GSP-9300

3GHz Spectrum Analyzer

FEATURES

- Frequency Range : 9kHz ~ 3GHz
- High Frequency Stability : 0.025ppm
- 3dB RBW : 1Hz ~ 1MHz
- 6dB EMI Filter : 200Hz, 9kHz, 120kHz, 1MHz
- Sweep Time up to 307us
- Phase Noise : -88dBc/Hz @1GHz, 10kHz Offset
- Built-in Measurement Functions : 2FSK Analysis, AM/FM/ASK/FSK Demodulation & Analysis, EMC Pre-test, 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 and Topographic Display Modes
- 886MHz IF Output for User's Extended Applications
- Remote Control Interface : LAN, USB, RS-232, GPIB (Optional)
- Built-in Preamplifier, 50dB Attenuator, and Sequence Function
- Optional 6.2GHz Power Sensor, Tracking Generator, Battery Pack

GW INSTEK
Simply Reliable

3GHz Spectrum Analyzer

GSP-9300

CE | USB | LXI | DVI Output | RS-232 | GPIB | PC Software

GSP-9300 is a light, compact, and high C/P ratio 3GHz spectrum analyzer. The GSP-9300 frequency range stretches from 9 KHz to 3GHz and features many functions such as radio frequency and power measurement, 2FSK digital communications analysis, EMC pretest mode, and active component P1dB point measurement, etc. It can support the fast sweep speed up to 307usec. It is the ideal instrument for various application fields such as the basic operation of R&D, research and school lecture, engineering maintenance, and test for mass production. This light and compact spectrum analyzer is also suitable for automatic test systems and vehicle mounted operation.

GW Instek understands that high quality is a very important consideration for users who are selecting economical spectrum analyzers. GSP-9300 spectrum analyzer, with the built-in preamplifier and the highest sensitivity of -152dBm (1Hz), is capable of measuring very feeble signals. To obtain the accurate results, the low power measurement uncertainty of GSP-9300 is less than 1.5dB.

The built-in measurement functions of GSP-9300 spectrum analyzer include 2FSK digital communications analysis, AM/FM/ASK/FSK signal demodulation & analysis, EMC pretest mode, Harmonic Distortion, TOI, Channel Power, OCBW, ACPR, SEM, Phase Jitter, N-dB Bandwidth, Noise Marker, Frequency Counter, and Time Domain power measurement for burst signal, etc.

Tracking generator, an option for GSP-9300 spectrum analyzer, provides supplementary functions such as measuring the insertion loss of RF cable and identifying the frequency response of antenna, filter or amplifier. The P1dB measurement function supports power sweep and P1dB compression point of active component's. It supports 6.2GHz power sensor PWS-06. Users, via the power meter mode, can conduct related measurement applications without using an independent power meter.

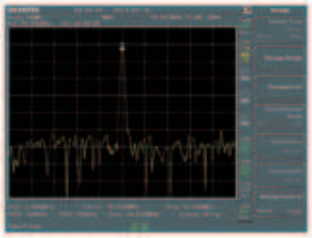
GSP-9300 spectrum analyzer is very user-friendly. All frequently used functions can be applied quickly through function keys and five languages (English, Russian, Traditional Chinese, Simplified Chinese and Japanese) are available for user interface.

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

To summarize, GSP-9300 spectrum analyzer is a perfect, light, compact, and economical measurement instrument. With height of 210mm and width of 350mm, GSP-9300 is suitable for automatic test systems. It can be mounted on the 19 inches 6U rack. The light and compact design of GSP-9300 is ideal for vehicle mounted operation to carry out field strength measurement such as monitoring satellite communications signals.

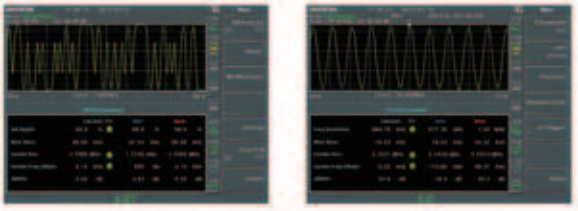
MEASUREMENT FUNCTION KEY FEATURES

A. FAST SWEEP MODE



GSP-9300 supports the fast sweep mode with sweep speed up to 307usec. Users can use the fast sweep mode to capture transient signals such as Tire-pressure monitoring system (TPMS), Bluetooth frequency hopping signals, tuned oscillator, and other interfering signals in ISM frequency band, etc.

B. AM/FM SIGNAL DEMODULATION & ANALYSIS

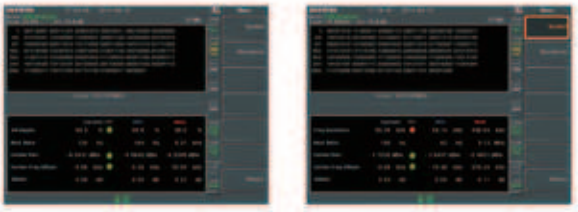


AM/FM Signal Analysis measures parameters including AM depth, frequency deviation, modulation rate, carrier power, carrier frequency offset and SINAD. Users can set the criterion in AM depth, frequency deviation, carrier power and carrier offset for fast test result determination. The GSP-9300 has a convenient AM/FM demodulation function to tune into AM or FM broadcast signals and listen to the demodulated baseband signals using the ear phone out socket.

C. 2FSK SIGNAL ANALYSIS

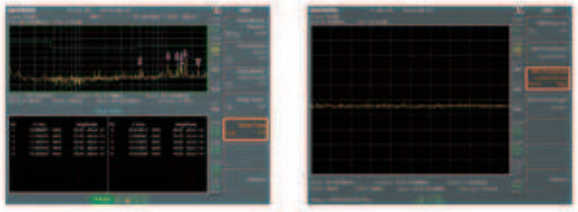
2FSK modulation, for its features of low design cost and low electricity consumption, is widely used by RF communications applications with low power and low data transmission speed characteristics. Nowadays, 2FSK modulation technology has been applied in various products and systems such as consumer 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.

D. ASK/FSK SIGNAL DEMODULATION & ANALYSIS



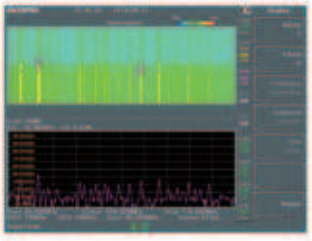
RFID and optical communications systems often use Amplitude Shift Keying (ASK). Applications such as wireless telephone, paging systems, and RFID, etc. utilize Frequency Shift Keying (FSK).
ASK/FSK demodulation and analysis measures parameters including AM depth, frequency deviation, modulation rate, carrier power, carrier frequency offset, SINAD, symbol, and waveform. Users can set AM depth, frequency deviation, carrier power and carrier offset for Pass/Fail testing result.

E. EMC PRETEST MODE



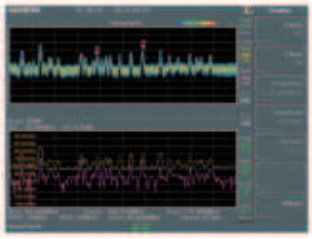
GSP-9300 supports -6dB EMI filter with 200/9k/120k/1M Hz bandwidth and built-in low noise amplifier. Users can apply maximum peak detector and EMI filter to conduct pre-compliance testing for electronics products. Users can activate built-in amplifier to measure feeble electromagnetic interfering signals to -150dBm/Hz in 1GHz frequency band.EMC pretest mode collocates with near field probe or antenna to carry out conduction and radiation electromagnetic interference (EMI) test. Additionally, near field probe and GSP-9300 tracking generator can be used to output 0dBm RF signals to test electromagnetic susceptibility (EMS) for electronics products.

F. SPECTROGRAM



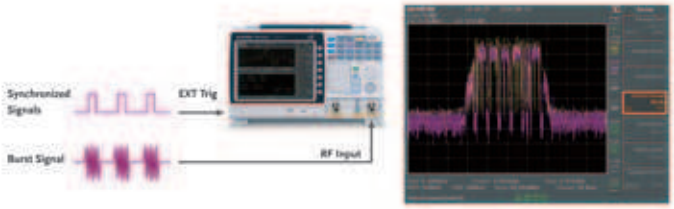
Spectrogram can simultaneously display power, frequency, and time. Frequency and power variation according to time changes can also be tracked. Especially, the intermittently appeared signals can be identified. Users, by using Spectrogram, can analyze the stability of signal versus time or identify the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

G. TOPOGRAPHIC



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 makers to find out the relation of power to frequency and percentage.

H. 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 (as shown in the example).

I. OCBW/ACPR

Occupied Bandwidth

Adjacent Channel Power Ratio

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.

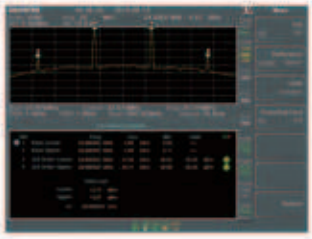
Telecommunications and broadcasting service carriers must reduce interference to the minimum. This interference is caused by power leakage to adjacent transmission channels. The ACPR measurement can examine the leakage status that is conducive to identifying interference source.

J. SEM

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. 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. GSP-9300 has the built-in SEM settings of 3GPP, WLAN 802.11b/g/n, Wimax 802.16 and self-defined communications system.

K. TOI



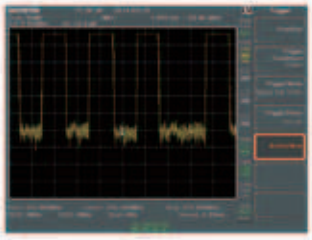
Third Order Intercept

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.

L. HARMONIC

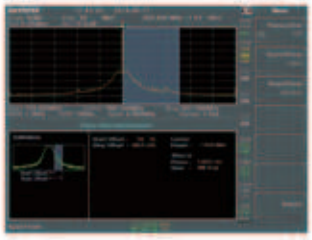
Harmonic can easily measure the amplitude of fundamental frequency and as high as ten order of harmonic frequency. This function can also measure amplitude (dBc) which is the ratio of harmonic and corresponding fundamental carrier. Total harmonic distortion (THD) can also be calculated by this function.

M. TIME DOMAIN POWER



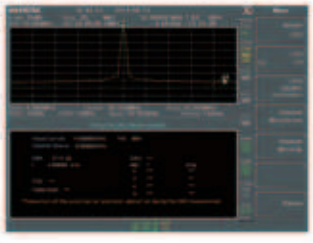
Users can go to zero span setting and open marker to observe burst signals when measuring burst signal in time domain is required.

N. PHASE JITTER



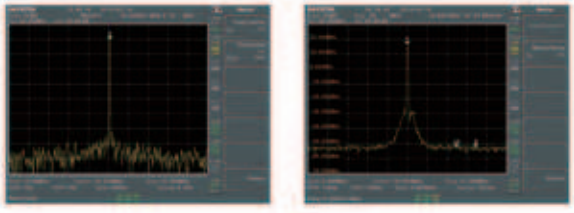
The Phase Jitter function can rapidly measure phase noise produced by RF signal source's and oscillator's carrier deviation. This function can directly convert signal jitter to phase (rad) and time (ns).

O. CNR/CSO/CTB



The built-in CNR/CSO/CTB functions of GSP-9300 are ideal for measuring performance of CATV amplifier and system.

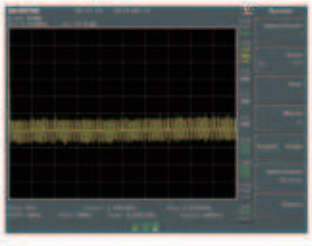
P. FREQUENCY COUNTER & MARKER NOISE



The frequency counter function is used to make accurate frequency measurements up to 1Hz resolution.
The marker noise function calculates the average noise level over a bandwidth of 1Hz, referenced from the marker position.

PRODUCTION LINE KEY FEATURES

A. SHORTEN WARM-UP TIME & WAKE-UP CLOCK

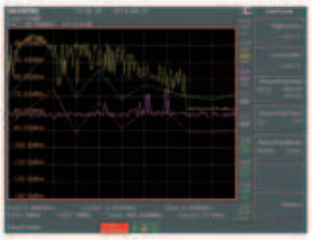


GSP-9300 utilizes the patented design of high efficient heat dissipation and feedback temperature control. After the instrument is turned on, the internal instrument can rapidly maintain a stable temperature so as to provide accurate amplitude measurement and deliver the frequency measurement with 0.025ppm frequency stability.
Users can set up automatic wake-up time for each day of the week. By so doing, the purpose of GSP-9300 pre wake-up can be achieved. Pre wake-up is ideal for the lower temperature environment to conduct tests in the preset time.

B. SEQUENCE FUNCTION

The sequence function allows users to edit a sequence formulated by a series of steps directly from the instrument. Pause and delay can be inserted in the sequence to observe the test results. There are five sets of sequence for selection. Each sequence allows editing of 20 steps. Different sequence can be interactive and support each other. This function provides automatic editing without using the PC that is very convenient for assembly lines in which execute routine test procedures.

C. LIMIT LINE FUNCTION



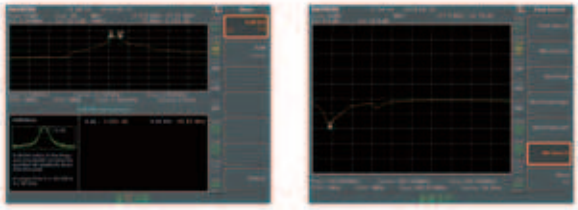
The limit line function, based upon the preset criteria of passing the test, can be used to directly determine whether the DUT passes the test. Test result not only can be shown on the LCD screen, but also an alarm signal output indication which is done by connecting a speaker or light device with the BNC terminal on the rear panel to facilitate the maximum yield rate of the production line.

D. VARIOUS INTERFACE

GSP-9300 provides instrument control interface including LAN, RS-232, USB, and GPIB (optional).IVI driver is also provided to support LabVIEW/CVI/LabWindows to meet the requirements of editing the automatic test software.

OPTIONS

A. SCALAR NETWORK ANALYSIS

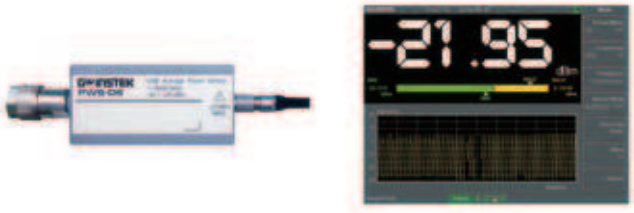


The built-in tracking generator can swiftly and easily measure frequency response of cable loss, filter bandwidth, amplifier gain, mixer conversion loss, etc. The N-dB Bandwidth function measures 3dB bandwidth of Bandpass filter. SWR bridge should be connected with tracking generator to measure the return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

B. 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. The GSP-9300 tracking generator supports 50dB power sweep range; output power from 0dBm to -50dBm; frequency range from 100kHz to 3GHz.

C. POWER METER



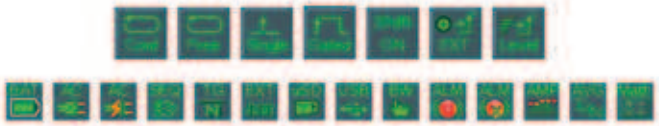
GSP-9300 connecting with PWS-06 USB power sensor can be applied to execute high precision average power measurement for USB PnP. PWS-06 USB power sensor has the built-in zero function; therefore, calibration by an external signal source is unnecessary. GSP-9300 not only collects, displays, and stores the measurement results of power meter, but also provides the Pass/Fail function.

D. BATTERY PACK

Compact and light-weighted (4kg) GSP-9300 can be powered by battery making it suitable for outdoor operations. Optional GSP-9300 battery pack (opt.02) has a battery life of two hours. Optional soft carrying case (GSC-009) provides convenience and protection to the instrument. GSP-9300 is equipped with 8.4 inches 800x600 pixels LCD display which yields clearer display results for outdoor operations.

USER FRIENDLY DESIGN

A. STATUS ICONS



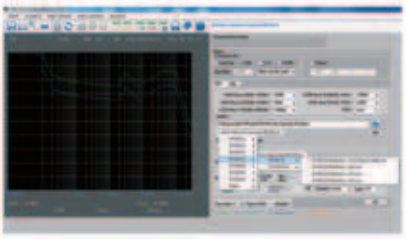
Status Icons show the interface status, power status, alarm status and etc of GSP-9300. Users can easily understand the setting status and test results of the instrument.

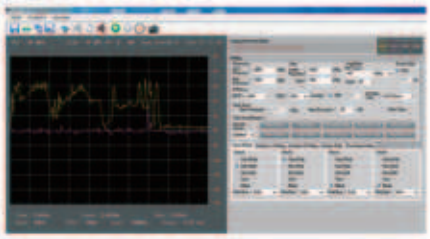
B. DEFINITION HELP

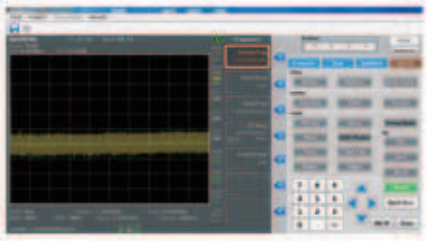
The built-in Definition Help function allows users to immediately understand the parameters of Channel Power, OCBW, ACPR, SEM, Phase Jitter, N-dB Bandwidth & P1dB items so as to save time on reading user manual.

EXTERNAL PC SOFTWARE & DRIVER SUPPORT

A. SPECTRUMSHOT SOFTWARE & IVI DRIVER







Users can use the external software SpectrumShot for EMI test 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 Supports LabView/LabWindows/CVI Programming.
It is available on NI website.

B. GSP-9300 REMOTE CONTROL APP

Users can install the "GSP-9300 Remote Control" APP on an Android Smart Phone or Tablet.To use the GSP-9300 as a server using a 3G modem, the user must first obtain a fixed IP address from a network provider.

For remote locations, using a 3G modem allows the user to remote control the GSP-9300 Spectrum Analyzer.It is available on Google Play Store.

PANEL INTRODUCTION

1. LCD Display
2. Function Keys
3. Main Keys
4. Control Keys
5. Power Key
6. File Keys
7. Marker Keys
8. Auxiliary Keys
9. Scroll Wheel
10. Arrow Keys
11. Numeric Keys
12. Enter, BK SP, Preset & Quick Save Keys
13. Tracking Generator Output
14. DC Power Supply
15. RF Input Terminal
16. USB-A, Micro SD Port
17. RS-232 Port
18. DVI-I Port
19. Headphone Jack
20. IF Output
21. USB-B, LAN Port
22. Trigger Input/Gate Input Port
23. Alarm Output/Open Collector
24. REF Output
25. REF Input
26. Fan
27. GPIB Port (Optional)
28. Battery Cover/Optional Battery Pack
29. Power Socket

SPECIFICATIONS

FREQUENCY

FREQUENCY

Range	9 kHz ~ 3.0 GHz	
Resolution	1 Hz	

FREQUENCY REFERENCE

Accuracy	±(period since last adjustment x aging rate) + stability over temperature+supply voltage stability	
Aging Rate	± 2 ppm max.	1 year after last adjustment
Frequency Stability Over Temperature	± 0.025 ppm	0 ~ 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*1	
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 ~ 3 GHz	
Resolution	1 Hz	
Accuracy	± frequency resolution *1	RBW : Auto

PHASE NOISE

Offset from Carrier		Fc=1GHz;RBW=1kHz,VBW=10Hz;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 ~ 1 MHz in 1-3-10 sequence 200 Hz, 9 kHz, 120 kHz, 1MHz	-3dB bandwidth -6dB bandwidth
Accuracy	± 8%, RBW = 1 MHz ± 5%, RBW < 1 MHz	Nominal *3 Nominal
Shape Factor	< 4.5 : 1	Normal bandwidth ratio: -60dB : -3dB

VIDEO BANDWIDTH (VBW) FILTER

Filter Bandwidth	1 Hz ~ 1 MHz in 1-3-10 sequence	-3dB 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 ~ 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 ~ 1 MHz	Displayed Average Noise Level(DANL)to 18 dBm
	1 MHz ~ 10 MHz	DANL to 21 dBm
	10 MHz ~ 3 GHz	DANL to 30 dBm

ATTENUATOR

Input Attenuator Range	0 ~ 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	Typical ; Fc ≥ 50 MHz; preamp. on
		Mixer power level (dBm) = input power (dBm) − attenuation (dB)

DISPLAYED AVERAGE NOISE LEVEL (DANL)*4

*4 DANL spec shall exclude the Spurious Response.

Preamp off	0 dB attenuation; RF Input is terminated with a 50Ω load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = - 60 dBm; trace average≥40	
9 kHz~100 kHz	< -93 dBm	Nominal
100 kHz~1 MHz	< -90 dBm - 3 x (f/100 kHz) dB	Nominal
1 MHz~10 MHz	< -122 dBm	Nominal
10 MHz~3 GHz	< -122 dBm	Nominal
Preamp on	0 dB attenuation; RF Input is terminated with a 50Ω load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = - 60 dBm; trace average≥40	
100 kHz~1 MHz	< -108 dBm - 3 x (f/100 kHz) dB	Nominal
1 MHz~10 MHz	< -142 dBm	Nominal
10 MHz~3 GHz	< -142 dBm + 3 x (f/1 GHz) dB	Nominal

3GHz Spectrum Analyzer

SPECIFICATIONS

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)	Can be setup for each traces 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; 20 – 30°C; signal input : 0 dBm	
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 – 30°C	
100 kHz ~ 2 GHz	± 0.5 dB	
2 GHz ~ 3 GHz	± 0.7 dB	
Preamp on	Attenuation: 0 dB; Reference: 160 MHz; 20 ~ 30°C	
1 MHz ~ 2 GHz	± 0.6 dB	
2 GHz ~ 3 GHz	± 0.8 dB	
ATTENUATION SWITCHING UNCERTAINTY		
Attenuator Setting	0 – 50 dB in 1 dB steps	
Uncertainty	± 0.15 dB	Reference : 160 MHz, 10dB attenuation
RBW FILTER SWITCHING UNCERTAINTY		
1 Hz ~ 1 MHz	± 0.25 dB	Reference : 10 kHz RBW
LEVEL MEASUREMENT UNCERTAINTY		
Overall Amplitude	± 1.5 dB	20 – 30°C; frequency >1MHz; signal input 0 – -50dBm; reference level 0 – -50dBm; Input attenuation 10dB; RBW 1kHz; VBW 1 kHz; after cal; Preamp off
Accuracy	± 0.5 dB	Typical
SPURIOUS RESPONSE		
Second Harmonic		Preamp off; signal input -30dBm; 0 dB attenuation
Intercept	+35 dBm	Typical : 10 MHz < fc < 775 MHz
	+60 dBm	Typical : 775 MHz ≤ fc < 1.5 GHz
Third-order		Preamp off; signal input -30dBm; 0 dB attenuation
Intercept	> 1dBm	300 MHz ~ 3 GHz
Input Related Spurious	< -60 dBc	Input signal level -30 dBm, Att. Mode, Att=0dB; 20 – 30°C
Residual Response (Inherent)	< -90 dBm	Input terminated; 0 dB attenuation; Preamp off
SWEEP		
SWEEP TIME		
Range	310 µs ~ 1000 s	Span > 0 Hz
	50 µs ~ 1000 s	Span = 0 Hz; Min resolution=10µs
Sweep Mode	Continuous; Single	
Trigger Source	Free run; Video; External	
Trigger Slope	Positive or negative edge	
RF PREAMPLIFIER		
Frequency Range	1 MHz ~ 3 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 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	Support Full/High/Low speed
MICRO SD SOCKET		
Protocol	SD 1.1	
Support Cards	Micro SD, Micro SDHC	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 Ω	
REFERENCE INPUT		
Connector Type	BNC female	
Input Reference Frequency	10 MHz	
Input Amplitude	-5 dBm ~ +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	

SPECIFICATIONS

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	
IF OUTPUT		
Connector Type	SMA female	
Impedance	50Ω	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
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 ~ 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		
Monitor Display	8.4 inch TFT LCD, SVGA Resolution, 800 x 600 pixel	
Internal Data Storage	16 MB nominal	Nominal
Power Consumption	< 65 W	
Warm-up Time	< 30 minutes	
Temperature Range	+5 °C ~ + 45 °C	Operating
	-20 °C ~ + 70 °C	Storage
Dimensions & Weight	350(W) x 213(H) x 105.7(D) mm, Approx. 4.5kg	Inc. all options (Basic + TG + GPIB + Battery)
	13.8(W) x 8.3(H) x 3.9(D) inch, Approx. 9.9lb	
TRACKING GENERATOR*5(OPTIONAL)		*5 The minimum RBW filter is 10 kHz when the TG output is ON.
Frequency Range	100 kHz ~ 3 GHz	
Output Power	-50 dBm ~ 0 dBm in 0.5 dB steps	
Absolute Accuracy	± 0.5 dB	@160 MHz, -10 dBm, Source attenuation 10 dB, 20 ~ 30°C
Output Flatness	Referenced ~ 160 MHz, -10 dBm	
	100 kHz ~ 2 GHz	± 1.5 dB
	2 GHz ~ 3 GHz	± 2 dB
Output Level Switching Uncertainty	± 0.8 dB	Referenced ~ -10 dBm
Harmonics	< -30 dBc	Typical, output level = -10 dBm
Reverse Power	+30 dBm max.	
Connector Type	N-type female	
Impedance	50Ω	Nominal
Output VSWR	< 1.6 : 1	300 kHz ~ 3 GHz, source attenuation ≥ 12 dB
RF POWER SENSOR (OPTIONAL)		
Type	Average power sensor	Model: PWS-06
Interface to Meter	USB cable to GSP-9300 Front-Panel USB Host	
Connector Type	N-type male, 50 ohm nominal	
Input VSWR	1.1 : 1	Typical
	1.3 : 1	Max
Input Frequency	1 ~ 6200 MHz	
Sensing Level	-32 ~ +20 dBm	
Max. Input Damage Power	+ 27 dBm	
Power Measurement Uncertainty @25 °C	-30 dBm ~ +5 dBm: 1 MHz ~ 3GHz: ±0.10 dB typical	± 0.30 dB max.
	3 GHz ~ 6 GHz: ±0.15 dB typical	± 0.30 dB max.
	+5 dBm ~ +12 dBm: 1 MHz ~ 3GHz: ±0.15 dB typical	± 0.30 dB max.
	3 GHz ~ 6 GHz: ±0.15 dB typical	± 0.30 dB max.
	+12 dBm ~ +20 dBm: 1 MHz ~ 3GHz: ±0.20 dB typical	± 0.40 dB max.
	3 GHz ~ 6 GHz: ±0.20 dB typical	± 0.40 dB max.
Power Measurement Uncertainty @0 ~ 25 °C	-30 dBm ~ +5 dBm: 1 MHz ~ 3GHz: ±0.25 dB typical	
	3 GHz ~ 6 GHz: ±0.25 dB typical	
	+5 dBm ~ +12 dBm: 1 MHz ~ 3GHz: ±0.20 dB typical	
	3 GHz ~ 6 GHz: ±0.20 dB typical	
	+12 dBm ~ +20 dBm: 1 MHz ~ 3GHz: ±0.35 dB typical	
	3 GHz ~ 6 GHz: ±0.30 dB typical	
Linearity @25 °C	±3 %	
Measurement Speed	100 ms for Low Noise Mode	Typical
	30 ms for Fast Mode	

Note : The specifications apply when GSP-9300 is powered on for at least 30 minutes to warm-up to a temperature of 20°C~30°C, unless specified otherwise. Need to Collocate the Optional Accessories.

ORDERING INFORMATION

GSP-9300 3GHz Spectrum Analyzer

ACCESSORIES :
Power Cord, Quick Start Guide, Certificate of Calibration, CD-ROM (with User Manual, Programming Manual, SpectrumShot Software, SpectrumShot Quick Start Guide & IVI Driver)

OPTION

Opt. 01 Tracking Generator Opt. 02 Battery Pack
Opt. 03 GPIB Interface

OPTIONAL ACCESSORIES

PWS-06	6.2GHz USB Power Sensor	**ADB-006**	DC Block N-TYPE 50Ω 10MHz~6GHz
GSC-009	Soft Carrying Case	**ADB-008**	DC Block SMA 50Ω 0.1MHz~8GHz
GRA-415	Rack Adapter Panel	**ADP-001**	BNC to N-TYPE Adaptor
ADB-002	DC Block BNC 50Ω 10MHz~2.2GHz	**ADP-002**	SMA to N-TYPE Adaptor

FREE DOWNLOAD

SpectrumShot PC Software for Windows System(available on GW Instek website)
GSP-9300 Remote Control APP for Android System(available on Google play)
IVI Driver Supports LabVIEW/LabWindows/CVI Programming(available on NI website)

DISTRIBUTOR :

SP-9300GD1BH

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