## GSP-9300

## Spectrum Analyzer





GOOD WILL INSTRUMENT CO., LTD.

#### **Application Area**

- General Purpose Spectrum Analysis
- EMI Pre-compliance Measurement
- Analyse ASK/FSK/AM/FM signal characteristics
- Satellite Monitoring (SNG)
- Education (University, School)
- Measure the frequency response of attenuator, filter and amplifier
- Electromagnetic Fields (EMF) Measurement





#### Front Panel



G<u><u>u</u>INSTEK.</u>

GOOD WILL INSTRUMENT CO., LTD.

#### Spectrum Analyzer GW Instek GSP-9300 **Rear Panel** ⊎INSTEK DVI-I RS-232 USB AF output LAN $\odot$ Trigger input $\overline{\mathbf{O}}$ $\bigcirc$ GPIB (option) Alarm output Battery (option) Ref input IF output Ref output Kensington lock



#### **Brief Specifications**

	GSP-9300
Frequency range	9kHz ~ 3GHz, min. resolution 1Hz
Reference frequency stability	±0.025 ppm (0 to 50 °C), ±2 ppm max. (per year)
Resolution Bandwidths	1 Hz to 1 MHz in 1-3-10 sequence , -6dB EMI filter : 200Hz , 9kHz , 120kHz, 1MHz
Phase noise	-88dBc/Hz @1GHz, 10kHz offset
Sweep time	310 us to 1000 s (non-Zero Span) / 50 us to 1000 s (Zero Span)
Displayed average noise level	<-122 dBm nominal, preamp off; <-142dBm + 3*(f/GHz) dBm , preamp on ( RBW: 10Hz )
Attenuator	0 to 50 dB, in 1 dB steps
Pre-amplifier	Built-in 18dB Gain
Measurement function	SEM/ACPR/OCBW/ChP/Phase Jitter/ AM,FM,ASK,FSK Analyzer/ TOI/Harmonic/CNR/CSO/CTB /N-dB BW/P1dB/EMC pretest
Trace number	4 Traces
Display mode	Spectrogram, Topographic, Linear scale Spectrum, Logarithmic scale Spectrum
Display	8.4" Color LCD with SVGA resolution (800 x 600)
Interface	LXI1.4 (HiSLIP), RS-232C, USB Host/Device, DVI-I, Micro SD, GPIB(Opt)



#### Excellence RF Performance

- High sensitivity: <-130 dBm (1 Hz), with preamplifier <-152 dBm (1 Hz)  $\rightarrow$  for better detection of weak signals like base station & WIFI interferer
- Phase noise: -95 dBc/Hz (100 kHz offset)
   → for better detection of signals close to the carrier
- Low measurement uncertainty (<1.5 dB, 0.5 dB typical)

#### Support Scalar Network Analyzer

- External VSWR Bridge connection
- Magnitude measurement in forward direction

#### Outdoor Usage

- Easy exchangeable Li-Ion battery
- Battery operating time up to 2 hours

#### Multilingual User Interface

• Supported languages: Chinese, Japanese, Russian & English





USB & micro SD Card Slot

- Easy memory extension via USB & micro SD card (support 32GB Micro SDHC card)
- Storing measurement results and instrument settings
- Easy handling of test results in secure areas
- Easy firmware update via USB & micro SD card

USB/LAN/RS-232/GPIB(option) Interfaces

- Remote control via USB/LAN/RS-232/GPIB
- Easy integration in local area networks
- -> remote site operation for long term surveillance
- 8.4 " LCD screen with 800 x 600 SVGA resolution

Slim Size

- Standard weight : 4 kg (basic) , 4.5kg (full option)
- Dimension : 350(W) x 213 (H) x 106 (D) mm





SpectrumShot Software Remote Control Mode



#### Shorten Warm-Up Time

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  $\pm 0.3$ dB amplitude measurement and deliver the frequency measurement with 0.025ppm frequency stability.



The following diagram shows the typical amplitude variation and frequency response within 30 minutes starting from turning on GSP-9300.



• Built-in Pre-amplifier function



Amplitude Key→More1/3→Preamp Auto

- Pre-amplifier specification:
- Frequency Range: 1 MHz to 3 GHz / Gain: 18 dB (Nominal)



Built-in Pre-Amp Off/ On



Built-in Pre-Amp On, RBW 1 Hz



#### **Standard Functions (1)**

- Channel Power ( CP )
- Occupied Bandwidth ( OCBW )
- Adjacent Channel Power Ratio (ACPR)
- Spectrum Emission Mask (SEM)
- Harmonic Distortion
- Third-Order Intercept Point (TOI)
- Phase Jitter
- Carrier to Noise Ratio (CNR)
- Composite Second Order (CTB)
- Composite Triple Beat (CSO)
- P1dB Compression Point
- N-dB Bandwidth
- AM & FM Demodulation & Analysis
- FSK & ASK Demodulation & Analysis
- 2FSK Analysis





### **Channel Power / Occupied Bandwidth**



Measure OCBW and CP of a 20MHz ODMA signal under 1 GHz output frequency

An important characteristic of a modulated signal is its occupied bandwidth.

In a radio communications system for instance the occupied bandwidth must be limited to enable distortion-free transmission in adjacent channels.



### Adjacent Channel Power Ratio (ACPR)



Adjacent Channel Power Ratio (ACPR) is ratio between the total power of adjacent channel (inter-modulation signal) to the main channel's power (useful signal).



#### Spectrum Emission Mask (SEM)



Spectrum Emission Mask Predefined masks for 3GPP 802.11a/b/g/n / 802.16 / User Define



Spectral Re-growth Effect



#### **Harmonic Distortion**



The total harmonic distortion, or THD, of a signal is a measurement of the harmonic distortion present and is defined as the ratio of the sum of the powers of all harmonic components to the power of the fundamental frequency.



### Third-Order Intercept (TOI)



In telecommunications, a third-order intercept point (IP3 or TOI) is a measure for weakly nonlinear systems and devices, for example receivers, linear amplifiers and mixers.



#### **Phase Jitter**



Phase noise is the result of small random fluctuations or uncertainty in the phase of an electronic signal. RF engineers speak of the phase noise of an oscillator, whereas digital system engineers work with the jitter of a clock.



#### **CNR / CSO / CTB**

For CATV amplifier & system testing •









GW INSTEK.







#### **P1dB Compression Point**



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



#### **N-dB Bandwidth**



The 3dB point is the point at which the signal has been attenuated by 3dB (in a Bandpass filter). This is generally considered the point for determining the filter's bandwidth.

The bandwidth is defined as the difference between the upper and lower 3dB points.



#### **AM / FM Demodulation & Analysis**



#### Measure the AM/FM Radio Tuner & Ham Radio Device





AM/FM AF-demodulation with headphone → Useful for interference analysis

**Digital Ga** 





### **ASK / FSK Demodulation & Analysis**

GWINSTEK	17:23:09	2014-09-15			LXI	Meas	GWINSTEK	17:19:40	2014-09-	15			LXI	Meas
Mode: ASK Analyzer Scale: 20.0% Att 1: 00110001 0001 49: 01010101 10100 97: 10000100 0001	10.0 dB 1101 00001010 0000 11000001	00010011 000100 00001100 100000	00 00000000	SYMB	Sweep Fast Nor. Tr/Det	Symbol	Mode: FSK Analyze Scale: 15.00kHz 1: 0010101011 49: 10010110 00 97: 0000101010	r Att:10.0 dB 1100011 000001 0100000 1010000	10 00011100 01 01110011	00000100	0 10000011	SYMB	Sweep Fast Nor: Tr/Det	Symbol
145: 01110100 1010 193: 11001110 1010 241: 10110100 1011 289: 11000011 1001	1010 10011000 0000 00001000 0101 00100000 1100 01111100	11001110 1001000 11100010 0000110 00110000 0000110 01000011 000000	00 01101110 00 00000111 00 00001110 1		Blank Blank	Waveform	145: 11011010 11 193: 10100000 10 241: 10101101 00 289: 11010000 00	0000000 1110000 0000000 1110000 0001111 0000000 0011000 0110110	10 00000000 00 10000000 00 10101011 00 00011101	00000101 11000000 00010000 000010000	01011010 010011101 011001001		Blank Ellank	Waveform
	Center: 43	3.000MHz						Center:•	433.000MHz					
	Curren	t: P/F: MIN:	м	AX:	Sweep	J		Curren	it: P/F:	MIN :	MA	X:	Sweep	]
AM Depth:	99.9 %	% 🥝 99.8	% 9	9.9 %	Cont		Freq Deviation:	55.49	kHz 🙁	54.14	kHz 438	64 kHz	Cont	
Mod. Rate:	125 H	z 104	Hz 8	.27 kHz	Trigger	î	Mod. Rate:	156	Hz	62	Hz 3	13 MHz		
Carrier Pwr:	- 6.5431 dBm	ı 🥺 - 6.5645	dBm - 6.5	298 dBm	Free		Carrier Pwr:	- 1.7035 dE	3m 📀 -	2.6431 d	IBm - 0.46	i01 dBm	Free	
Carrier Freq Offset:	-8.86 kH	lz 🥝 - 9.45	kHz 10	.55 kHz	20dB		Carrier Freq Offse	t: - 9.68	kHz 📀	- 10.48	kHz 376	24 kHz	20dB	
SINAD:	0.09 dl	B 0.00	dB 0	.22 dB	USB Host Dev:	Return	SINAD:	0.04	dB	0.00	dB 0	11 dB	USB Host	Return
										ACM JSB			10000	

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.



#### **2FSK Analysis**



Measure 2FSK Signal Device :

- Remote keyless entry (RKE)
- Tire pressure monitoring systems (TPMS)
- Wireless medical telemetry
- Railway temperature monitoring
- Wireless peripherals: speakers,
- headphones, mouse, and keyboards
- Auto vehicle access
- Garage door openers
- Crane control
- More...













#### Standard Functions (2)

- Fast Sweep Mode
- EMC Pretest
- Spectrogram
- Topographic
- Limit Line & Pass/Fail Test
- Wake-Up Clock
- Sequence
- Gated Sweep
- Frequency Counter & Marker Noise
- Delete All & Image File Preview
- Icon Symbols & 886MHz IF Output

Optional: Tracking Generator, 6.2GHz Power Sensor, Battery Pack, GPIB



#### **Fast Sweep Mode**

Capture the transient signal like Bluetooth frequency hopping signal, the tuning of VCO, the interfering signal in ISM band and the others.

GSP-9300										
C.F.=	=1.5GHz									
Span(Hz)	RBW(Hz) AUTO	Nor.	Fast							
3G	1M	348ms	175ms							
2G	1M	232ms	116ms							
1G	1M	116ms	58.4ms							
500M	1M	58ms	29.2ms							
200M	1M	23.2ms	11.6ms							
100M	1M	11.6ms	10ms							
50M	300k	18.8ms	727us							
20M	100k	35.9ms	593us							
10M	100k	17.9ms	307us							
5M	30k	42.2ms	655us							
2M	10k	127ms	1.96ms							
1M	10k	63.8ms	1.31ms							
500k	3k	6.88ms	6.88ms							
200k	1k	22.9ms	22.9ms							





Normal & Fast mode comparison table

Normal mode sweep time is 17.9 ms

Fast mode sweep time is 307 us



Sweep Mode Key



#### **EMC Pretest**



Support the EMC Pre-compliance testing. We cooperate with third party and provide the EMI conduction and radiation testing solution.



#### **EMI Pre-compliance Software**



SpectrumShot software is free of change. Built-in CISPR standard limit line.



### **Topographic / Spectrogram**





Topographic display distinguishes EMI signal overlap on the same frequency

range.

Display Display

Display Key →Window Setup

Spectrogram display show a frequency sweep signal with time and frequency domain



### Limit Line & Pass/Fail Test

Pass/Fail Inspection Test performs the test result judgment with inspection criteria pre-defined by user. The procedure is as follows: (a) Create Limit lines to set the inspection zone.(b) Select the Pass Criterion. (c) Execute the Pass/Fail test.



limit line key

In addition to display the judgment result Pass or Fail on the LCD, an open-collector alarm output is available at the rear panel, which allows user to connect an external alarm for sound or other indications of test result.

G <sup>W</sup> INSTEK	12:39:55 2014-04-22	LXI	Limit Line
Scale:10dB/		Sueen	
Ref:- 30.00dBm Att	.0.0 dB	Fast	Limit Line>
- 40.00dBm		Non	1
- 50.00dBm		Tellot	
- 60.00dBm		MAX	
- 70.0008m			
80.00dBa	The Age And March a monthly and		Point by Point>
Strend Bm	and a construction of the second manufactures		
- 100 0dBm			
- 110 0dBm			TraceDatato
- 120 0dBm			Limit Line>
, 130 0dBm			
Start: 80.000MUz	Center 100 000MHz Stop 120 000MHz		
RBW 300kHz VBW	/ 300kHz Span 40 000MHz Sweep 15 0ms		MkrDatato
			Limit Line>
	Limit Line Table		
Definitions of the 3 crit	$\sqrt{1}$ $\sqrt{2}$ $\sqrt{3}$ $\sqrt{4}$ $\sqrt{5}$		
	Pt Freg Mag.		Savel imit line
Checks the ent	ire 80,000 MHz - 63,33 dBm		SaveLinitLine
waverorm.	2 87.987 MHz - 65.68 dBm		
Checks the way	ve- 3 91.980 MHz - 61.61 dBm		
mining form peak only.	4 95.973 MHz - 64.79 dBm		DeleteLimit
Checks the way	ve- 5 99.967 MHz - 67.21 dBm		Line
mmm form minimum o	only. 6 103.960 MHz - 60.69 dBm		
	7 107.953 MHz - 65.41 dBm		
	8 111.947 MHz - 68.70 dBm		
	9 115.940 MHz - 70.15 dBm		Return
	10 119.933 MHz - 66.91 dBm	Host	
	XC (165	Dev.	

Create limit line to set the inspection zone



Execute the Pass/ Fail test



Pass/Fail result with external alarm speaker output to maximize throughput



#### Wake-Up Clock

Wake-Up Clock automatically turns on the power of GSP-9300 spectrum analyzer at user's pre-set time, which can be used to warm up the instrument in advance before the measurements are made to ensure the accuracy of measurement results, particularly in the low ambient temperature circumstance.

GWINSTEK	09:11:44 20	14-08-12	📈 System
Scale 10dB/ Ref: 0.00dBm Att	10.0 dB		
			Nor. Tr/Det
			NML On C
			Blank
an and a standard and a standard and and and a standard and a standard and a standard and a standard and a stan		و المحمد المحمد المحمد المحمد ومن المحمد ومن ومحمد ومحمد وم	na What ha
and the second	المعالي والمحالية المحالية ال	الطائد فعالمك لتعر الدحاءات ومستقلون	Repeat Sing
			Pr-amp Date
Start:0Hz RBW:1MHz VBV	Center:1.50 V:1MHz Spai	0GHz Stop:3.000G n:3.000GHz Sweep:3	Hz USB Retuined to the second
			(

Automatic Turns on GSP-9300 every working day



Time is Money \$\$\$. Saving your time & money



#### Sequence

The sequence function allows users to edit a sequence formulated by a series of steps directly from the instrument. This function provides automatic editing without using the PC that is very convenient for assembly lines in which execute routine test procedures.

	3:15 2012-10-03		LXI	Sequence
Scale:10dB/	D		Suman [	۱
			Sweep	StartEdit
56.98dBuV			Cont	
46.98dBuV			Trigger (	
36.98dBuV			$\Box$	Delay Time
26.98dBuV	ar te tille a sea and the a least suffer at the didutibility	lint of bit official	Free	1.00 s
			Pr-amp	J
6.989dBuV			20d8	]
- 3.010dBuV			ON	Wait to Go
- 13.01dBuV			Tr/Det	
Start:1.000GHz C RBW:1MHz VBW:1MH	enter: 2.000GHz z Span: 2.000GHz Sequence Editor	Stop:3.000GHz Sweep:374ms O Start Edit	NML	Do Sequence> 2
Tips of sequence edit	StartFreg: 9 000kHz	Start Freg: 30 000 MHz	Blank	ı
1. Make sure the green light	StopFreq: 150.000kHz	StopFreq: 1.000GHz		Delete Step
of start edit is ON when	EMIFilter: On	RBW: Man 120kHz		
start euro Start Euro			(Internet)	
2 Make sure the black light	RBW: Man 200Hz	DelayTime: 1.00s	Blank	
2. Make sure the black light of start edit is OFF when	RBW: Man 200Hz RefLevel: 106.9dBuV Scale: On	DelayTime: 1.00s StartFreq: 1.000GHz StopEreg: 3.000GHz	Blank	
2. Make sure the black light of start edit is OFF when stop edit. O Start Edit	RBW: Man 200Hz Ref Level: 106.9dBuV Scale: On Y Axis: dBuV	DelayTime: 1.00s StartFreq: 1.000GHz StopFreq: 3.000GHz RBW:Man 1MHz	Biank	StopEdit
<ol> <li>Make sure the black light of start edit is OFF when stop edit. O Start Edit</li> <li>Utilize Wait to go as PAUSE in between steps.</li> </ol>	RBW: Man 200Hz RefLevel: 106.9dBuV Scale: On Y Axis: dBuV DelayTime: 1.00s	DelayTime: 1.00s StartFreq: 1.000GHz StopFreq: 3.000GHz RBW: Man 1MHz RefLevel: 76.98dBuV	Blank L	StopEdit
<ol> <li>Make sure the black light of start edit is OFF when stop edit. Ostart Edit</li> <li>Utilize Wait to go as PAUSE in between steps.</li> <li>Utilize Delay to pause with</li> </ol>	RBW: Man         200Hz           RefLevel:         106.9dBuV           Scale: On         YAxis: dBuV           DelayTime:         1.00s           StartFreq:         150.000kHz	DelayTime: 1.00s StartFreq: 1.000GHz StopFreq: 3.000GHz RBW: Man 1MHz RefLevel: 76.98dBuV Preamp: Auto	Blank Blank Blank	StopEdit
<ol> <li>Make sure the black light of start edit is OFF when stop edit. O Start Edit</li> <li>Utilize <u>Wait to go</u> as PAUSE in between steps.</li> <li>Utilize Delay to pause with a fixed time. The step of the delay time is 100mc</li> </ol>	RBW: Man         200Hz           RefLevel:         106.9dBuV           Scale: On         Y           Y Axis: dBuV         DelayTime:           DelayTime:         1.00s           StartFreq:         150.000kHz           StopFreq:         30.000MHz           BW:         Nan	DelayTime: 1.00s StartFreq: 1.000GHz StopFreq: 3.000GHz RBW: Man 1MHz RefLevel: 76.98dBuV Preamp: Auto	Blank Blank USB	StopEdit
<ol> <li>Make sure the black light of start edit is OFF when stop edit. O Start Edit</li> <li>Utilize <u>Wait to qo</u> as PAUSE in between steps.</li> <li>Utilize Delay to pause with a fixed time. The step of the delay time is 100ms.</li> </ol>	RBW: Man         200Hz           RefLevel:         106.9dBuV           Scale: On         Y           Y Axis: dBuV         Delay Time:           Delay Time:         1.00s           Start Freq:         150.000kHz           Stop Freq:         30.000MHz           RBW: Man         9.0kHz           Delay Time:         1.00s	DelayTime: 1.00s StartFreq: 1.000GHz StopFreq: 3.000GHz RBW: Man 1MHz RefLevel: 76.98dBuV Preamp: Auto	Blank Blank USB Host	StopEdit
<ol> <li>Make sure the black light of start edit is OFF when stop edit. O Start Edit</li> <li>Utilize <u>Wait to go</u> as PAUSE in between steps.</li> <li>Utilize Delay to pause with a fixed time. The step of the delay time is 100ms.</li> </ol>	RBW: Man         200Hz           RefLevel:         106.9dBuV           Scale: On         Y           Y Axis: dBuV         DelayTime:           DelayTime:         1.00s           StartFreq:         150.000kHz           StopFreq:         30.000MHz           RBW: Man         9.0kHz           DelayTime:         1.00s	DelayTime: 1.00s StartFreq: 1.000GHz StopFreq: 3.000GHz RBW: Man 1MHz RefLevel: 76.98dBuV Preamp: Auto	Blank Blank USB Host Dev.	StopEdit



Sequence Key



### **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).





#### **Frequency Counter & Marker Noise**

The frequency counter function is used to make accurate frequency measurements up to 1Hz resolution.



Marker Key -> Function>

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





### **Delete All & Image File Preview**



ile Key 🗄	> Delete>
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GWI	NSTEK	05:11:29	2014-04-20			LXI	File
	Name		Туре	Size	Modified		
	NowPicture	)	jpg	270746	2011/12/09	18:57:36	DeleteNow
	QuickJpg0		jpg	229663	2014/04/19	04:55:20	
	QuickJpg1		jpg	229168	2014/04/19	04:55:26	Delete Warning
	QuickJpg10		jpg	226358	2014/04/19	04:56:14	
	QuickJpg11		jpg	227215	2014/04/19	04:56:16	
	QuickJpg12		jpg	225521	2014/04/19	04:56:20	Delete All
	QuickJpg13		jpg	247996	2014/04/19	04:56:48	
	QuickJpg14		jpg	247958	2014/04/19	04:56:54	· · · · ·
	QuickJpg15		jpg	258958	2014/04/19	04:57:30	
	QuickJpg16		jpg	236063	2014/04/19	04:57:32	
	QuickJpg17		jpg	263216	2014/04/19	04:57:44	
	QuickJpg18		jpg	209034	2014/04/19	04:58:52	
	QuickJpg19		jpg	211646	2014/04/19	04:58:58	
	QuickJpg2		jpg	241283	2014/04/19	04:55:30	]
	Used:	1626112kB					Return
	Available:	6578176kB					
с.			AC USB				*



#### ) File Key $\rightarrow$ More > Preview

GW I	nstek	13:23:57	2014-10-17			LXI	File
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	QuickJpg0		jpg	323509	2014/10/06 1	5:26:38	Moveto>
	QuickJpg1		jpg	326754	2014/10/06 1	15:27:10	
	QuickJpg2		jpg	241881	2014/10/06 1	6:11:04	Preview
	QuickJpg3		jpg	288935	2014/10/16 1	6:08:36	on on
	Used: Available:	1174kB 14826kB	In HOTEL (1, 4074) 14733000 ALL 0, 200 447430000 ALL 0, 200 447400000 ALL 0, 200 4474000000 ALL 0, 200 44740000000 ALL 0, 200 4474000000 ALL 0, 200 4474000000 ALL 0, 200 44740000000 ALL 0, 200 44740000000 ALL 0, 200 44740000000 ALL 0, 200 44740000000000 ALL 0, 200 447400000000000000000000000000000000	22.9 4 100 		Amplitude Y Asia Schop Schop State Corrections RefLviOPaet SXXXX Present RefLviOPaet SXXXX Present RefLviOPaet SXXXX	Return
<i>.</i>			AC BW	TG TG			

Delete All function allows user to delete all customized files and data in Spectrum Analyzer for security. Image files can be previewed on the screen by enabling the preview function.



#### Icon Symbol & IF output

• 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.



• IF output (886MHz) is provided as the intermediate frequency or the base band of RF input signal for users to develop further applications





#### **Power Meter**

- PWS-06 Power Sensor for GSP-9300 Power Meter function.
- Frequency range : 1MHz to 6.2GHz
- Input power range : -32dBm to 20dBm
- Power measurement uncertainty : ±0.15dB





### **Scalar Network Analysis**

The Tracking Generator is an option of GSP-9300. It can meet the frequency response measurement of RF component.





#### N-dB Bandwidth



#### **Scalar Network Analysis**





#### Antenna Return Loss Testing



### **Battery Pack & Carrying Bag**

- Compact and light-weighted (4kg) GSP-9300 can be powered by battery making it suitable for outdoor operations.
- Optional battery pack (opt.02) has a battery life of two hours.
- Optional soft carrying case (GSC-009) provides convenience and protection to the instrument.



Option 02, Battery Pack



GSC-009, Soft Carrying Case



### **Optional Accessories**

- GKT-006A, EMI Probe Kit Set
- RLB-001, Return Loss Bridge
- ADB-002, 50 Ohm BNC DČ Block
- ADB-006, 50 Ohm N-type DC Block
- ADB-008, 50 Ohm SMA DC Block
- ADP-001, Adapter BNC (f) to N-type (m)
- ADP-002, Adapter SMA (f) to N-type (m)
- ADP-101, 75 Ohm to 50 Ohm BNC Matching Pad
- ATN-100, 10 dB N-type Attenuator
- GAK-001, 50 Ohm N-type (m) Termination
- GTL-301, 50 Ohm N-type RF Cable (1000mm)
- GTL-302, 50 Ohm N-type RF Cable (300mm)
- GTL-303, 50 Ohm SMA (m) RF Cable
- GRA-415, Rack Adapter Panel



GKT-006A



- SpectrumShot software is free of charge.
- Support EMI pre-test, PC remote control & spectrum waveform recording.
- Built-in the CISPR standard limit line for EMI pre-compliance testing.





• SpectumShot software supports PC remote control with LAN.

GW GSP-930	Series Spe	ctrum Shot			-														
File(F)	Mode(M)	Setting E	Mail(S)	About(A)															
	1																		
GWINST	EK									LXI				IP Ad	dress				Connect
Scale: Ref:		Att:								Sweep	e				<sup>192</sup> .	168 .	1.	1	Disconnection
										Cont		Fl	Fre	equen	cy	Spar		mplitud	e Autoset
									-	Trioner			Mark	er					
										Eree		F2		Mar	ker		Marker	>	Peak Search
										Pr-amp			Auxi	liary					
										20dB OFF				Sequ	ence		Mode	-	System
:										Tr/Det		<b>F3</b>	Cont	rol					
										Biank		-		BW/	Avg		Sweep	-	Sweep Mode
												<b>F</b> 4		Me	25		MC Prot	ast	File
										Blank								a de	File
												F5		Tra	ice		Limit Li	ie	Save
										Blank				Dis	olay		Trigger	-	
										1							÷.		Recall
										Disease.		F6		7	8	9			Preset
														4	5	6			0:10
Start:			Cente	er		ş	Stop			USB		E7	-	1	2	2			Quick Save
RBW		VBW:-	-	Spar				eep:		Host			-	*	2	3		7	
														0		+/-		BF	SP Enter



- User can acquire and record trace data with SpectrumShot Software
- Support remote control with LAN & 3G Wireless Dongle for Spectrum Monitoring
- IVI Driver can support LabVIEW/LabWindows/CVI programming.

File(*)       Model(*)       About(A)         Ref: -300 dBm       Scale: 10 dB/ Att: 0       dB       Data: 2014-03-17       Time: 18 -46 - 55         Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert         Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert         File(*)       Mall       Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert       Geneticine Pert         File(*)       Mall       Geneticine Pert       Gen	GB GSP-930 Series Spectrum Shot	Contraction of the American	System
Ref: -30 dBm       Scale: 10 db/ Att: 0       dB       Data 2014-03-17       Time: 18:46.65         Connected Device Name       Image: Conne       Image: Conne	File(F) Mode(M) About(A)		
Ref: -30 dBm       Scale: 10 dB/ Att: 0       dB       Data: 2014-03-17       Time: 13:46:55       Generical Device Name       Genevice Name       Generical Device Name			LANConfig>
30       Image: Start: OHz       Center: 1.5GHz       Start: Start: OHz       Center: 1.5GHz       Start: Start: OHz       Text       Text <t< td=""><td>Ref : -30 dBm Scale : 10 dB/ Att : 0 dB Data: 2014-03-17 Time: 18 : 46 : 55</td><td>Connected Device Name</td><td>AX MIN CAW</td></t<>	Ref : -30 dBm Scale : 10 dB/ Att : 0 dB Data: 2014-03-17 Time: 18 : 46 : 55	Connected Device Name	AX MIN CAW
Start:       OHz       Conter:       1.5GHz       Stop:       3GHz       Stop:       3GHz       Stop:       3GHz       Stop:       Market       Mar		+PK +	PK +PK AVG
Bed Reb 11200 • USB : 0.2184: 0.00 · 122       122       108       1       1         Stitling		COM Port  USB GPIB TCP/IP Wireless	WLANConfig>
Statis	-40	Baud Rate 115200 - USE0::0x2184::0x00: - 192 168 1	. 1
Start:       OHZ       OHZ <td>.60</td> <td>Setting Freemenny Shan Amplitude</td> <td>Sween Time</td>	.60	Setting Freemenny Shan Amplitude	Sween Time
Start:       OHZ       Center:       1.5GHz       Stop:       30Hz         Start:       OHZ       Center:       1.5GHz       Stop:       30Hz       Stop:       34L4 ms		Start : 0 MHz Center : 1500 MHz Ref Level : Frequency dBm30 dBm -	Auto     LXIPassword>
First in the sector in the		Stop : 3000 MHz Span : 3000 MHz Scale : 10 -	⊙ 540 ms
Image: Start: OHz       Center: 1.5GHz       Stop: 3GHz         RBW: 1MHz       VBW: 1MHz       Span: 3GHz         Start: OHz       Stop: 3GHz         Stop: 10Hz       Stop: 3GHz<		BW/Avg	LiSI ID Doort
Image: Start:       OHz       Center:       1.5GHz       Stop:       3GHz         Start:       OHz       Center:       1.5GHz       Stop:       3GHz         RBW:       1MHz       VBW:       1MHz       Stop:       3GHz       Sweep:       348.4 ms	we advantage of a strategy of the strategy of	RBW : Auto • VBW : Auto • Average · Orr • 20 Type · : LOG.	ISLIPPOR
And Ander And		vera second i -50 dBm Peak Excursion : 10 dB . Peak	ık Track
Marker:	-90	Peak Seach/Marker-> Selected Peak Search Next Peak Next Peak Right Next Peak Left N	Ain Search
Alto       Alto         Image: Setting       Marker1-3 Setting         Marker1-3 Setting       Marker4-6 Setting         Marker1-4 Setting       Marker4-6 Setting         Mark		Marker : Marker Mix-Center Mix-Start Mix-Stop Mix-CE Step M	h>Rei Lvi
Image: Start: 0Hz       Center: 1.5GHz       Stop: 3GHz         RBW: 1MHz       VBW: 1MHz       Span: 3GHz         Start: 0Hz       Center: 1.5GHz       Sweep: 348.4 ms		Trace Setting Marker1, 2 Setting Marker1, 6 Setting Marker Table Recording Setting	
Image: Start: 0Hz       Center: 1.5GHz       Stop: 3GHz         RBW: 1MHz       VBW: 1MHz       Span: 3GHz         Start: 0Hz       Center: 1.5GHz       Sweep: 348.4 ms		Trace1 Trace2 Trace3 Trace4	
120       120       120         130       130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       130         130       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140         140       140		ClearWrite O ClearWrite O ClearWrite	Vrite
Start: 0Hz       Center: 1.5GHz       Stop: 3GHz         RBW: 1MHz       VBW: 1MHz       Span: 3GHz	120	🔿 Max Hold 💿 Max Hold 🔿 Max Hold	old
Start:     OHz     Center:     1.5GHz     Stop:     3GHz       RBW:     1MHz     VBW:     Start:     0 View     View     View     View     View     View     View     Relank     Elank		O Min Hold O Min Hold O Min H	sia
Start:     OHz     Center:     1.5GHz     Stop:     3GHz     O Bank		View View View View	
RBW : 1MHz VBW : 1MHz Span : 3GHz Sweep : 348.4 ms	Start: 0Hz Center: 15GHz Stor: 3GHz	Detection : Portive - Detection : Auto - Detection : Auto - Detection :	RMS - Return
	RBW: 1MHz VBW: 1MHz Span: 3GHz Sweep: 348.4 ms	Percana A Descana A Descana A Descana A Descana A	Note the second



- Users can install the "GSP-9300 Remote Control" APP on an Android Smart Phone or Tablet.
- 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.





# The End Any Question?



GOOD WILL INSTRUMENT CO., LTD.