

| SPECIFICATIONS                   |                                                                                                                                                                                                 |                                                                                                                                           |                    |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| FREQUENCY                        |                                                                                                                                                                                                 |                                                                                                                                           |                    |
| Frequency Span                   | Range                                                                                                                                                                                           | 9 kHz to 1.8 GHz                                                                                                                          |                    |
| Frequency Span                   | Resolution                                                                                                                                                                                      | 1 Hz                                                                                                                                      |                    |
| Frequency Span                   | Span Range                                                                                                                                                                                      | 0 Hz, 100 Hz to max. frequency of instrument                                                                                              |                    |
| Internal Frequency Reference     | Span Uncertainty                                                                                                                                                                                | ± span/(sweep points-1)                                                                                                                   |                    |
| Internal Frequency Reference     | Span Range                                                                                                                                                                                      | 10.000000 MHz                                                                                                                             |                    |
| Internal Frequency Reference     | Reference Frequency Accuracy                                                                                                                                                                    | ± [(days from last calibrate × freq aging rate) + temperature stability + initial accuracy ]                                              |                    |
| Internal Frequency Reference     | Temperature Stability                                                                                                                                                                           | < 2.5ppm (15°C to 35°C)                                                                                                                   |                    |
| SSB Phase Noise                  | Aging rate                                                                                                                                                                                      | < 1ppm/year                                                                                                                               |                    |
| SSB Phase Noise                  | 10 kHz                                                                                                                                                                                          | < -82 dBc/Hz                                                                                                                              |                    |
| SSB Phase Noise                  | 100 kHz                                                                                                                                                                                         | < -98 dBc/Hz(Typical)                                                                                                                     |                    |
| SSB Phase Noise                  | 1 MHz                                                                                                                                                                                           | < -110 dBc/Hz(Typical)                                                                                                                    |                    |
| Bandwidth                        | Resolution Bandwidth                                                                                                                                                                            | 10Hz to 500kHz (1-10 steps by sequence), 1MHz, 3MHz (Option) 200 Hz, 9 kHz, 120 kHz, 1 MHz for EMI(-6dB)                                  |                    |
| Bandwidth                        | RBW Uncertainty                                                                                                                                                                                 | < 5%, typical (RBW≤1 MHz); Dedicated Remote Control PC Software                                                                           |                    |
| Bandwidth                        | Resolution Filter Shape Factor (60dB:3dB)                                                                                                                                                       | < 5:1 typical (digital and close to Gaussian shape)                                                                                       |                    |
| Bandwidth                        | 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 1.8 GHz, Preamp Off                                              |                    |
| Amplitude and Level              | Reference Level                                                                                                                                                                                 | -80 dBm to +30 dBm, 0.01dB by step                                                                                                        |                    |
| Amplitude and Level              | Preamp                                                                                                                                                                                          | 20 dB, nominal, 100 kHz to 1.8 GHz                                                                                                        |                    |
| Amplitude and Level              | Input Attenuation                                                                                                                                                                               | 0 to 40 dB, in 1 dB step                                                                                                                  |                    |
| Amplitude and Level              | Max Input DC Current                                                                                                                                                                            | 50 VDC                                                                                                                                    |                    |
| Display Average Noise Level      | Max Continuous Power                                                                                                                                                                            | +30dBm, average continuous power                                                                                                          |                    |
| Frequency Response               | 100 kHz ~ 1 MHz<br>1 MHz ~ 10 MHz<br>10 MHz ~ 1 GHz<br>1 GHz ~ 1.8 GHz                                                                                                                          | Preamp Off                                                                                                                                |                    |
|                                  |                                                                                                                                                                                                 | Preamp On                                                                                                                                 |                    |
|                                  |                                                                                                                                                                                                 | -117 dBm (Typical)                                                                                                                        | -140 dBm (Typical) |
|                                  |                                                                                                                                                                                                 | -130 dBm (Typical)                                                                                                                        | -150 dBm (Typical) |
|                                  |                                                                                                                                                                                                 | -130 dBm (Typical)                                                                                                                        | -150 dBm (Typical) |
| Frequency Response               | Preamp Off(fc≥100 kHz)                                                                                                                                                                          | ±0.8 dB:±0.4 dB, Typical                                                                                                                  |                    |
| Frequency Response               | Preamp On(fc≥100 MHz)                                                                                                                                                                           | ±0.9 dB:±0.5 dB, Typical                                                                                                                  |                    |
| Uncertainty and Accuracy         | RBW Switch Uncertainty                                                                                                                                                                          | Reference: 10 kHz RBW at 50 MHz; Log resolution=±0.2 dB, Lin resolution=±0.01 Nominal                                                     |                    |
| Uncertainty and Accuracy         | Input Attenuation Uncertainty                                                                                                                                                                   | 20°C~30°C, fc=50 MHz, Preamplifier Off, 10 dB RF attenuation, input signal 0~40 dB ±0.5 dB                                                |                    |
| Uncertainty and Accuracy         | 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                  |                    |
| Distortion and Spurious Response | Preamp Off<br>Preamp On<br><br>Uncertainty<br>VSWR<br>Second Harmonic Distortion<br>Third-order Intermodulation<br><br>1 dB Gain Compression<br>Residual Response<br><br>Input Related Spurious | ±0.4 dB, input signal level -20 dBm                                                                                                       |                    |
|                                  |                                                                                                                                                                                                 | ±0.5 dB, input signal level -40 dBm                                                                                                       |                    |
|                                  |                                                                                                                                                                                                 | Input signal range 0 dBm to -50 dBm; ±1.5 dB                                                                                              |                    |
|                                  |                                                                                                                                                                                                 | Input 10 dB RF attenuation, 1MHz to 1.8GHz; <1.5, Nominal                                                                                 |                    |
|                                  |                                                                                                                                                                                                 | fc≥50 MHz, Preamp off, signal input -20 dBm, 0 dB RF attenuation, 20°C to 30°C; -65 dBc                                                   |                    |
|                                  |                                                                                                                                                                                                 | 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 |                    |
|                                  |                                                                                                                                                                                                 | fc≥50 MHz, 0 dB RF attenuation, Preamp off, 20°C to 30°C; >+2 dBm, Nominal                                                                |                    |
| SWEEP                            | Time<br><br>None-zero Span<br>Zero Span<br><br>Span Mode                                                                                                                                        | 10 ms to 3000 s                                                                                                                           |                    |
|                                  |                                                                                                                                                                                                 | 1 ms to 3000 s                                                                                                                            |                    |
|                                  |                                                                                                                                                                                                 | Continue, Single                                                                                                                          |                    |
| TRACKING GENERATOR (OPTION 01)   |                                                                                                                                                                                                 |                                                                                                                                           |                    |
| Tracking Generator Output        | Frequency Range                                                                                                                                                                                 | 100 kHz to 1.8GHz                                                                                                                         |                    |
| Tracking Generator Output        | Output Power Level Range                                                                                                                                                                        | -30 dBm to 0 dBm                                                                                                                          |                    |
| Tracking Generator Output        | Output Power Level Resolution                                                                                                                                                                   | 1 dB                                                                                                                                      |                    |
| Tracking Generator Output        | Output Flatness                                                                                                                                                                                 | ± 3 dB                                                                                                                                    |                    |
| Tracking Generator Output        | Maximum Safe Reverse Level                                                                                                                                                                      | Average total power: 30 dBm, DC : ±50 VDC                                                                                                 |                    |
| DEMODULATION                     |                                                                                                                                                                                                 |                                                                                                                                           |                    |
| Audio Demodulation               | Frequency Range                                                                                                                                                                                 | 100 kHz to 1.8 GHz                                                                                                                        |                    |
| Audio Demodulation               | Demodulation Type                                                                                                                                                                               | FM/AM/USB/LSB                                                                                                                             |                    |
| AM Measurement                   | Frequency Range                                                                                                                                                                                 | 10MHz to 1.8GHz                                                                                                                           |                    |
| AM Measurement                   | Modulation Rate                                                                                                                                                                                 | 20Hz to 100kHz                                                                                                                            |                    |
| AM Measurement                   | Modulation Rate Accuracy                                                                                                                                                                        | 1Hz, nominal(Modulation rate < 1 kHz); <0.1% modulation rate, nominal(Modulation rate≥1 kHz)                                              |                    |
| AM Measurement                   | Depth                                                                                                                                                                                           | 5% to 95%                                                                                                                                 |                    |
| AM Measurement                   | Depth Accuracy                                                                                                                                                                                  | ±4%, nominal                                                                                                                              |                    |
| FM Measurement                   | Frequency Range                                                                                                                                                                                 | 10 MHz to 1.8 GHz                                                                                                                         |                    |
| FM Measurement                   | Modulation Rate                                                                                                                                                                                 | 20 Hz to 100 kHz                                                                                                                          |                    |
| FM Measurement                   | Modulation Rate Accuracy                                                                                                                                                                        | 1Hz, nominal(Modulation rate < 1 kHz); <0.1% modulation rate, nominal(Modulation rate≥1 kHz)                                              |                    |
| FM Measurement                   | Deviation                                                                                                                                                                                       | 20 Hz to 200 kHz                                                                                                                          |                    |
| FM Measurement                   | 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                                                                                                                             |                    |
| RF Input                         | Connector                                                                                                                                                                                       | N Type Female                                                                                                                             |                    |
| Tracking Generator Output        | Impedance                                                                                                                                                                                       | 50 Ω, Typical                                                                                                                             |                    |
| Tracking Generator Output        | Connector                                                                                                                                                                                       | N Type Female                                                                                                                             |                    |
| Reference Input                  | Connector                                                                                                                                                                                       | BNC Female                                                                                                                                |                    |
| Reference Input                  | 10MHz Reference Amplitude                                                                                                                                                                       | 0 dBm to +10 dBm                                                                                                                          |                    |
| USB                              | USB Host                                                                                                                                                                                        | A Plug, USB 2.0 (Host End)                                                                                                                |                    |
| USB                              | USB Device                                                                                                                                                                                      | B Plug, 2.0 Version                                                                                                                       |                    |
| VGA                              | Connector                                                                                                                                                                                       | 15-pins, D-SUB(female)                                                                                                                    |                    |
| VGA                              | Resolution                                                                                                                                                                                      | 800*600, 60 Hz                                                                                                                            |                    |
| GENERAL SPECIFICATION            |                                                                                                                                                                                                 |                                                                                                                                           |                    |
| Display                          | Type                                                                                                                                                                                            | 10.4 inches, TFT LCD, 800*600 (SVGA), 65536 colors                                                                                        |                    |
| Remote Control                   | USB TMC                                                                                                                                                                                         | 10/100Base, RJ-45                                                                                                                         |                    |
| Remote Control                   | LAN                                                                                                                                                                                             | 256M Bytes                                                                                                                                |                    |
| Mass Memory                      | Internal Memory                                                                                                                                                                                 | 0 °C to 40°C                                                                                                                              |                    |
| Temperature                      | Operating Temperature                                                                                                                                                                           | -20°C to 70°C                                                                                                                             |                    |
| Temperature                      | Storage Temperature                                                                                                                                                                             | 421mm (W) × 221mm (H) × 115mm (D)/Approx. 5.0 kg(without package)                                                                         |                    |
| Appearance                       | Dimensions & Weight                                                                                                                                                                             |                                                                                                                                           |                    |

Specifications subject to change without notice. GSP-818GD1DH

| ORDERING INFORMATION                                                           |                                                 |
|--------------------------------------------------------------------------------|-------------------------------------------------|
| GSP-818                                                                        | 1.8 GHz Spectrum Analyzer                       |
| Opt. 01                                                                        | Tracking Generator (Factory Installed)          |
| Opt. 02                                                                        | EMI Filter and EMI Detector (Factory Installed) |
| ACCESSORIES                                                                    |                                                 |
| Power cord, Calibration Certificate                                            |                                                 |
| CD (including quick start guide, user manual, programming manual, PC software) |                                                 |

| FIELD UPGRADE FOR GSP-818 OPTIONS    |                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------|
| Opt.01                               | Tracking Generator for GSP-818 (License key upgrade, field installed)         |
| Opt.02                               | EMI Filter and EMI Detector for GSP-818(License key upgrade, field installed) |
| FREE DOWNLOAD                        |                                                                               |
| Dedicated Remote Control PC Software |                                                                               |



Zone Acticentre – CRT2 – CS 10210  
156/220 Rue des Farnards - 59273 FRETIN  
Tél : 03 20 62 06 80 Fax : 03 20 96 95 62  
Mail : [contact@dimelco.com](mailto:contact@dimelco.com)

**GW INSTEK**  
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## 1.8 GHz SPECTRUM ANALYZER



NEW



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..

GSP-818



### 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 (800x600)
- Options: Tracking Generator, EMI Filter & Detector (via software keycode)



Front



Rear Panel

### 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



GSP-818

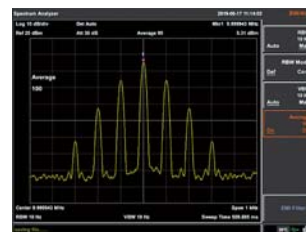
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## A. TRACE AND MARKER FUNCTIONS



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

## B. 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.

## C. AM AND FM DEMODULATION



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

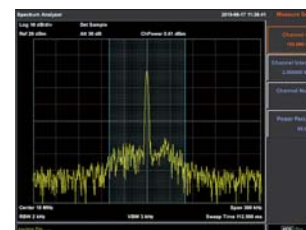
## D. ACPR, OCBW, CHPW



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

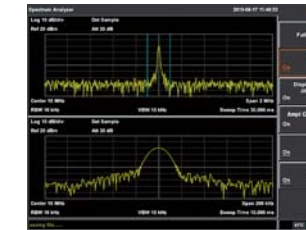


The power density of the signal can be measured through the OCBW function.



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

## E. BANDWIDTH ZOOM



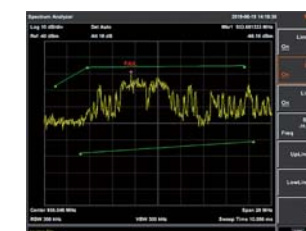
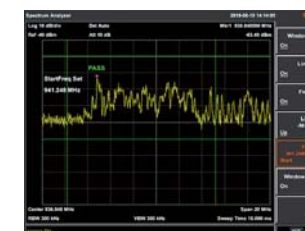
The Bandwidth Zoom function is used to view the spectral performance of the signal under different Span.

## F. 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

## G. 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.