is very useful for P1dB point measurement in active components such as low noise amplifier, mixer and active filter.

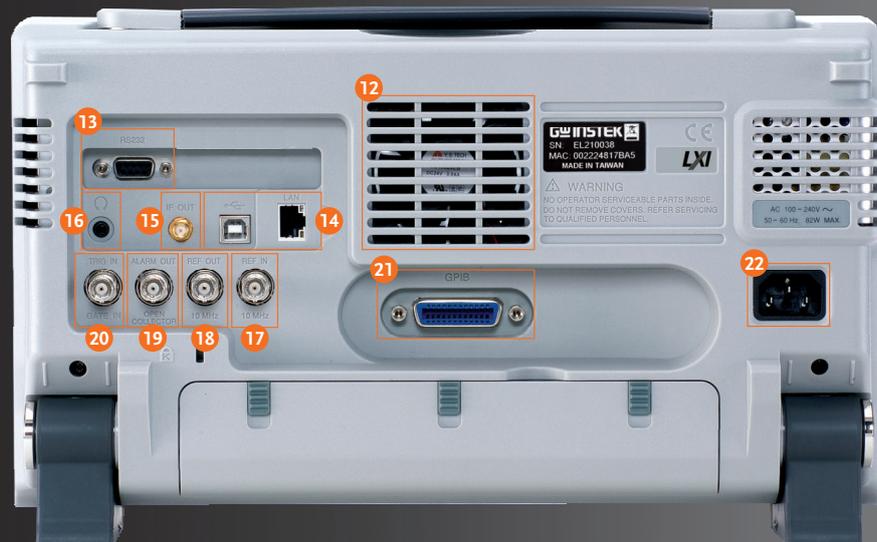


### Soft Carrying Case

Compact and light-weighted(4 kg) GSP-9330 can be powered by battery making it suitable for outdoor operations. Optional soft carrying case(GSC-009) provides convenience and protection to the instrument. GSP-9330 is equipped with 8.4 inches 800 x 600 pixels LCD display which yields clearer display results for outdoor operations.



## PANEL INTRODUCTION



- |   |                               |                                     |
|---|-------------------------------|-------------------------------------|
| 1. LCD Display                            | 10. Tracking Generator Output | 19. Alarm Output / Open Collector   |
| 2. F1~F6 Modifier keys                    | 11. USB-A, Micro SD Port      | 20. Trigger Input / Gate Input Port |
| 3. Function Keys                          | 12. Fan                       | 21. GPIB Port (optional)            |
| 4. Power Key                              | 13. RS-232 Port               | 22. Power Socket                    |
| 5. Scroll Wheel, Arrow Keys               | 14. USB-B, LAN Port           |                                     |
| 6. Enter, BK SP, Preset & Quick Save Keys | 15. IF Output                 |                                     |
| 7. Numeric Keys                           | 16. 3.5mm Headphone Jack      |                                     |
| 8. RF Input Terminal                      | 17. REF Input                 |                                     |
| 9. +7V DC Power Supply                    | 18. REF Output                |                                     |

SPECIFICATIONS		
<b>FREQUENCY</b>		
<b>FREQUENCY</b>		
Range	9 kHz to 3.25 GHz	
Resolution	1 Hz	
<b>FREQUENCY REFERENCE</b>		
Accuracy	$\pm(\text{period since last adjustment} \times \text{aging rate}) + \text{stability over temperature} + \text{supply voltage stability}$	
Aging Rate	$\pm 1$ ppm max.	1 year after last adjustment
Frequency Stability Over Temperature	$\pm 0.025$ ppm	0 °C to 50 °C
Supply Voltage Stability	$\pm 0.02$ ppm	
<b>FREQUENCY READOUT ACCURACY</b>		
Start, Stop, Center, Marker	$\pm(\text{marker frequency indication} \times \text{frequency reference accuracy} + 10\% \times \text{RBW} + \text{frequency resolution})$	
Trace Points	601 points	
<b>MARKER FREQUENCY COUNTER</b>		
Resolution	1 Hz, 10 Hz, 100 Hz, 1 kHz	
Accuracy	$\pm(\text{marker frequency indication} \times \text{frequency reference accuracy} + \text{counter resolution})$	RBW/Span $\geq 0.02$ ; Mkr level to DNL > 30 dB
<b>FREQUENCY SPAN</b>		
Range	0 Hz (zero span), 100 Hz to 3.25 GHz	
Resolution	1 Hz	
Accuracy	$\pm$ frequency resolution *1	RBW : Auto
<b>PHASE NOISE</b>		
Offset From Carrier	Fc = 1 GHz; RBW = 1 kHz, VBW = 10 Hz; Average $\geq 40$	
10 kHz	< -88 dBc/Hz	Typical *2
100 kHz	< -95 dBc/Hz	Typical
1 MHz	< -113 dBc/Hz	Typical
<b>RESOLUTION BANDWIDTH (RBW) FILTER</b>		
Filter Bandwidth	1 Hz to 1 MHz in 1-3-10 sequence 200 Hz, 9 kHz, 120 kHz, 1 MHz	-3 dB bandwidth -6 dB bandwidth Nominal *3
Accuracy	$\pm 8\%$ , RBW = 1 MHz; $\pm 5\%$ , RBW < 1 MHz	Normal Bandwidth ratio: -60 dB : -3 dB
Shape Factor	< 4.5 : 1	
<b>VIDEO BANDWIDTH (VBW) FILTER</b>		
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 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.		
<b>AMPLITUDE</b>		
<b>AMPLITUDE RANGE</b>		
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
<b>ATTENUATOR</b>		
Input Attenuator Range	0 dB to 50 dB, in 1 dB steps	Auto or manual setup
<b>MAXIMUM SAFE INPUT LEVEL</b>		
Average Total Power	$\leq +33$ dBm	Input attenuator $\geq 10$ dB
DC Voltage	$\pm 50$ V	
<b>1 dB GAIN COMPRESSION</b>		
Total Power at 1st Mixer	> 0 dBm	Typical ; Fc $\geq 50$ MHz; preamp. off
Total Power at the Preamp	> -22 dBm Mixer power level (dBm) = input power (dBm) - attenuation (dB)	Typical ; Fc $\geq 50$ MHz; preamp. On
<b>DISPLAYED AVERAGE NOISE LEVEL (DANL) *4</b>		
Preamp off	0 dB attenuation; RF Input is terminated with a 50 $\Omega$ load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60 dBm; trace average $\geq 40$	
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 $\Omega$ load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60 dBm; trace average $\geq 40$	
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.		
<b>LEVEL DISPLAY RANGE</b>		
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	
<b>ABSOLUTE AMPLITUDE ACCURACY</b>		
Absolute Point	Center = 160 MHz ; RBW 10 kHz; VBW 1 kHz; span 100 kHz; log scale; 1 dB/div; peak detector; 23 °C $\pm 5$ °C; Signal at Reference Level	
Preamp Off	$\pm 0.5$ dB	Ref level 0 dBm; 10 dB RF attenuation
Preamp On	$\pm 0.6$ dB	Ref level 0 dBm; -30 dB RF attenuation
<b>FREQUENCY RESPONSE</b>		
Preamp Off	Attenuation : 10 dB; Reference: 160 MHz; 20 °C to 30 °C	
100 kHz to 2.0 GHz	$\pm 0.5$ dB	
2 GHz to 3.25 GHz	$\pm 0.7$ dB	
Preamp On	Attenuation: 0 dB; Reference: 160 MHz; 20 °C to 30 °C	
1 MHz to 2 GHz	$\pm 0.6$ dB	
2 GHz to 3.25 GHz	$\pm 0.8$ dB	

SPECIFICATIONS		
<b>ATTENUATION SWITCHING UNCERTAINTY</b>		
Attenuator Setting Uncertainty	0 dB to 50 dB in 1 dB step ± 0.25 dB	Reference : 160 MHz, 10 dB attenuation
<b>RBW FILTER SWITCHING UNCERTAINTY</b>		
1 Hz to 1 MHz	± 0.25 dB	Reference : 10 kHz RBW
<b>LEVEL MEASUREMENT UNCERTAINTY</b>		
Overall Amplitude Accuracy	± 1.5 dB ± 0.5 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 Typical
<b>SPURIOUS RESPONSE</b>		
Second Harmonic Intercept	Preamp off; signal input -30dBm; 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 -30dBm; 0 dB attenuation > 1 dBm	300 MHz to 3.25 GHz
Input Related Spurious	< -60 dBc	Input signal level -30 dBm, Att. Mode, Att = 0 dB; 20 °C to 30 °C
Residual Response (Inherent)	< -90 dBm	Input terminated; 0 dB attenuation; Preamp off
<b>SWEEP</b>		
<b>SWEEP TIME</b>		
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	
<b>RF PREAMPLIFIER</b>		
Frequency Range	1 MHz to 3.25 GHz	
Gain	18 dB	Nominal (installed as standard)
<b>FRONT PANEL INPUT/OUTPUT</b>		
<b>RF INPUT</b>		
Connector Type	N-type female	
Impedance	50 Ω	Nominal
VSWR	< 1.6 :1	300 kHz to 3.25 GHz ; Input attenuator 10 dB
<b>POWER FOR OPTION</b>		
Connector Type	SMB male	
Voltage/Current	DC + 7 V/ 500 mA max	With short-circuit protection
<b>USB HOST</b>		
Connector Type	A plug	
Protocol	Version 2.0	Support Full/High/Low speed
<b>MICROSD SOCKET</b>		
Protocol	SD 1.1	
Support Cards	MicroSD, MicroSDHC	Up to 32 GB capacity
<b>REAR PANEL INPUT/OUTPUT</b>		
<b>REFERENCE OUTPUT</b>		
Connector Type	BNC female	
Output Frequency	10 MHz	Nominal
Output Amplitude	3.3 V CMOS	
Output Impedance	50 Ω	
<b>REFERENCE INPUT</b>		
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	
<b>ALARM OUTPUT</b>		
Connector Type	BNC female	Open-collector
<b>TRIGGER INPUT/GATED SWEEP INPUT</b>		
Connector Type	BNC female	
Input Amplitude	3.3 V CMOS	
Switch	Auto selection by function	
<b>LAN TCP/IP INTERFACE</b>		
Connector Type	RJ-45	
Base	10 Base-T; 100 Base-Tx; Auto-MDIX	
<b>USB DEVICE</b>		
Connector Type	B plug	For remote control only; supports USB TMC
Protocol	Version 2.0	Supports Full/High/Low speed
<b>IF OUTPUT</b>		
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
<b>EARPHONE OUTPUT</b>		
Connector Type	3.5mm stereo jack, wired for mono operation	
<b>RS-232C INTERFACE</b>		
Connector Type	D-sub 9-pin female	Tx , Rx , RTS , CTS
<b>GPIB INTERFACE (OPTIONAL)</b>		
Connector Type	IEEE-488 bus connector	
<b>AC POWER INPUT</b>		
Power Source	AC 100 V to 240 V, 50 Hz or 60 Hz	Auto range selection

## SPECIFICATIONS

GENERAL		
Internal Data Storage	16 MB nominal	Operating Storage Inc. all options (Basic + TG + GPIB + Battery)
Power Consumption	< 65 W	
Warm-up Time	< 30 minutes	
Temperature Range	+5 °C to + 45 °C -20 °C to + 70 °C	
Dimensions & Weight	350(W) x 210(H) x 100(D) mm, Approx. 4.5kg	
Calibration Cycle	13.8(W) x 8.3(H) x 3.9(D) inch, Approx. 9.9lb The recommended calibration cycle is one year; calibration services are available through GW Instek's authorized calibration services.	
TRACKING GENERATOR (OPTIONAL) *5		
Frequency Range	100 kHz to 3.25 GHz	@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
Output Power	-50 dBm to 0 dBm in 0.5 dB steps	
Absolute Accuracy	± 0.5 dB	
Output Flatness	Referenced to 160 MHz, -10 dBm 100 kHz to 2 GHz 2 GHz to 3.25 GHz ± 0.8 dB	
Output Level Switching Uncertainty	± 0.8 dB	
Harmonics	< -30 dBc	
Reverse Power	+30 dBm max.	
Connector Type	N-type female	
Impedance	50 Ω	
Output VSWR	< 1.6 : 1	
[5] The minimum RBW filter is 10kHz 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.

Specifications subject to change without notice.

GSP-9330BGD1DH

## ORDERING INFORMATION

<b>GSP-9330</b>	3.25 GHz Spectrum Analyzer					
<b>EMC Pretest Solution</b>	<b>GKT-008</b>	EMI Near Field Probe Set				
	<b>GLN-5040A</b>	Line Impedance Stabilization Network				
	<b>APS-7100E</b>	1 kVA AC Power Source				
	<b>GPL-5010</b>	Transient Limiter				
<b>ACCESSORIES :</b>						
Power Cord						
<b>OPTION</b>						
<b>GSP-93T1</b>	Tracking Generator (Factory installed option)					
<b>GSP-93G1</b>	GPIB Interface (Factory installed option)					
<b>OPTIONAL ACCESSORIES</b>						
<b>GSC-009</b>	Soft Carrying Case					
<b>GRA-415</b>	Rack Adapter Panel					
<b>FREE DOWNLOAD</b>						
SpectrumShot PC Software for Windows System (available on GW Instek website); IVI Driver Supports LabVIEW/LabWindows/CVI Programming (available on NI website)						

DISTRIBUTOR :

GSP-9330GD2BH

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