

The Large-Display yet Affordable Spectrum Analyzer.



GW Instek GSP-818 Spectrum Analyzer New Product Announcement

This document allows GW Instek's partners to quickly grasp product's main features, FAB and ordering information.

GSP-818 is a new general spectrum analyzer, which supports a frequency range of 1.8 GHz and provides testing requirements for RF products during the development/production phases. GSP-818 has a built-in 20dB amplifier and provides an adjustable range of resolution bandwidth (RBW) from 10Hz to 3MHz. In addition, it has the AM/FM signal demodulation function and the ACPR/OCBW/CHPW test functions to meet the requirements of general RF signal measurement.

In addition, the built-in Time Spec function of GSP-818 can simultaneously view the correlation between display power, frequency and time. The Bandwidth Zoom function can be used to view the spectrum performance of signals under different Span. The Limit Line function provides two different Limit Line settings: Windows Measure and Limit Line Measure. Users can use these functions for a wider range of measurement applications.

To achieve clearer signal observation, GSP-818 utilizes a 10.4" large screen with SVGA (800 * 600) resolution. Pertaining to the communications interface, GSP-818 provides both USB and LAN interfaces. Via the USB Host, users can quickly retrieve the files saved after measurements. The USB Device and LAN interface allow users to control through the dedicated PC software or to use the required program designed by the corresponding commands.

GSP-818 also offers two options: TG and EMI Detector. It is different from the previous models. If customers require options, there is no need to send the equipment back. Customers only need to purchase the corresponding software license (Software Keycode) to activate the purchased option, which greatly improves the operational efficiency.

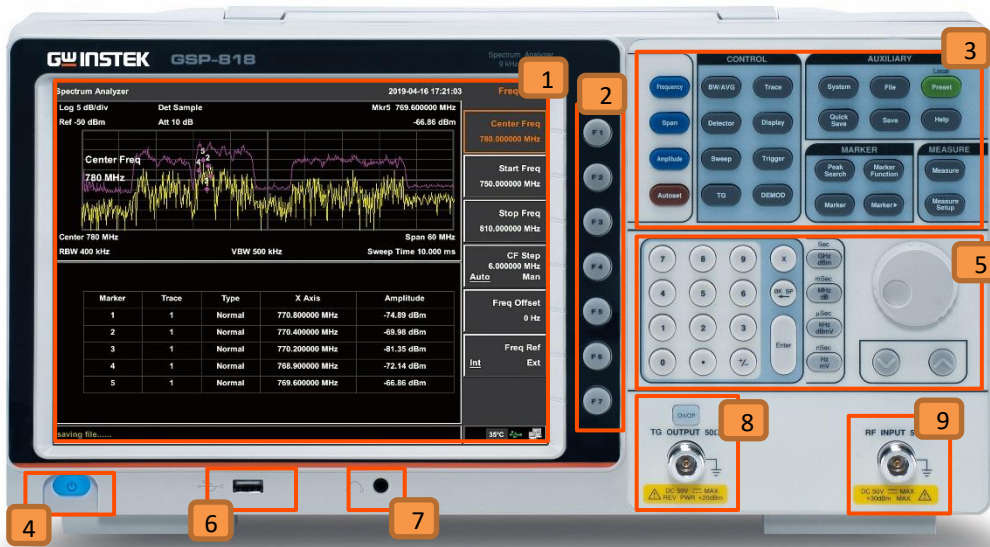
Features

- Frequency Range: 9kHz ~ 1.8GHz
- RBW: 10Hz ~ 3MHz, 10Hz ~ 500kHz in 1-10 steps
- Sensitivity: -148dBm/Hz Typical @PreAmp On
- Built-in AM/FM Demodulation
- Bandwidth Zoom function
- Measurement Function: ACPR/OCBW/CHPW, NdB Bandwidth, Freq. Counter, Noise Marker, Limit Line
- Built-in 20dB Preamplifier Standard
- Interface: Lan, USB
- Screen: 10.4" SVGA Output (800*600)
- Options: Tracking Generator, EMI Filter & Detector (via software keycode)

Applications

- Checking and analysis of spectrum characteristics
- Analyze AM and FM signal characteristics
- Monitor the signal uploaded by SNG vehicle
- For a compact test system
- Measuring the frequency response of RF cables, attenuators, filters and amplifiers

Appearance



1. LCD	6. USB Host	11. VGA Interface
2. F1~F7 Menu Soft Keys	7. Earphone	12. LAN Interface
3. Function Keys	8. TG Output	13. USB Device
4. Power Key	9. RF Input	14. REF. In
5. Numeric Keypad, Knob, Unit Keys	10. AC Power Input (On the Side)	15. Anti-theft Hole

Important Information of Product Ordering

Key Dates for Product Announcement

1. Global Market Announcement (August 26, 2019)
2. Ordering system open day (August 26, 2019)
3. GSP-818 delivery is 6 weeks

Service Policy

- One year warranty. GSP-818 spectrum analyzer provides a standard one year warranty.
- Service support -- In order to maintain the measurement accuracy, GSP-818 needs to be recalibrated after repair. The maintenance method is to send the GSP-818 back to the GW Instek.

Marketing documents and service manuals can be downloaded via the Internet. GW Instek will continue to provide after-sales service via the Internet. The latest marketing documents and service manuals of GSP-818 spectrum analyzer will be announced in the distributor zone of the GW Instek website <http://www.gwinstek.com>.

Ordering Information

GSP-818, 1.8 GHz Spectrum Analyzer

Standard Accessories

Power Cord, Calibration Certificate

CD (Including Quick Start Guide, User Manual, Programming Manual, PC Software)

Optional Accessories

Opt.01 Tracking Generator (via software keycode)

Opt.02 EMI Filter and EMI Detector (via software keycode)

Free download

Dedicated PC software

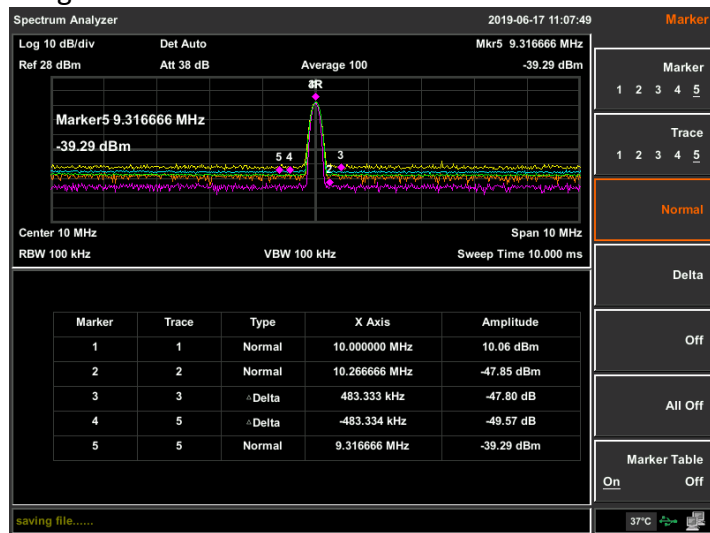
Product FAB

Feature	Advantage	Benefit
Rich resolution bandwidth	10 Hz to 500 kHz in 1-10 seq. RBW	<ul style="list-style-type: none"> ✓ Provide better testing capabilities ✓ Bidding specifications
Large display screen	10.4 inch LCD, 800 x 600	<ul style="list-style-type: none"> ✓ Easy to operate and interpret ✓ The overall design is excellent
Software upgrade capability	Related hardware is built in to support software capabilities	<ul style="list-style-type: none"> ✓ Simplify product management ✓ Easy to upgrade in the future

Product Feature Description

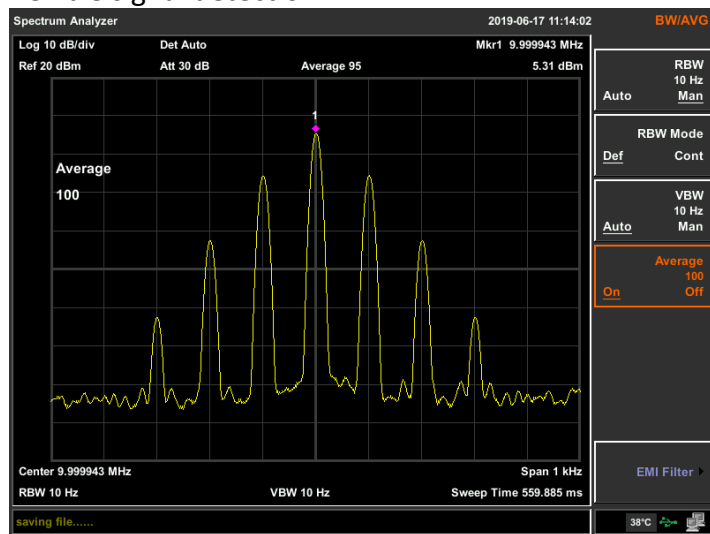
Trace and Marker Functions

Five traces are provided, and the Marker function can be assigned to different traces.



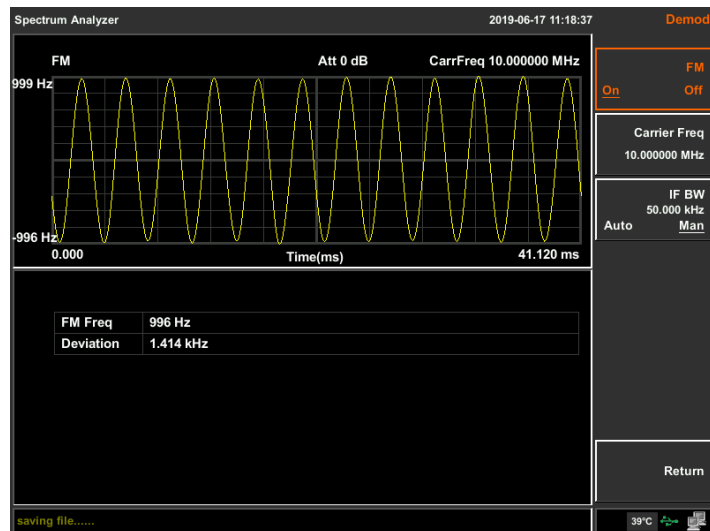
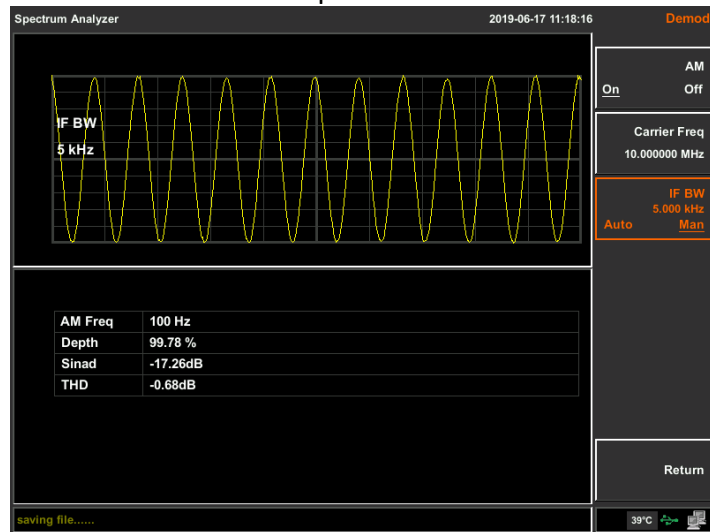
10Hz RBW

GSP-818 provides a minimum 10Hz RBW resolution and provides a 1-10 steps setting below the 500kHz RBW to allow a flexible signal detection.



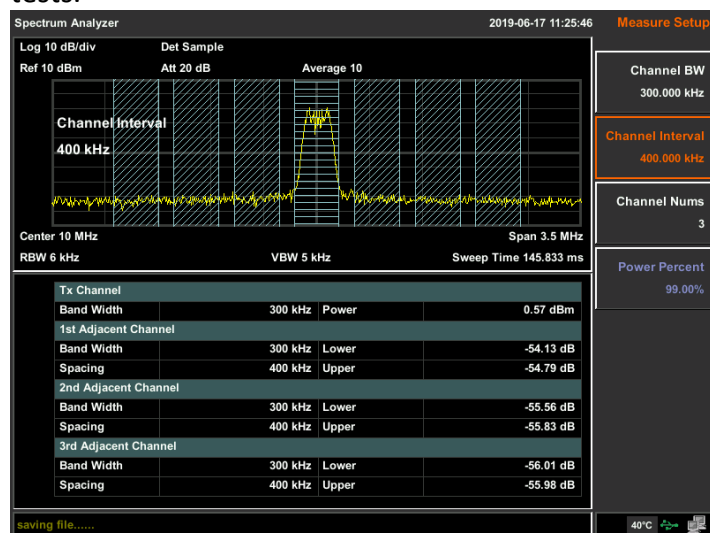
AM and FM Demodulation

GSP-818 provides AM and FM demodulation and supports demodulated audio output.

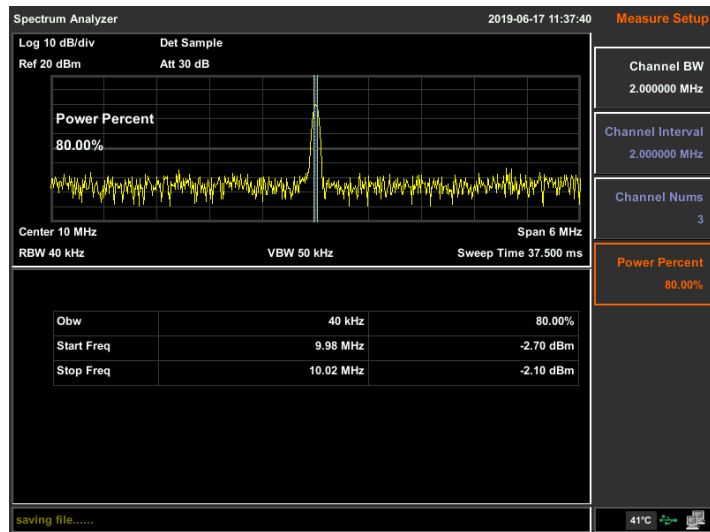


ACPR, OCBW, CHPW

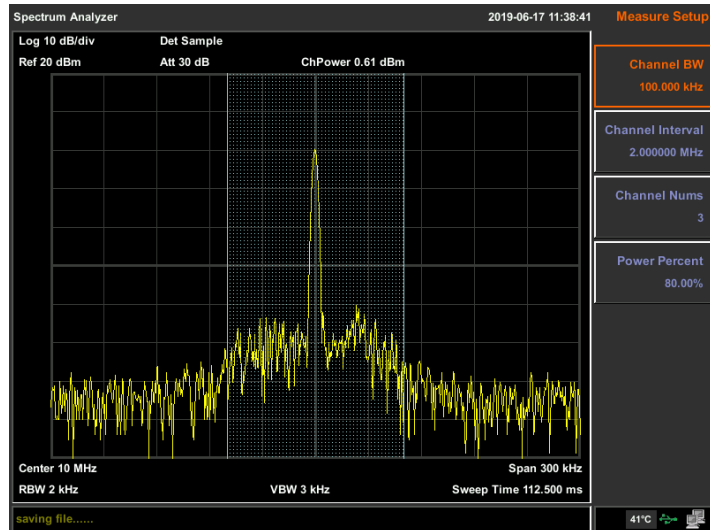
The ACPR function can set up to three sets of adjacent channel tests.



The power density of the signal can be measured through the OCBW function.

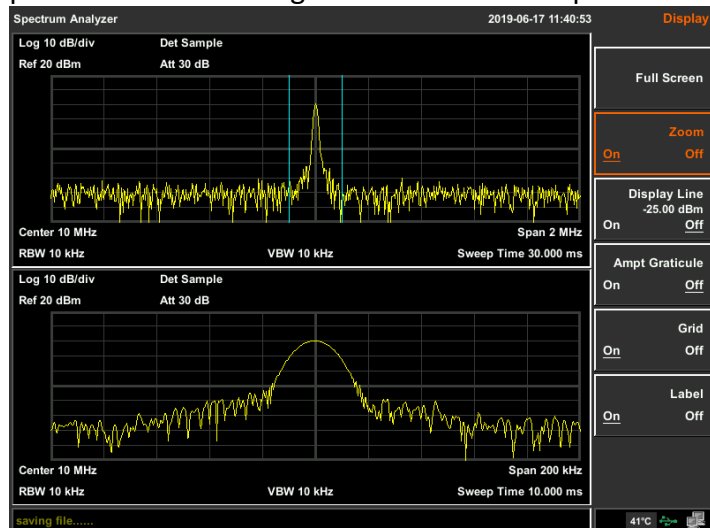


CHPW is used to measure the power strength of the signal in a user-defined channel.



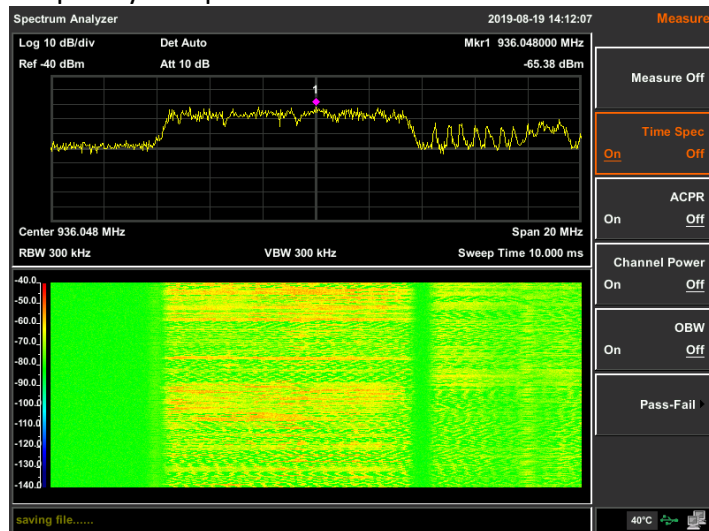
Bandwidth Zoom

The Bandwidth Zoom function is used to view the spectral performance of the signal under different Span.



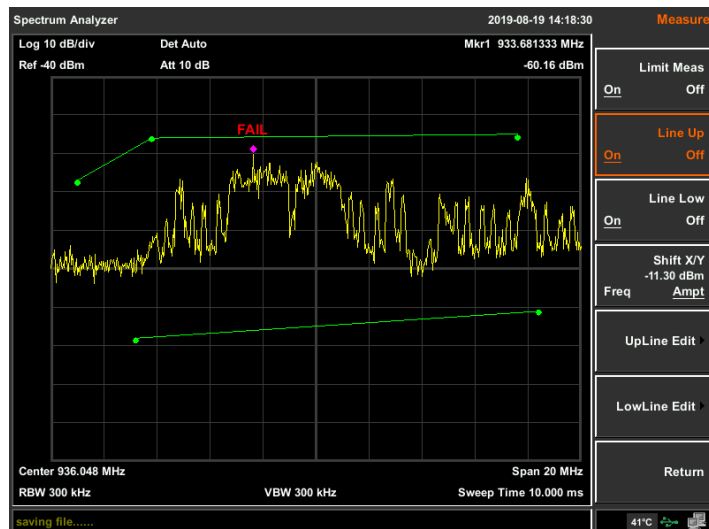
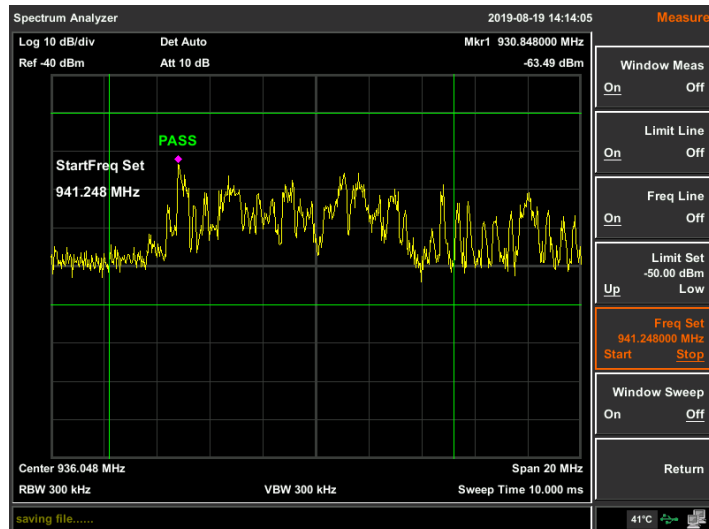
Time Spec

This function can simultaneously view the correlation between display power, frequency and time, and it can also track frequency and power with the variation of time.



Limit line

It can directly judge whether the test result of the DUT is qualified according to the preset test qualification conditions. GSP-818 offers two Limit Line measurements: Windows Measure and Limit Line Measure.



Comparison

GSP-818 vs. GSP-730 vs. GSP-9300B

	GSP-818	GSP-730	GSP-9300B
Frequency Range	9kHz ~ 1.8GHz	150kHz ~ 3GHz	9kHz ~ 3GHz
Frequency Stability	2.5ppm, 1ppm/yr	N/A	0.025 ppm, 1ppm/year
RBW Range	10Hz ~ 500kHz in 1-10 steps, 1MHz, 3MHz (EMI -6dB) 200Hz, 9kHz, 120kHz, 1MHz (Opt)	30kHz, 100kHz, 300kHz, 1MHz	1Hz ~ 1MHz in 1-3-10 Steps (EMI -6dB) 200Hz, 9kHz, 120kHz, 1MHz
VBW Range	10Hz ~ 3MHz	N/A	1Hz~1MHz in 1-3-10 Steps
Phase Noise	-82dBc/Hz@1GHz, 10kHz offset	-85dBc/Hz@1GHz, 500kHz offset	-88dBc/Hz @1GHz, 10kHz offset
Noise Floor	-148dBm @PreAmp On	-100dBm (No PreAmp)	-139dBm @PreAmp On
Measurement Range	-148dBm ~ +20dBm	-100dBm ~ +20dBm	-139dBm ~ +30dBm
Overload Protection	+30dBm, ±50VDC	+30dBm, ±25VDC	+30dBm, ±50VDC
Input Attenuator	0 ~ 39dB, in 3 dB steps	N/A	0 ~ 50dB, in 1 dB steps
Pre-amplifier	Built-in 20dB internal	N/A	Built-in 18dB internal
Measurement Function	ACPR, OCBW, CHPW, N-dB	ACPR, OCBW, CHPW	SEM, ACPR, OCBW, CHPW, N-dB BW, Phase Jitter, Demod. Analyzer, Harmonic, TOI, CNR, CSO, CTB, P1dB
Display Modes	Spectrum Mode, Time Spec, Zoom In/Out	Spectrum Mode, Split-Window	Spectrum, Spectrogram, Topographic, Split-Window
Other functions	Limit Line	Limit Line	Sequence, Limit Line, Correction Table
Display	10.4" TFT LCD with SVGA	5.6" TFT LCD with VGA	8.4" TFT LCD with SVGA
Tracking Generator	100kHz ~ 1.8GHz (optional)	N/A	100kHz ~ 3GHz (optional)
Demodulator	AM/FM	N/A	AM/FM
Interface	USB, Lan, VGA Output	USB, VGA output	USB, RS-232, GPIB(Opt), Lan, MicroSD, DVI-D output

Comparison of major competitors

	GSP-818	Rigol DSA815	Siglent SSA3021X	R&S FPC1000
Frequency Range	9kHz ~ 1.8GHz	9kHz ~ 1.5GHz	9kHz ~ 2.1GHz	5kHz ~ 1GHz
Frequency Stability	2.5ppm, 1ppm/yr	2ppm, 2ppm/yr	1ppm, 1ppm/yr	1ppm, 1ppm/yr
RBW Range	10Hz ~ 500kHz in 1-10 steps, 1MHz, 3MHz (EMI -6dB) 200Hz, 9kHz, 120kHz, 1MHz (Opt.)	10 Hz to 1 MHz, in 1-3-10 sequence (EMI -6dB) 200 Hz, 9 kHz, 120 kHz (Opt)	1 Hz to 1 MHz, in 1-3-10 sequence (EMI -6dB) 200 Hz, 9 kHz, 120 kHz (Opt)	1 Hz to 3 MHz in 1/3 sequence (EMI -6dB) 200Hz, 9kHz, 120kHz, 1MHz (Opt)
VBW Range	10Hz ~ 3MHz	1 Hz to 3 MHz, in 1-3-10 sequence	1 Hz to 3 MHz, in 1-3-10 sequence	1 Hz to 3 MHz in 1/3 sequence
Phase Noise	-82dBc/Hz@1GHz, 10kHz offset	-80 dBc/Hz @10 kHz	-95 dBc/Hz @10 kHz	-88 dBc/Hz @30 kHz
Noise Floor	-148dBm @PreAmp On	<-150dBm + 6*(f/1GHz)dB @PreAmp On	-139dBm @PreAmp On	-158dBm @PreAmp On
Measurement Range	-148dBm ~ +20dBm	-130dBm ~ +20dBm	-139dBm ~ +20dBm	-158dBm ~ +20dBm
Overload Protection	+30dBm, ±50VDC	+30dBm, ±50VDC	+30dBm, ±50VDC	+33dBm, ±50VDC
Input Attenuator	0 ~ 40dB, in 1 dB steps	0 to 30 dB, in 1 dB step	0 to 51 dB, in 1 dB step	0 to 40 dB in 5 dB steps
Pre-amplifier	Built-in 20dB internal	Built-in 20dB internal	Built-in 20dB internal	20dB (Opt)
Measurement Function	ACPR, OCBW, CHPW, N-dB	(Opt)ACPR, OCBW, CHPW, N-dB, TOI, FreqCount., C/N, TDP	(Opt)ACPR, OCBW, CHPW, TOI, TDP	(Opt)ACPR, OCBW, CHPW, TOI, TDP, harmonic distortion
Display Modes	Spectrum Mode, Time Spec, Zoom In/Out	Spectrum Mode	Spectrum Mode	Spectrum Mode, Spectrogram (Opt)
Other functions	Limit Line	Limit Line	Limit Line	Limit Line, Receiver Mode (Opt)
Display	10.4" TFT LCD with SVGA	7" TFT LCD with WVGA	7" TFT LCD with WVGA	10.1" TFT LCD with WVGA
Tracking Generator	100kHz ~ 1.8GHz (Opt.)	100kHz ~ 1.5GHz (Opt.)	100kHz ~ 2.1GHz (Opt.)	N/A
Demodulator	AM/FM	N/A	N/A	(Opt)AM/FM/ASK/FSK
Interface	USB, Lan, VGA Output	LAN, USB, GPIB (Opt.)	LAN, USB	LAN, USB

Specifications

(These specifications apply to GSP-818 being powered up for 45 minutes, and the environment temperature is between 20 and 30 degrees C unless otherwise specified.)

Model	GSP-818	
Frequency		
Range	9 kHz to 1.8 GHz	
Resolution	1 Hz	
Frequency Span		
Span Range	0 Hz, 100 Hz to max. frequency of instrument	
Span Uncertainty	\pm span / (sweep points-1)	
Internal Frequency Reference		
Span Range	10.000000 MHz	
Reference Frequency Accuracy	\pm [(days from last calibrate \times freq aging rate) + temperature stability + initial accuracy]	
Temperature stability	<2.5ppm (15°C to 35°C)	
Aging rate	<1ppm/year	
SSB Phase Noise (20°C to 30°C, fc=1 GHz, RBW= 1 kHz, VBW=10 Hz, Average \geq 40)		
10 kHz	< -82 dBc/Hz	
100 kHz	< -98 dBc/Hz(Typical)	
1 MHz	< -110 dBc/Hz(Typical)	
Bandwidth		
Resolution Bandwidth	10Hz to 500kHz (1-10 steps by sequence), 1MHz, 3MHz EMI Filter(6dB): 200Hz, 9kHz, 120kHz, 1MHz (Option)	
RBW Uncertainty	< 5%, typical (RBW \leq 1 MHz) < 18%, typical (RBW is 3MHz)	
Resolution Filter Shape Factor (60 dB: 3 dB)	<5: 1 typical (digital and close to Gaussian shape)	
Video Bandwidth (VBW)	10 Hz to 3 MHz	
Amplitude		
Amplitude and level		
Amplitude measurement range	DANL to +10 dBm, 100 kHz to 1 MHz, Preamp Off DANL to +20 dBm, 1 MHz to 1.5 GHz, Preamp Off	
Reference Level	-80 dBm to +30 dBm, 0.01dB by step	
Preamp	20 dB, nominal, 9 kHz to 1.8 GHz	
Input Attenuation	0 to 40 dB, in 1 dB step	
Max Input DC Current	50 VDC	
Max continuous power	+30dBm, average continuous power	
Display Average Noise Level (Input Attenuation= 0 dB, RBW=1 Hz and RBW normalizes to 1 Hz)		
Preamp Off		
1 MHz to 10 MHz	-130 dBm (Typical)	
10 MHz to 1 GHz	-130 dBm (Typical)	
1 GHz to 1.8 GHz	-128 dBm (Typical)	
Preamp On		
1 MHz to 10 MHz	-150 dBm (Typical)	
10 MHz to 1 GHz	-150 dBm (Typical)	
1 GHz to 1.8 GHz	-148 dBm (Typical)	
Frequency response (20°C to 30°C, 30% to 70% relative humidity, input attenuation=10 dB, reference frequency=50 MHz)		
Preamp Off (fc \geq 100 kHz)	\pm 0.8 dB ; \pm 0.4 dB, Typical	
Preamp On(fc \geq 100 MHz)	\pm 0.9 dB ; \pm 0.5 dB, Typical	
Difference and Accuracy		
RBW Switch Difference	Reference: 10 kHz RBW at 50 MHz Log resolution= \pm 0.2 dB, Lin resolution= \pm 0.01 Nominal	

Input Attenuation Difference	20°C ~30°C, fc=50 MHz, Preamplifier Off, 10 dB RF attenuation, input signal 0~40 dB ±0.5 dB
Absolute Amplitude Uncertainty	20°C to 30°C, fc=50 MHz, Span=200 kHz, RBW=10 kHz, VBW=10 kHz, peak detector, 10 dB RF attenuation, 95% confidence level
Preamp Off	±0.4 dB, input signal level -20 dBm
Preamp On	±0.5 dB, input signal level -40 dBm
Uncertainty	Input signal range 0 dBm to -50 dBm ±1.5 dB
VSWR	Input 10 dB RF attenuation, 1MHz to 1.8GHz <1.5, Nominal
Distortion and spurious response	
Second harmonic distortion	fc ≥ 50 MHz, Preamp off, signal input -20 dBm, 0 dB RF attenuation, 20°C to 30°C -65 dBc
Third-order intermodulation	fc ≥ 50 MHz, Input double tone level -20 dBm, frequency interval 100 kHz, input attenuation 0 dB, preamplifier off, 20°C to 30°C +10 dBm
1 dB Gain Compression	fc ≥ 50 MHz, 0 dB RF attenuation, Preamp off, 20°C to 30°C >+2 dBm, Nominal
Residual response	connect 50 Ω load at input port, 0 dB input attenuation, 20°C to 30°C <-85 dBm, from 100 kHz to 1.5 GHz <-80 dBm, from 1.5 GHz to 1.8 GHz
Input related spurious	-30 dBm signal at input mixer, 20°C to 30°C <-60 dBc
Sweep	
Sweep Time	
None-zero Span	10 ms to 3000 s
Zero Span	1 ms to 3000 s
Span Mode	Continue, Single
Tracking Generator (Only apply to - TG option)	
Tracking Generator Output	
Frequency Range	100 kHz to 1.8GHz
Output power level range	-30 dBm to 0 dBm
Output power level resolution	1 dB
Output flatness	± 3 dB
Maximum safe reverse level	Average total power: 30 dBm, DC : ±50 VDC
Demodulation	
Audio Demodulation	
Frequency Range	100 kHz to 1.8 GHz
Demodulation Type	FM/AM/USB/LSB
AM Measurement	
Frequency Range	10MHz to 1.8GHz
Modulation rate	20Hz to 100kHz
Modulation Rate Accuracy	1Hz, nominal(Modulation rate < 1 kHz) <0.1% modulation rate, nominal(Modulation rate ≥ 1 kHz)
Depth	5% to 95%
Depth Accuracy	±4%, nominal
FM Measurement	
Frequency Range	10 MHz to 1.8 GHz
Modulation rate	20 Hz to 100 kHz
Modulation Rate Accuracy	1Hz, nominal(Modulation rate < 1 kHz) <0.1% modulation rate, nominal(Modulation rate ≥ 1 kHz)
Deviation	20 Hz to 200 kHz
Deviation Accuracy	±4%, nominal
Frequency Counter	
Counter Resolution	1Hz, 10Hz, 100Hz, 1kHz
Accuracy	±(frequency indication × frequency reference accuracy) + counter resolution
Inputs and Outputs	

RF Input		
Impedance		50 Ω , Typical
Connector		N Type Female
Tracking Generator Output		
Impedance		50 Ω , Typical
Connector		N Type Female
Reference Input		
Connector		BNC Female
10MHz Reference Amplitude		0 dBm to +10 dBm
USB		
USB Host		
Connector		A Plug
Protocol		USB 2.0 (Host End)
USB Device		
Connector		B Plug
Protocol		2.0 Version
VGA		
Connector		15-pins D-SUB(female)
Resolution		800*600, 60 Hz
General Specification		
Display		
Type		TFT LCD
Resolution		800*600
Size		10.4 inches
Color		65536
Remote Control		
USB		USB TMC
LAN		10/100Base, RJ-45
Mass Memory		
Internal Memory		256M Bytes
Temperature		
Operating Temperature Range		0 °C to 40°C
Storage Temperature Range		-20°C to 70°C
Appearance		
Dimensions		421 mm (Width)×221 mm (Height)×115 mm (Depth)
Weight		Approx. 5.0 kg (without package)

Should you have any questions on the GSP-818 spectrum analyzer announcement, please don't hesitate to contact us.

Sincerely yours,

Good Will Instrument Co., Ltd

No. 7-1, Jhongsing Road, Tucheng Dist.,

New Taipei City 236, Taiwan

Email: marketing@goodwill.com.tw



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