RIGOL

ADM Mode

For RSA6000 Series Spectrum Analyzer

User Guide

Sept. 2025

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Contact Us

If you have any problem or requirement when using our products or this manual, please contact RIGOL.

E-mail: service@rigol.com

Website: *http://www.rigol.com*

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1 Safety Requirement

1.1 General Safety Summary

Please review the following safety precautions carefully before putting the instrument into operation so as to avoid any personal injury or damage to the instrument and any product connected to it. To prevent potential hazards, please follow the instructions specified in this manual to use the instrument properly.

- **Use Proper Power Cord.**

  Only the exclusive power cord designed for the instrument and authorized for use within the local country could be used.

- **Ground the Instrument.**

  The instrument is grounded through the Protective Earth lead of the power cord. To avoid electric shock, it is essential to connect the earth terminal of the power cord to the Protective Earth terminal before connecting any inputs or outputs.

- **Observe All Terminal Ratings.**

  To avoid fire or shock hazard, observe all ratings and markers on the instrument and check your manual for more information about ratings before connecting the instrument.

- **Use Proper Overvoltage Protection.**

  Ensure that no overvoltage (such as that caused by a bolt of lightning) can reach the product. Otherwise, the operator might be exposed to the danger of an electric shock.

- **Do Not Operate Without Covers.**

  Do not operate the instrument with covers or panels removed.

- **Do Not Insert Objects Into the Air Outlet.**

  Do not insert anything into the holes of the fan to avoid damaging the instrument.

- **Use Proper Fuse.**

  Please use the specified fuses.

- **Avoid Circuit or Wire Exposure.**

  Do not touch exposed junctions and components when the unit is powered on.

- **Do Not Operate With Suspected Failures.**

  If you suspect damage occurs to the instrument, have it inspected by RIGOL authorized personnel before further operations. Any maintenance, adjustment or

replacement especially to circuits or accessories must be performed by RIGOL authorized personnel.

- **Provide Adequate Ventilation.**

  Inadequate ventilation may cause an increase of temperature in the instrument, which would cause damage to the instrument. So please keep the instrument well ventilated and inspect the air outlet and the fan regularly.

- **Do Not Operate in Wet Conditions.**

  To avoid short circuit inside the instrument or electric shock, never operate the instrument in a humid environment.

- **Do Not Operate in an Explosive Atmosphere.**

  To avoid personal injuries or damage to the instrument, never operate the instrument in an explosive atmosphere.

- **Keep Instrument Surfaces Clean and Dry.**

  To avoid dust or moisture from affecting the performance of the instrument, keep the surfaces of the instrument clean and dry.

- **Prevent Electrostatic Impact.**

  Operate the instrument in an electrostatic discharge protective environment to avoid damage induced by static discharges. Always ground both the internal and external conductors of cables to release static before making connections.

- **Use the Battery Properly.**

  Do not expose the battery (if available) to high temperature or fire. Keep it out of the reach of children. Improper change of a battery (lithium battery) may cause an explosion. Use the RIGOL specified battery only.

- **Handle with Caution.**

  Please handle with care during transportation to avoid damage to keys, knobs, interfaces, and other parts on the panels.

WARNING

Equipment meeting Class A requirements may not offer adequate protection to broadcast services within residential environment.

1.2 Safety Notices and Symbols

Safety Notices in this Manual:

WARNING

Indicates a potentially hazardous situation or practice which, if not avoided, will result in serious injury or death.

CAUTION

Indicates a potentially hazardous situation or practice which, if not avoided, could result in damage to the product or loss of important data.

Safety Notices on the Product:

- **DANGER**

  It calls attention to an operation, if not correctly performed, could result in injury or hazard immediately.

- **WARNING**

  It calls attention to an operation, if not correctly performed, could result in potential injury or hazard.

- **CAUTION**

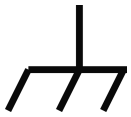
  It calls attention to an operation, if not correctly performed, could result in damage to the product or other devices connected to the product.

Safety Symbols on the Product:

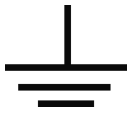
Hazardous Voltage

Safety Warning

Protective Earth Terminal



Chassis Ground



Test Ground

1.3 Measurement Category

Measurement Category

This instrument can make measurements in Measurement Category I.

WARNING

This instrument can only be used for measurements within its specified measurement categories.

Measurement Category Definitions

- **Measurement category I** is for measurements performed on circuits not directly connected to MAINS. Examples are measurements on circuits not derived from MAINS, and specially protected (internal) MAINS derived circuits. In the latter case, transient stresses are variable. Thus, you must know the transient withstand capability of the equipment.
- **Measurement category II** is for measurements performed on circuits directly connected to low voltage installation. Examples are measurements on household appliances, portable tools and similar equipment.

- **Measurement category III** is for measurements performed in the building installation. Examples are measurements on distribution boards, circuit-breakers, wiring (including cables, bus-bars, junction boxes, switches and socket-outlets) in the fixed installation, and equipment for industrial use and some other equipment. For example, stationary motors with permanent connection to a fixed installation.
- **Measurement category IV** is for measurements performed at the source of a low-voltage installation. Examples are electricity meters and measurements on primary overcurrent protection devices and ripple control units.

1.4 Ventilation Requirement

This instrument uses a fan to force cooling. Please make sure that the air inlet and outlet areas are free from obstructions and have free air. When using the instrument in a bench-top or rack setting, provide at least 10 cm clearance beside, above and behind the instrument for adequate ventilation.

CAUTION

Inadequate ventilation may cause an increase of temperature in the instrument, which would cause damage to the instrument. So please keep the instrument well ventilated and inspect the air outlet and the fan regularly.

1.5 Working Environment

Temperature

Operating: 0℃ to +50℃

Non-operating: -20℃ to +70℃

Humidity

- **Operating:**

  Below +30℃: ≤95% RH (without condensation)

  +30℃ to +40℃: ≤75% RH (without condensation)

  +40℃ to +50℃: ≤45% RH (without condensation)

- **Non-operating:**

  Below +40℃: 5%~ 90% (without condensation)

  ≥+40℃ to ＜+60℃: 5%~ 80% (without condensation)

  >+60℃ to ＜+70℃: 5%~ 40% (without condensation)

WARNING

To avoid short circuit inside the instrument or electric shock, never operate the instrument in a humid environment.

Altitude

Operating: below 3 km

Protection Level Against Electric Shock

- **Contact discharge:**±4 kV
- **Air discharge:**±8 kV

Installation (Overvoltage) Category

This product is powered by mains conforming to installation (overvoltage) category II.

WARNING

Ensure that no overvoltage (such as that caused by a bolt of lightning) can reach the product. Otherwise, the operator might be exposed to the danger of an electric shock.

Installation (Overvoltage) Category Definitions

Installation (overvoltage) category I refers to signal level which is applicable to equipment measurement terminals connected to the source circuit. Among these terminals, precautions are done to limit the transient voltage to a low level.

Installation (overvoltage) category II refers to the local power distribution level which is applicable to equipment connected to the AC line (AC power).

Pollution Degree

Pollution Degree 2

Pollution Degree Definition

- **Pollution Degree 1:** No pollution or only dry, nonconductive pollution occurs. The pollution has no effect. For example, a clean room or air-conditioned office environment.
- **Pollution Degree 2:** Normally only nonconductive pollution occurs. Temporary conductivity caused by condensation is to be expected. For example, indoor environment.
- **Pollution Degree 3:** Conductive pollution or dry nonconductive pollution that becomes conductive due to condensation occurs. For example, sheltered outdoor environment.
- **Pollution Degree 4:** The pollution generates persistent conductivity caused by conductive dust, rain, or snow. For example, outdoor areas.

Safety Class

Class 1 – Grounded Product

1.6 Care and Cleaning

Care

Do not store or leave the instrument where it may be exposed to direct sunlight for long periods of time.

Cleaning

Clean the instrument regularly according to its operating conditions.

1. Disconnect the instrument from all power sources.
2. Clean the external surfaces of the instrument with a soft cloth dampened with mild detergent or water. Avoid having any water or other objects into the chassis via the heat dissipation hole. When cleaning the LCD, take care to avoid scarifying it.

CAUTION

To avoid damage to the instrument, do not expose it to caustic liquids.

WARNING

To avoid short-circuit resulting from moisture or personal injuries, ensure that the instrument is completely dry before connecting it to the power supply.

1.7 Environmental Considerations

The following symbol indicates that this product complies with the WEEE Directive 2012/19/EU.

The equipment may contain substances that could be harmful to the environment or human health. To avoid the release of such substances into the environment and avoid harm to human health, we recommend you to recycle this product appropriately to ensure that most materials are reused or recycled properly. Please contact your local authorities for disposal or recycling information.

You can click on the following link *https://www.rigol.com/intl/services/environmental-protection-statement.html* to download the latest version of the RoHS&WEEE certification file.

2 RSA6000 Series Spectrum Analyzer

RSA6000 series is RIGOL's newly launched real-time spectrum analyzer. Its excellent performance in SFDR, phase noise, amplitude accuracy and test speed makes it applicable in various test scenarios such as spectrum analysis, real-time spectrum analysis, vector signal analysis, pulse analysis. RSA6000 series real-time spectrum analyzer has a strong expansion capability, allowing you to build the test system or perform user-defined development via various digital and analog output interfaces. With its excellent performance and flexible configuration, it can meet your test demands in various application scenarios such as wireless communication, automobile electronics, Internet of Things (IoT), and etc.

3 Document Overview

This manual gives you a quick review about the front and rear panel of RSA6000 series, the user interface, and its basic operation method.

TIP

For the latest version of this manual, download it from the official website of RIGOL (*http://www.rigol.com*).

Publication Number

UGD29101-1110

Software Version

00.00.28

Software upgrade might change or add product features. Please acquire the latest version of the manual from RIGOL website or contact RIGOL to upgrade the software.

Format Conventions in this Manual

1. **Key**

   The front panel key is denoted by the menu key icon. For example, 

   indicates the "System" key.

2. **Menu**

   The menu item is denoted by the format of "Menu Name (Bold) + Character Shading" in the manual. For example, **Setup** indicates clicking or tapping the "Setup" sub-menu under the "Utility" function menu to view the basic setting configuration items.

3. **Operation Procedures**

   The next step of the operation is denoted by "**>**" in the manual. For example, 

   > **Save** indicates that first clicking or tapping the icon  , then clicking or tapping **Save**.

4. **Connector**

   The connectors on the front or rear panel are usually denoted by the format of "Connector Name (Bold) + Square Brackets (Bold)". For example **[TRIG IN]**.

Content Conventions in this Manual

The RSA6000 series spectrum analyzer includes the following models. Unless otherwise specified, this manual takes RSA6265 as an example to illustrate the functions and operation methods of the RSA6000 series.

Model	Frequency Range
RSA6265	5 kHz to 26.5 GHz
RSA6140	5 kHz to 14 GHz
RSA6085	5 kHz to 8.5 GHz

4 Quick Start

This chapter gives you a quick review about the user interface of the RSA6000 series spectrum analyzer in ADM mode and its mode settings. For its details about the appearance and dimensions, its front and rear panel, as well as notices during first use of the analyzer, refer to relevant chapters in *RSA6000 User Guide*.

4.1 User Interface

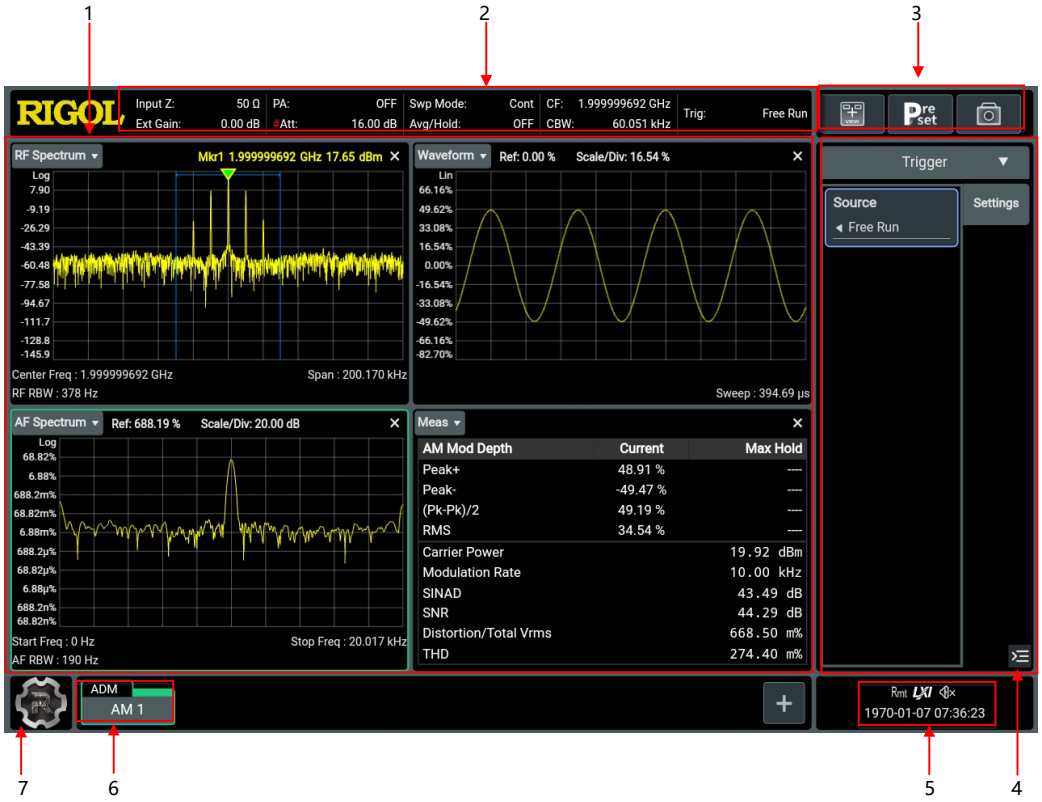


Figure 4.1 User Interface

No.	Name	Description
1	Multi-pane Windowing Display Area	If you enable multiple functions, multiple windows can be displayed on the screen at one time.
2	Status Display Bar	Displays the frequency, amplitude, span, trigger, and other measurement parameters.
3	Quick Operation Menu	Displays the quick operation menu.

No.	Name	Description
4	Menu Control Operation Area	Sets the main measurement types Meas Setup, Frequency, Sweep, Amplitude, BandWidth, Marker, etc.
5	Notification Area	Displays the USB storage device icon, LAN connection icon, sound icon, remote control icon, and system time. You can click or tap this area to enter the system menu.
6	Working Mode	Displays the currently selected working mode. The analyzer provides five modes: GPSA, RTSA, VSA, EMI, and ADM.
7	Function Navigation Icon	Click or tap the icon  to open the function navigation menu. Click or tap the specified menu icon to enter the specified function setting menu.

4.2 Mode Setting

RSA6000 provides five measurement modes: GPSA, RTSA, ADM (option), EMI (option), and VSA (option). Press the front-panel key 

to enter the measurement setting menu. You can also click or tap 

to select the desired measurement mode.

1. **GPSA**

   GPSA adopts two analysis methods: swept SA and FFT. It can not only carry out frequency domain analysis, but also time domain (zero span) analysis.

   Select GPSA. In this mode, click or tap the specified measurement item under **Measurement**. For details, refer to relevant chapters in RSA6000 User Guide.

2. **RTSA**

   RTSA provides the real-time signal analysis function, enabling you to capture the complex signal seamlessly.

   Select RTSA. In this working mode, you can click or tap the specified measurement item under **Measurement**. For details, refer to relevant chapters in RSA6000 User Guide.

3. **VSA**

   VSA mode provides the standard vector signal analysis function. If you need this function, please purchase this option (order No. RSA6000-VSA), and install it according to instructions in "*To View the Option and the Option Installation*".

4. **EMI**

EMI mode provides the EMI pre-compliance measurement function. If you need this function, please purchase this option (order No. RSA6000-EMI), and install it according to instructions in "*To View the Option and the Option Installation*".

5. ADM

ADM mode provides the analog signal demodulation function. In this mode, you can click or tap to select AM, FM, or PM under **Measurement**. If you need this function, please purchase this option (order No. RSA6000-ADM), and install it according to instructions in "*To View the Option and the Option Installation*".

4.3 To View the Option and the Option Installation

This series spectrum analyzer provides many options to meet various measurement requirements. If you need any of these options, order them according to the Order No. available in "*Appendix A: Options and Accessories*", and then install the options according to this section. Besides, you can also view the options currently installed on the spectrum analyzer and activate the newly purchased option.

1. View the Installed Option

If your instrument has currently installed the option, perform the following operations to view the name of the installed option and other detailed information about the option from the option list.

- Click or tap the function navigation icon  at the lower-left corner of the screen, and then select **System** to enter the system setting menu.
- Click or tap **Options** to view the options currently installed.

2. Install the Option

The option license is a string with a fixed number of characters. Each instrument has one unique license. The license file should be in specific format, with the filename extension "*.lic". After you purchase an option, you will obtain a key (used for obtaining the license). Then, you can install the option according to the following steps.

a. Obtain an option license

a. Log in to the **RIGOL** official website (*http://www.rigol.com*), click **SERVICE CENTRE > License Activation** to enter the license activation interface.

b. Input the correct key, serial number (To obtain the serial number, click or tap the function navigation icon  at the lower-left corner of the screen first, then click or tap **System**. Click or tap **About** to acquire the serial number of the instrument.), and verification code. Click **Generate** to acquire the download link for the option license file.

b. Install the Option

a. Install the option by sending SCPI commands. For details, refer to *ADM Programming Guide*.

b. After installation, a prompt message "Option activated successfully" is displayed. After the option has been installed, you are recommended to restart the instrument.

TIP

- During the installation process, you are not allowed to power off the instrument.
- To install the option, send the relevant SCPI command. Installing options by inputting the license code manually is not supported.

5 Front Panel Function Keys

This chapter describes in detail the front-panel function keys of RSA6000 and their associated menu functions in ADM mode.

5.1 Freq

Sets the frequency parameters of the analyzer. Press Freq on the front panel to enter the frequency setting menu. You can also click or tap to select **Frequency** at the right part of the screen. The analyzer sweeps within a specified frequency range and restarts sweeping every time the frequency parameters are modified.

In this menu, **Center Freq** is, by default, selected.

5.1.1 Center Frequency

Sets the center frequency of the current channel.

Key Points:

- When you modify the center frequency, the start and stop frequency will be modified automatically if the span remains to be unchanged.
- Modifying the center frequency indicates that the frequency is changed along the current channel horizontally, and the adjustable range should be within the frequency range specified in the technical specifications of the analyzer.
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.1 Center Frequency

Parameter	Remarks
Default	1 GHz
Range	2.5 kHz to F_{max}[1]
Unit	GHz, MHz, kHz, Hz
Knob Step	span/200
Left/Right Arrow Key Step	CF step

NOTE

[1]: Maximum measurement frequency. It is determined by the instrument model.

5.1.2 Span

Sets the frequency range of the current channel.

Key Points:

- Changing this parameter will change the frequency parameters, and after the span is changed, the sweep restarts.
- The span shall be equal to or greater than the channel bandwidth. If the set span is smaller than the current bandwidth, the channel bandwidth will be modified to the span accordingly.
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.2 Span

Parameter	Remarks
Default	75 kHz
Range	5 kHz to 80 MHz
Unit	GHz, MHz, kHz, Hz
Knob Step	span/200
Left/Right Arrow Key Step	at 1-1.5 step

5.1.3 AF Start Freq

Sets the AF start frequency in the AF Spectrum view.

Key Points:

- AF start frequency is only available for the AF Spectrum view.
- If the set start frequency is greater than the current stop frequency, then the stop frequency will be modified to (set start frequency + 10 Hz).

- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.3 AF Start Freq

Parameter	Remarks
Default	0 Hz
Range	0 to (40 MHz - 10 Hz)
Unit	GHz, MHz, kHz, Hz
Knob Step	(AF Stop Frequency - AF Start Frequency)/200
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

5.1.4 AF Stop Freq

Sets the AF stop frequency in the AF Spectrum view.

Key Points:

- AF stop frequency is only available for the AF Spectrum view.
- If the set stop frequency is smaller than the current start frequency, then the start frequency will be modified to (set stop frequency - 10 Hz).
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.4 AF Stop Freq

Parameter	Remarks
Default	10 kHz
Range	10 Hz to 40 MHz
Unit	GHz, MHz, kHz, Hz
Knob Step	(AF Stop Frequency - AF Start Frequency)/200
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

5.1.5 CF Step

Used to change the step size for the center frequency. Changing the center frequency by a constant step-size value switches the channel to be measured continuously.

Remarks:

- Set a proper CF step value, and then select the center frequency. Use the the Left/Right arrow key to switch the measurement channel at a fixed step size. Thus, the instrument can sweep the adjacent channels manually.
- You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

Parameter	Remarks
Default	Fmax/10
Range	-Fmax to Fmax
Unit	GHz, MHz, kHz, Hz
Knob Step	span/200
Left/Right Arrow Key Step	at 1-2-5 step

5.2 Ampt

Sets the amplitude parameters of the analyzer. You can modify these parameters to make the signals under test be displayed with minimal errors in the current window, easy for you to observe.

5.2.1 Ref Value

Sets the reference value of the selected trace.

Key Points:

- The default reference value of the Y-axis and its unit are different for the different selected window and demodulation types.
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.6 Ref Value in the RF Spectrum View

Parameter	Remarks
Default	0 dBm
Range	-170 dBm to 25 dBm
Unit	dBm, -dBm, V, mV
Knob Step	(Scale/Div)/10
Left/Right Arrow Key Step	Scale/Div

Table 5.7 Ref Value in the Demodulation Waveform View

Parameter	Remarks
Default	AM: 0% FM: 0 Hz PM: 0 rad
Range	AM: -100% to 100% FM: -1 MHz to 1 MHz PM: -10 Mrad to 10 Mrad
Unit	AM: % FM: Hz, kHz, MHz, GHz PM: rad
Knob Step	0.1
Left/Right Arrow Key Step	1

Table 5.8 Ref Value in the AF Spectrum View

Parameter	Remarks
Default	AM: 100% FM: 100 kHz PM: 10 rad

Parameter	Remarks
Range	AM: 0.01% to 10000% FM: 1 Hz to 100 MHz PM: 0.01 rad to 10000 rad
Unit	AM: % FM: Hz, kHz, MHz, GHz PM: rad
Knob Step	1
Left/Right Arrow Key Step	10

5.2.2 Attenuation

Sets the RF front-end attenuator to allow high-level signals to pass through the mixer with low distortion, and low-level signals to pass through the mixer with low noise.

Remarks:

- The attenuator consists of fixed attenuator and variable attenuator. The attenuation of the fixed attenuator is 10 dB, and the attenuation range of the variable attenuator is from 0 dB to 30 dB. Therefore, the input attenuation ranges from 0 dB to 40 dB.
- When the set attenuation amount is greater than 10 dB, fixed attenuator is preferred to be used by default.
- When the maximum mixer level and reference level are confirmed, the minimum of the input attenuation should meet the following equation:

$$ATT_{min} = L_{Ref} + a_{PA} + a_{Ext} - L_{mix}$$

Wherein, ATT_{min}, L_{Ref}, a_{PA}, a_{Ext}, and L_{mix} indicate the minimum input attenuation, reference level, PA, external gain, and maximum mixer level, respectively.

- You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

Parameter	Remarks
Default	10 dB

Parameter	Remarks
Range	0 dB to 40 dB
Unit	dB
Knob Step	Preamp off, step = 2 dB
Left/Right Arrow Key Step	4 dB

5.2.3 Attenuation Mode

Selects "Manual" or "Auto" to be the current attenuation mode.

Remarks:

- If you select "Manual" to be the attenuation mode, set the attenuation value under the "Attenuation" menu, and the attenuation mode will be automatically switched to "Manual".
- When you select "Auto" to be the attenuation mode, the attenuator will automatically adjust the attenuation value to meet the current amplitude setting.

5.2.4 Preamplifier

Sets the RF front-end preamplifier to be on or off. When the signal under test is a low-level signal, turning on the preamplifier can reduce the displayed average noise level, so that you can distinguish low-level signals from the noise. By default, the preamp gain is 20 dB.

5.2.5 Scale/Div

Sets the Y-axis scale per division of the selected trace.

Key Points:

- For the position of the scale/div parameter, refer to descriptions in *User Interface*.
- The default value of Scale/Div and its unit are different for the different selected window and demodulation types.
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.10 Scale/Div in the RF Spectrum View

Parameter	Remarks
Default	10 dB
Range	0.1 dB to 20 dB
Unit	dB
Knob Step	Scale/Div ≥ 1, step = 1 dB Scale/Div < 1, step = 0.1 dB
Left/Right Arrow Key Step	at 1-2-5 step

Table 5.11 Scale/Div in the Demodulation Waveform View

Parameter	Remarks
Default	AM: 20% FM: 100 Hz PM: 1 rad
Range	AM: 0.1% to 1000% FM: 1 Hz to 100 kHz PM: 0.1 rad to 200 rad
Unit	AM: % FM: Hz, kHz, MHz, GHz PM: rad
Knob Step	Scale/Div ≥ 1, step = 1 dB Scale/Div < 1, step = 0.1 dB
Left/Right Arrow Key Step	at 1-2-5 step

Table 5.12 Scale/Div in the AF Spectrum View

Parameter	Remarks
Default	10 dB

Parameter	Remarks
Range	0.1 dB to 20 dB
Unit	dB
Knob Step	Scale/Div ≥ 1, step = 1 dB Scale/Div < 1, step = 0.1 dB
Left/Right Arrow Key Step	at 1-2-5 step

5.2.6 Auto Scale

Sets the Y-axis reference value and the Y-axis scale value automatically to ensure that the signal can be fully displayed for better observation of the trace.

5.2.7 Max Mixer Level

Sets the maximum input level of the mixer according to the amplitude of the signal.

Remarks:

- For the high-level input signal, select a smaller maximum mixer level to increase the input attenuation and reduce the distortion of the signal; for the low-level input signal, select a larger maximum mixer level to reduce the input attenuation and noise.
- You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

Parameter	Remarks
Default	-10 dBm
Range	-40 dBm to -10 dBm
Unit	dBm, -dBm, mV, μV
Knob Step	1 dBm
Left/Right Arrow Key Step	5 dBm

5.3 Sweep

Sets sweep-related parameters, such as sweep time, sweep points, and sweep mode.

5.3.1 Sweep Points

Sets the number of points acquired in each sweep, i.e. the number of the trace points.

Remarks:

- With the increase of the sweep points, the frequency resolution of the marker will increase with it, but the sweep speed will decrease with it.
- Due to the limitation of the minimum interval of sweep points, when the number of sweep points is increased, the sweep time will be prolonged.
- Changing the number of the sweep points will affect multiple parameters of the system. Therefore, the system will make a new sweep and measurement again.
- You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

Parameter	Remarks
Default	2001
Range	101 to 20001
Unit	N/A
Knob Step	1
Left/Right Arrow Key Step	5

5.3.2 Demod Time

Sets the demodulation time of the analyzer in the Demod Waveform view.

Parameter	Remarks
Default	2 ms
Range[1]	100 ns to 2 s
Unit	s, ms, μs, ns, ps
Knob Step	sweep time/100, Min = 1 μs
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

5.3.3 Sweep Mode

RSA6000 series spectrum analyzer supports two sweep modes: Single sweep and Continuous sweep.

Continuous Sweep

- If the current system is in single sweep mode and no measurement is performed, click or tap Sweep > **Sweep Mode** > **Cont** to enter continuous sweep mode. In this case, if the trigger conditions are met, the system will sweep continuously.
- If the current system is in single sweep mode and is performing the specified measurement, click or tap Sweep > **Sweep Mode** > **Cont** to enter continuous sweep mode. In this case, if the trigger conditions are met, the system will perform measurements continuously.
- In continuous sweep mode, the system will send a trigger initialization signal automatically and enter the trigger condition judgment directly after each sweep is completed.

Single Sweep

- If the current system is in continuous sweep mode and no measurement is performed, selecting this menu to enter the single sweep mode. In this case, if the trigger conditions are met, the system performs one sweep
- If the current system is in continuous sweep mode and is performing the specified measurement, selecting this menu to set the measurement mode to "Single". In this case, if the trigger conditions are met, the system will execute the specified number of measurements.
- If the system is already in single sweep mode, press this key and then the system will execute the specified number of sweeps (or measurements) once the trigger conditions are met.
- In single sweep mode, trigger initialization (click or tap **Sweep** > **Sweep Mode** > **Cont** or send the SCPI command through the remote interface) should be executed before judging the trigger conditions.

NOTE

Switching between Single and Continuous sweep mode will result in restarting the sweep.

5.3.4 Restart

Click or tap **Restart**, the current sweep will be suspended. All the previously measured data will be remeasured, and the trigger restores to the not-triggered state.

5.4 Bandwidth

Sets the bandwidth of the analyzer. Press BW on the front panel to enter the bandwidth setting menu.

5.4.1 Channel Bandwidth

Sets the bandwidth of the demodulation.

Key Points:

- The channel bandwidth shall be smaller than or equal to the span. If the set channel bandwidth is greater than the current span, the span will be modified to the channel bandwidth.
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.16 Channel Bandwidth

Parameter	Remarks
Default	25 kHz
Range	40 Hz to 80 MHz
Unit	GHz, MHz, kHz, Hz
Knob Step	Channel Bandwidth/200
Left/Right Arrow Key Step	at 1-1.5-3-5-7.5 step

5.4.2 AF Resolution Bandwidth

Sets the AF RBW of the demodulation waveform in the AF Spectrum view.

You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.17 AF Resolution Bandwidth

Parameter	Remarks
Default	96 Hz
Range	Range is related to *Span*
Unit	GHz, MHz, kHz, Hz
Knob Step	at 1-3-10 step
Left/Right Arrow Key Step	at 1-3-10 step

5.4.3 AF RBW Mode

Sets the mode of AF RBW in the AF Spectrum view.

- **Manual:** use the numeric keypad or use the touch screen to modify AF RBW value.
- **Auto:** automatically sets the AF RBW value according to the current configuration.

5.5 Trigger

Selects the trigger source and sets trigger-related parameters.

5.5.1 Trigger Source

Sets "Free Run", "External", or "IF Power" to be the trigger source.

5.5.2 Free Run

The trigger conditions are met at any time, that is, the analyzer generates trigger signals continuously.

5.5.3 External Trigger

Click or tap **Trigger** > **Source** > **External**, then an external signal is input via the **[TRIG IN]** connector on the rear panel. When the signal meets the set trigger conditions, trigger signals are generated.

NOTE

The input signal frequency on the external trigger interface should not be greater than 1 MHz.

1. Slope

Sets the trigger polarity for External Trigger. It is set positive to trigger on a rising edge and negative to trigger on a falling edge.

2. Delay State

Enables or disables the trigger delay function. After the trigger delay function is enabled, you can set the trigger delay time.

3. Delay Time

Sets the time interval during which the instrument waits to start the sweep operation after the trigger signal that meets the trigger conditions is generated. You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

Parameter	Remarks
Default	1 µs
Range	-500 ms[1] to 500 ms
Unit	s, ms, us, ns, ps
Knob Step	trigger delay/100, Min = 1 µs
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

NOTE

[1]: When the trigger delay is set to a negative value, it indicates a pre-trigger.

5.5.4 IF Power Trigger

A trigger signal will be generated when the system detects a IF signal whose power level exceeds the specified trigger level.

1. Trigger Level

Sets the trigger level of the IF power trigger. When the signal meets the set trigger level value, a trigger occurs.

Parameter	Remarks
Default	-25 dBm

Parameter	Remarks
Range	(-140+Level Offset) to (30+Level Offset)
Unit	dBm, -dBm, V, mV, uV
Knob Step	1 dBm
Left/Right Arrow Key Step	5 dBm

2. Delay State

Enables or disables the trigger delay function. After the trigger delay function is enabled, you can set the trigger delay time.

3. Delay Time

Sets the time interval during which the instrument waits to start the sweep operation after the trigger signal that meets the trigger conditions is generated. You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

Parameter	Remarks
Default	1 μs
Range	-500 ms[1] to 500 ms
Unit	s, ms, us, ns, ps
Knob Step	trigger delay/100, Min = 1 us
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

NOTE

[1]: When the trigger delay is set to a negative value, it indicates a pre-trigger.

5.5.5 Trigger Holdoff State

Click or tap the ON/OFF tab for "Holdoff State" to enable or disable the trigger hold-off state.

5.5.6 Trigger Holdoff

Sets the holdoff time between trigger signals. You can use the numeric keys, the knob, or arrow keys to modify this parameter; you can also use the touch screen to modify the parameter.

When the trigger conditions are met, the trigger occurs. Then, the delay begins, and the holdoff time begins. During the holdoff time, new trigger signals will be ignored.

For a free-running trigger, the holdoff value is the minimum time between two trigger signals.

Parameter	Remarks
Default	100 ms
Range	0 us to 500 ms
Unit	s, ms, us, ns, ps
Knob Step	trigger holdoff time/100, Min = 1 us
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

5.5.7 Auto Trig State

Enables or disables the auto trigger function.

5.5.8 Auto Trig

Sets the time that the instrument will wait for the trigger conditions to be met. When the set waiting time times out, the instrument will not wait and start to initiate the sweep measurement.

Parameter	Remarks
Default	100 ms
Range	1 ms to 100 s
Unit	s, ms, us, ns, ps
Knob Step	auto trigger time/100, Min = 1 us
Left/Right Arrow Key Step	at 1-1.5-2-3-5-7.5 step

The relationship of the trigger parameters is shown in the following figure.

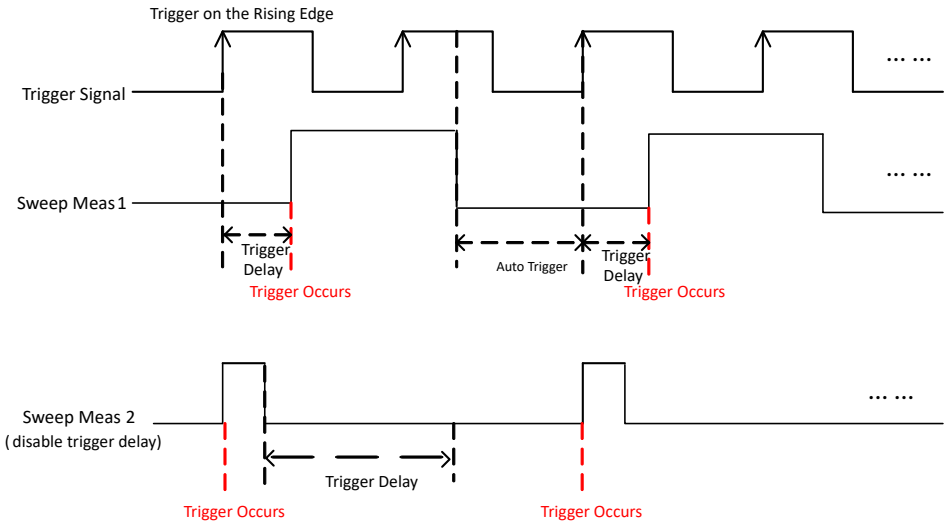


Figure 5.1 Relationship of Trigger Parameters

5.6 Mode/Meas

Press Mode/Meas on the front panel to enter the measurement mode selection interface.

You can also click or tap ADM AM 2 at the bottom of the screen to open the measurement setting interface and select the ADM measurement type.

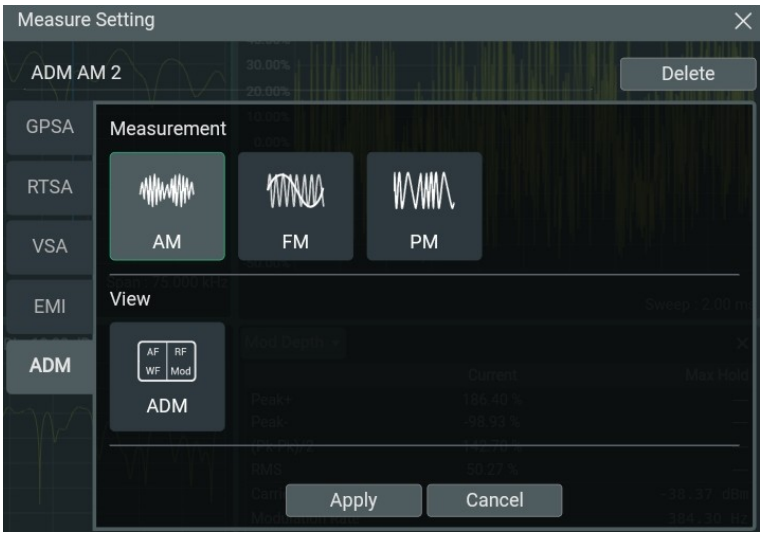


Figure 5.2 Measurement Setting Interface

- **AM:** selects the amplitude demodulation.
- **FM:** selects the frequency demodulation.
- **PM:** selects the phase demodulation.

5.6.1 AM

RF Spectrum View

Displays the spectrum of the RF input signal. X-axis represents frequency, Y-axis represents amplitude. The Y-axis is in log format, expressed in dBm.

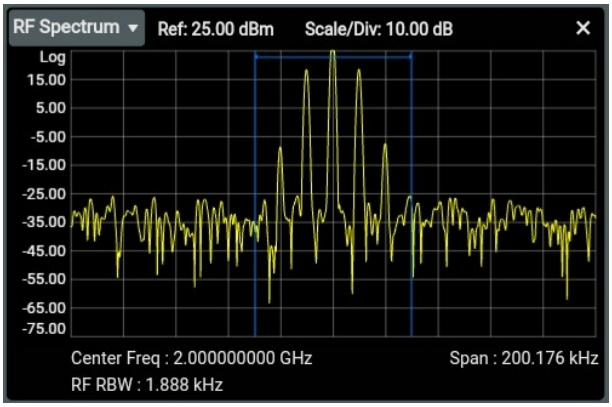


Figure 5.3 RF Spectrum View

- **Scale/div:** indicates the Y-axis scale, expressed in dB.
- **Ref:** indicates the reference value, expressed in dBm.
- **Center Freq:** indicates the center frequency.
- **Span:** indicates the span.
- **RF RBW:** indicates the RF resolution bandwidth.

AF Spectrum View

Displays the spectrum of the AM Demod signal. X-axis represents frequency, Y-axis represents amplitude. The Y-axis is in log format, expressed in %.

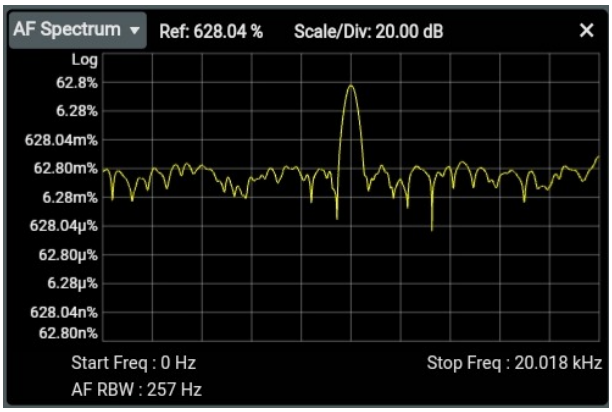


Figure 5.4 AF Spectrum View

- **Scale/div:** indicates the Y-axis scale, expressed in dB.
- **Ref:** indicates the reference value, expressed in %.
- **AF RBW:** indicates the AF resolution bandwidth.
- **Start Freq:** indicates the AF start frequency.
- **Stop Freq:** indicates the AF stop frequency.

Demodulation Waveform View

Displays the time-domain waveform of the AM Demod signal. The X-axis represents time, Y-axis represents modulation depth, expressed in %.

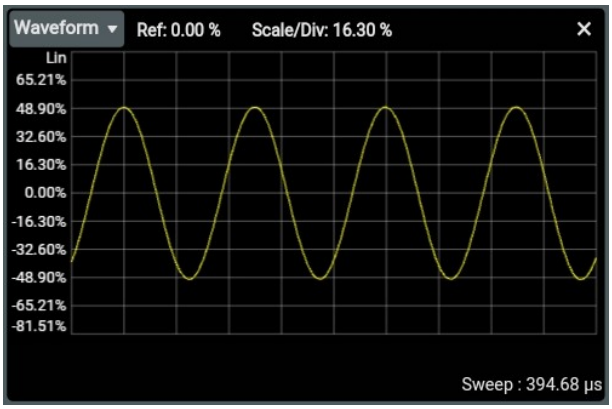


Figure 5.5 Demodulation Waveform Measurement View

- **Ref:** indicates the reference value, expressed in %.
- **Sweep:** indicates the sweep time.

Meas View

When the Average State function is disabled, the current value of each test item is displayed; when the Average State function is enabled, Average and Max Hold values are displayed for each test item.

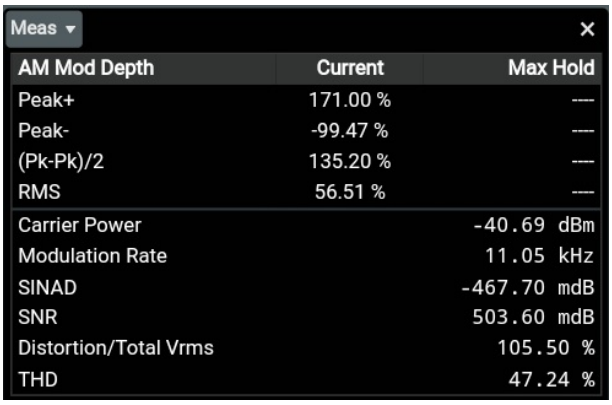


Figure 5.6 Current Value of Demod Measurement

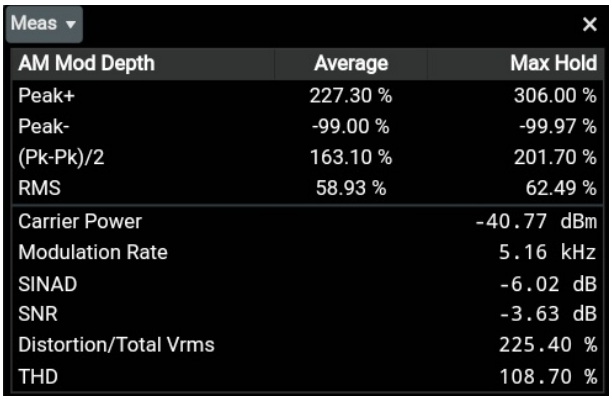


Figure 5.7 Average/Max Hold Value of Demod Measurement

- **Peak+:** In AM modulation depth, it indicates the max. amount of demodulation in % during the acquisition period.
- **Peak-:** In AM modulation depth, it indicates the min. amount of modulation in % in the acquisition period. It displays a negative value when the minimum is negative.
- **(Pk-Pk)/2:** divides the difference between Peak+ and Peak- by 2.
- **RMS:** indicates the root mean square modulation in % during the acquisition period in AM modulation depth.
- **Carrier Power:** indicates the average power detected at the carrier frequency, averaged over integer periods of the modulation frequency.

- **Modulation Rate:** indicates the frequency of the detected modulation. This is also sometimes known as Modulation Frequency, the frequency of the baseband signal of the modulated carrier waveform.
- **SINAD:** indicates the ratio of total received power (the received signal-to-noise and distortion ratio) to the received noise-plus-distortion power, expressed in dB.
- **SNR:** indicates the ratio of the received signal power to the received noise power, expressed in dB.
- **Distortion/Total Vrms:** indicates the ratio of unwanted received power (noise plus distortion) to the total received power, expressed in %.
- **THD:** indicates the Total Harmonic Distortion. It is the ratio of the root mean square voltage of the harmonics referenced to the fundamental voltage, expressed in %.

5.6.2 FM

RF Spectrum View

Displays the spectrum of the RF input signal. For details, refer to *RF Spectrum View* in the AM demodulation section.

AF Spectrum View

Displays the spectrum of the FM Demod signal. X-axis represents frequency, Y-axis represents frequency deviation. The Y-axis is in log format, expressed in Hz.

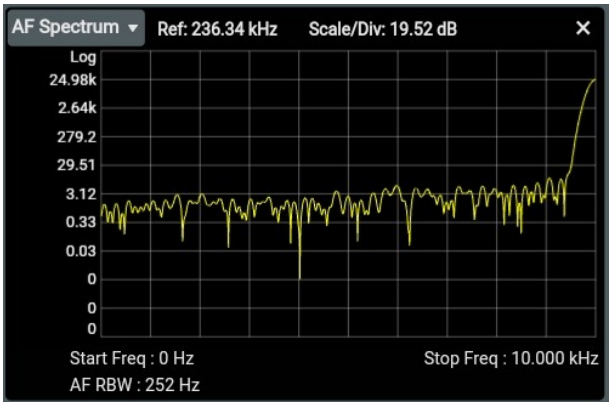


Figure 5.8 AF Spectrum View

- **Scale/div:** indicates the Y-axis scale, expressed in dB.
- **Ref:** indicates the reference value, expressed in Hz.
- **AF RBW:** indicates the AF resolution bandwidth.
- **Start Freq:** indicates the AF start frequency.
- **Stop Freq:** indicates the AF stop frequency.

Demodulation Waveform View

Displays the time-domain waveform of the FM Demod signal. The X-axis represents time, Y-axis represents frequency deviation, expressed in Hz.

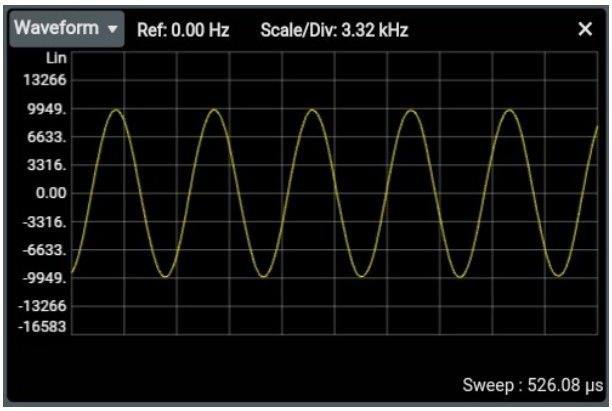


Figure 5.9 Demodulation Waveform View

- **Scale/div**: indicates the Y-axis, expressed in Hz.
- **Ref:** indicates the reference value, expressed in Hz.
- **Sweep:** indicates the sweep time.

Meas View

When the Average State function is disabled, the current value of each test item is displayed; when the Average State function is enabled, Average and Max Hold values are displayed for each test item.

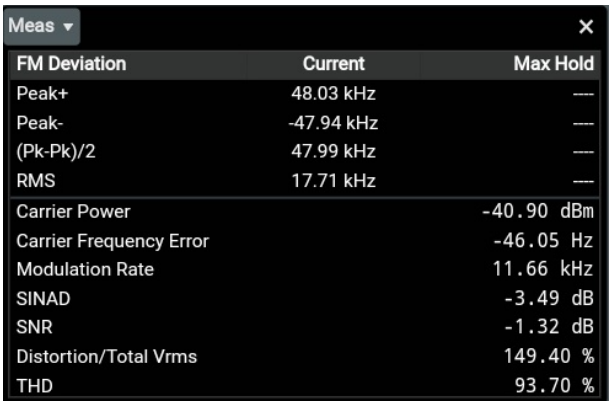


Figure 5.10 Current Value of Demod Measurement

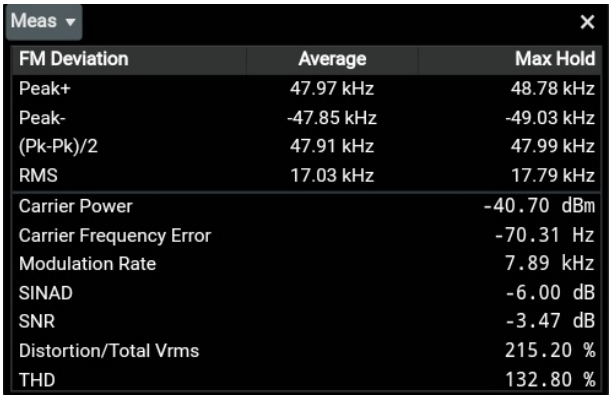


Figure 5.11 Average/Max Hold Value of Demod Measurement

- **Peak+:** indicates the max. amount of frequency deviation in Hz during the acquisition period.
- **Peak-:** indicates the min. amount of frequency deviation in Hz during the acquisition period and shows a negative value when the minimu is negative.
- **(Pk-Pk)/2:** divides the difference between Peak+ and Peak- by 2.
- **RMS:** indicates the root mean square modulation in Hz during the acquisition period.
- **Carrier Power:** indicates the average power detected at the carrier frequency, averaged over integer periods of the modulation frequency.
- **Modulation Rate:** indicates the frequency of the detected modulation. This is also sometimes known as Modulation Frequency, the frequency of the baseband signal of the modulated carrier waveform.

- **SINAD:** indicates the ratio of total received power (the received signal-to-noise and distortion ratio) to the received noise-plus-distortion power, expressed in dB.
- **SNR:** indicates the ratio of the received signal power to the received noise power, expressed in dB.
- **Carrier Freq Error:** indicates the difference between the center frequency and the actually detected carrier frequency. It is only applicable to FM and PM modes.
- **Distortion/Total Vrms:** indicates the ratio of unwanted received power (noise plus distortion) to the total received power, expressed in %.
- **THD:** indicates the Total Harmonic Distortion. It is the ratio of the root mean square voltage of the harmonics referenced to the fundamental voltage, expressed in %.

5.6.3 PM

RF Spectrum View

Displays the spectrum of the RF input signal. For details, refer to *RF Spectrum View* in the AM demodulation section.

AF Spectrum View

Displays the spectrum of the PM Demod signal. X-axis represents frequency, Y-axis represents Phase. The Y-axis is in log format, expressed in rad.

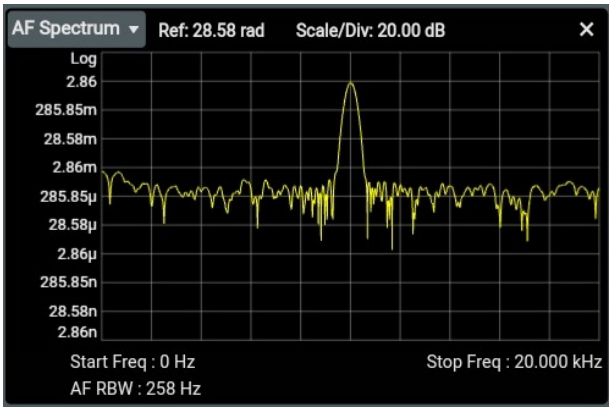


Figure 5.12 AF Spectrum View

- **Scale/div:** indicates the Y-axis scale, expressed in dB.
- **Ref:** indicates the reference value, expressed in rad.
- **AF RBW:** indicates the AF resolution bandwidth.
- **Start Freq:** indicates the AF start frequency.
- **Stop Freq:** indicates the AF stop frequency.

Demodulation Waveform View

Displays the time-domain waveform of the PM Demod signal. X-axis represents frequency, Y-axis represents phase deviation, expressed in rad.

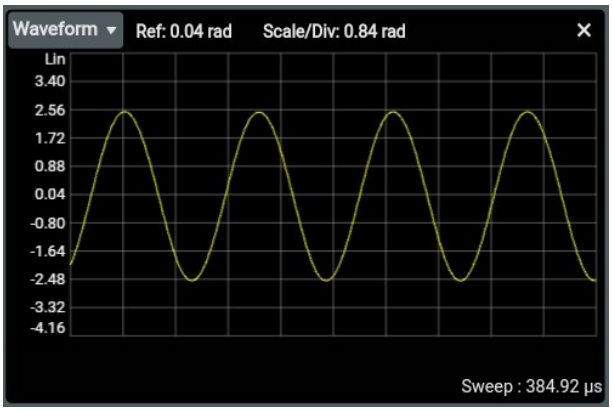


Figure 5.13 Demodulation Waveform View

- **Scale/div**: indicates the Y-axis, expressed in rad.
- **Ref:** indicates the reference value, expressed in rad.
- **Sweep:** indicates the sweep time.

Meas View

When the Average State function is disabled, the current value of each test item is displayed; when the Average State function is enabled, Average and Max Hold values are displayed for each test item.

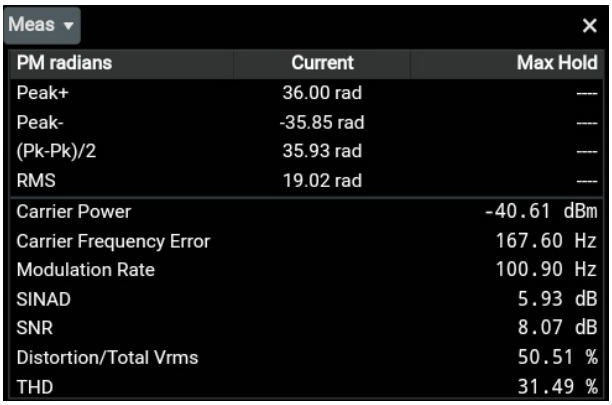


Figure 5.14 Current Value of Demod Measurement

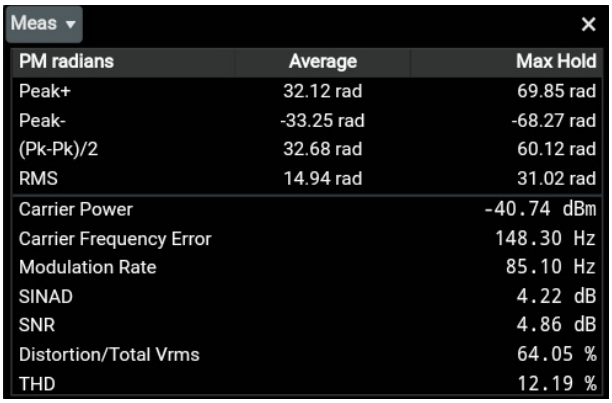


Figure 5.15 Average/Max Hold Value of Demod Measurement

- **Peak+:** indicates the max. amount of phase deviation in rad during the acquisition period.
- **Peak-:** indicates the min. amount of phase deviation in rad during the acquisition period. It displays a negative value when the minimum is negative.
- **(Pk-Pk)/2:** divides the difference between Peak+ and Peak- by 2.
- **RMS:** indicates the root mean square modulation in rad during the acquisition period.
- **Carrier Power:** indicates the average power detected at the carrier frequency, averaged over integer periods of the modulation frequency.
- **Modulation Rate:** indicates the frequency of the detected modulation. This is also sometimes known as Modulation Frequency, the frequency of the baseband signal of the modulated carrier waveform.

- **SINAD:** indicates the ratio of total received power (the received signal-to-noise and distortion ratio) to the received noise-plus-distortion power, expressed in dB.
- **SNR:** indicates the ratio of the received signal power to the received noise power, expressed in dB.
- **Carrier Freq Error:** indicates the difference between the center frequency and the actually detected carrier frequency. It is only applicable to FM and PM modes.
- **Distortion/Total Vrms:** indicates the ratio of unwanted received power (noise plus distortion) to the total received power, expressed in %.
- **THD:** indicates the Total Harmonic Distortion. It is the ratio of the root mean square voltage of the harmonics referenced to the fundamental voltage, expressed in %.

5.7 Meas Setup

Press Meas Setup on the front panel to enter the **Meas Setup** menu. You can also click or tap **Meas Setup** to set the parameters of the specified demodulation type.

5.7.1 Avg Number

Sets the count of the average/Hold measurement.

Table 5.23 Avg Number

Parameter	Remarks
Default	10
Range	1 to 10,000
Unit	N/A
Knob Step	1
Left/Right Arrow Key Step	1

5.7.2 Average State

Enables or disables the average/hold state. By default, it is disabled. When enabled, the instrument performs the averaging operation on the measurement values based on the currently set average count (*Avg Number*).

Key Points:

- When the Average/Hold function is disabled:
  - The RF Spectrum and AF Spectrum views display the real-time measurement data;
  - The Demod Waveform view only displays the current demodulation signal;
  - The Mod Depth view only displays the current value.
- When the Average/Hold function is enabled:
  - The RF Spectrum and AF Spectrum views display the Average measurement result;
  - The Demod Waveform view displays four traces: Demod, Demod Average, Demod Max, and Demod Min;
  - The Mod Depth view displays the Average value and Max Hold value.

5.7.3 Global CF Mode

1. Global CF Mode

Turns on or off the global center frequency. In any working mode, if you enable the global center frequency mode, then the global center frequency will be set to the center frequency of the current mode. When a different working mode is selected, the global center frequency will be set to the center frequency of the previous working mode, that is, the one that is before switching the working mode. If you change the center frequency in any working mode, then the global center frequency will change with it.

2. Global CF

Sets the global center frequency. It is only available when you enable the global CF mode.

5.8 Marker

5.8.1 Marker Setting

Marker is a triangle sign (as shown in the following figure), which is used for marking the point on the trace. Through the marker, you can read the amplitude and frequency of the point on the trace, or the sweep time point.

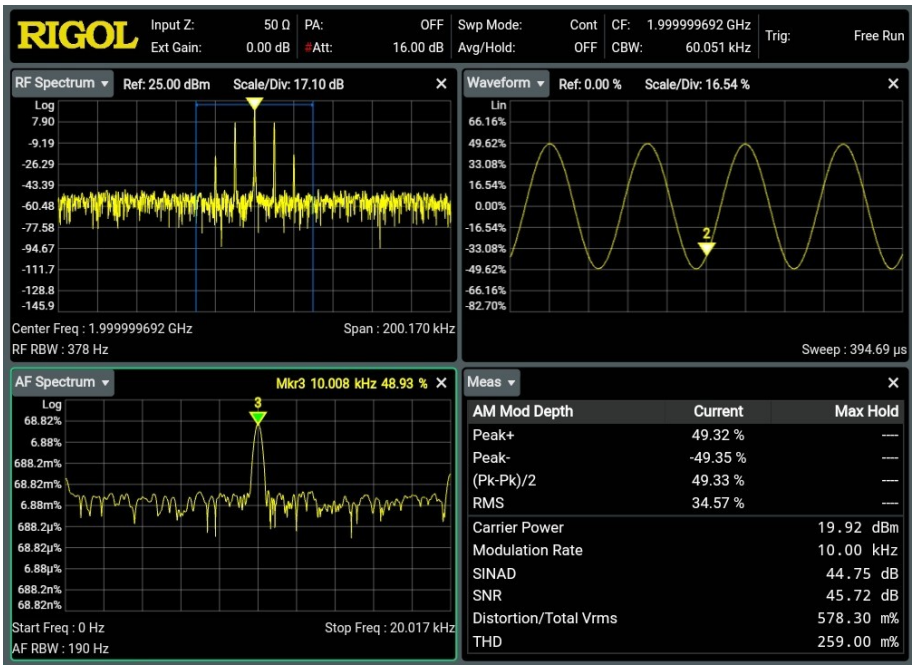


Figure 5.16 Marker

Key Points:

RSA6000 offers 8 markers, and only a single marker or one pair of markers can be turned on each time.

5.8.1.1 Selected Marker

RSA6000 provides 8 markers. By default, Marker1 is selected under "Selected Marker". After you select a marker, you can set parameters such as the marker mode, the marker trace, and marker readout. The currently enabled marker will be marked on the trace selected under **Marker Trace**. The readout of the marker will be displayed at the upper-right corner of the screen.

5.8.1.2 Next Marker

Click or tap **Next Marker** to select the next enabled marker.

5.8.1.3 Marker Mode

Sets the type of the marker. The available marker modes include Position, Delta, Fixed, and OFF.

1. **Position**

   It is used to measure the X (Frequency or Time) and Y (Amplitude) values of a certain point on the trace. When "Position" is selected, a marker indicated by a number (e.g., "1") appears on the trace.

   Key Points:

   If no active marker exists currently, a marker will be enabled in the center of the current trace.

2. **Delta**

   It is used to measure the difference between "reference point" and "certain point on the trace": X (frequency or time) and Y (amplitude) value. When "Delta" is selected, a pair of markers appears on the trace: Reference Marker (marked by "X") and the Delta Marker (marked by "△").

   Key Points:

   - If an active marker exists currently, then activate a reference marker at the current marker; otherwise activate both the reference marker and Delta marker at the same time in the center of the current trace.
   - When you change the position of the Delta marker, the position of the reference marker remains unchanged, but the frequency (or time) difference between the two markers will change along with it.
   - The frequency (or time) difference between the two markers and the amplitude difference between them are displayed in the measurement result bar at the upper-right corner of the marker trace view.

   Application of the "Delta" Marker:

   It is used to measure the S/N ratio of the single spectrum signal. Move the reference marker to the location where the signal resides, and move the Delta marker to the location where the noise resides. The amplitude displayed in the measurement results is S/N ratio.

3. **Fixed**

   When you select "Fixed" marker, you can directly or indirectly set the X-axis and Y-axis values for the marker. Once specified, its position remains unchanged, and its Y-axis value does not change along with the trace. The fixed marker is generally used as the reference marker for the Delta marker. It is indicated by the sign "×".

4. **OFF**

Turns off the marker currently selected. Then, the marker information displayed on the screen and the functions concerning the marker will also be disabled.

5.8.1.4 Reference Marker

Sets the reference marker for the current marker. By default, the reference marker is the marker next to it.

Key Points:

- Each marker can have another marker to be its reference marker.
- If the current marker is a Delta marker, the measurement result of the marker will be determined by the reference marker.
- Any marker cannot take itself to be the reference marker.

5.8.1.5 Selected Trace

Selects the trace that the current marker marks. In the **Selected Trace** menu, six traces are available. One marker can only mark one trace.

- RF Spectrum: RF Spectrum trace
- AF Spectrum: AF Spectrum trace
- Demod Waveform: Demod Waveform trace
- Demod Max.: Demod Waveform Max Hold trace
- Demod Min.: Demod Waveform Min Hold trace
- Demod Average: Demod Waveform Average trace

TIP

Only when the Average State is enabled, can you select the following traces.

- Demod Max
- Demod Min
- Demod Average

5.8.1.6 Marker Frequency/Time

You can set **Marker Freq** or Marker Time to adjust the position of the marker on the trace based on your selection for the selected trace.

Marker Frequency

You can modify the marker frequency when the selected trace is in the following view:

- RF Spectrum: RF Spectrum trace
- AF Spectrum: AF Spectrum trace

Table 5.24 Marker Frequency

Parameter	Remarks
Default	0 GHz
Range	-
Unit	GHz, MHz, kHz, Hz
Knob Step	RF Spectrum: span/(sweep points - 1) AF Spectrum: (stop frequency - start frequency)/(sweep points - 1)
Left/Right Arrow Key Step	RF Spectrum: span/10 AF Spectrum: (AF Stop Frequency - AF Start Frequency)/10

Marker Time

You can modify the marker time when the selected trace is in the following view:

- Demod Waveform: Demod Waveform trace
- Demod Max.: Demod Waveform Max Hold trace
- Demod Min.: Demod Waveform Min Hold trace
- Demod Average: Demod Waveform Average trace

Table 5.25 Marker Time

Parameter	Remarks
Default	1 ms
Range	0 to Demod Time
Unit	s, ms, µs, ns
Knob Step	Demod Time/(sweep points - 1)
Left/Right Arrow Key Step	Demod Time/10

5.8.1.7 Marker Amplitude

When the marker mode is set to "Fixed", you can press this key to set the Y value of the current marker.

5.8.1.8 Line State

Enables or disables the marker line.

Key Points:

- When you enable the marker line, a cross line is displayed at the amplitude point where the marker resides. The width of the horizontal line and the height of the vertical line are consistent with the length and height of the graticule in the waveform display area.
- If the marker is not visible in the selected area, extend the marker line to the display area for better observation. This function is useful for the marker outside the display area. The marker extension line can better display the amplitude of the marker, making it easy for you to observe and compare.

5.8.1.9 All Markers Off

Turns off all the enabled markers and their related functions.

5.8.2 Marker To

Sets other system parameters based on the current marker value.

5.8.2.1 Mkr->CF

Sets the center frequency of the analyzer to the frequency of the current marker.

- If Position marker is selected, the center frequency will be set to the frequency of the current marker.
- If Delta marker is selected, the center frequency will be set to the frequency of the Delta marker.
- This function is valid in RF Spectrum view.

5.8.3 Peak Search

The peak search function enables the marker to move to the specific signal peak point.

Press Peak Search on the front panel to enter the peak search menu. You can also click or tap **Marker** > **Peak Search** to enter the peak search menu.

5.8.3.1 Peak Search

Performs the peak search function. Searches for the maximum value on the trace and marks it with a marker.

5.8.3.2 Next Peak

Searches for and marks the peak whose amplitude on the trace is next lower than that of the current peak.

5.8.3.3 Next Peak Right

Searches for and marks the peak closest to the right side of the current peak.

5.8.3.4 Next Peak Left

Searches for and marks the peak closest to the left side of the current peak.

5.8.3.5 Minimum Search

Searches for and marks the peak with the minimum amplitude on the trace.

5.8.3.6 Pk-Pk Search

Executes Peak Search and Minimum Peak functions at the same time, and marks the results with the Delta marker. Wherein, the result of Peak Search is marked with the reference marker and the result of Minimum Peak is marked with the Delta marker.

5.8.3.7 Continuous Peak

Enables or disables continuous peak search. By default, it is OFF. When it is enabled, after finishing each sweep, the analyzer will automatically execute one peak search operation to track the measurement signal.

5.8.3.8 Cont Peak Min

Enables or disables continuous Min search. By default, it is OFF. When it is enabled, after finishing each sweep, the analyzer will automatically execute one Min search operation to track the measurement signal.

NOTE

- When the marker is a fixed type, the Cont Peak Min and continuous peak menus are grayed out and disabled.
- When the Cont Peak Min function is enabled, if the current marker is off, set the marker to Position mode, and then execute the Minimum Search operation.

5.9 Input/Output

Sets the input/output interface.

5.9.1 Input Impedance

Sets the input impedance for voltage-to-power conversions. The default input impedance is 50 Ω. To measure a 75 Ω device, you should use a 75 Ω to 50 Ω adapter (option) supplied by RIGOL to connect the analyzer with the system under test, and then set the input impedance to 75 Ω.

5.9.2 Ext Gain

Compensates for gain or loss in the measurement system outside the instrument.

Remarks:

- The value does not affect the trace position, but will modify the parameters such as reference level readout and the marker amplitude readout.
- You can use the numeric keys to modify this parameter; you can also use the touch screen to modify the parameter.

Table 5.26 Ext Gain

Parameter	Remarks
Default	0 dB
Range	-120 dB to 120 dB
Unit	dB
Knob Step	1 dB
Left/Right Arrow Key Step	1 dB

5.9.3 Trig Out

Trig Out

Enables or disables the trigger output.

Trig Out Polarity

Click or tap to select "Positive" or "Negative" under **Trig Out Polarity**.

5.10 File

RSA6000 series spectrum analyzer allows you to save various types of files to the internal or external memory, and recall them when necessary.

Click or tap > **File** to enter the file management interface.

5.10.1 File Management

Click or tap **File** to enter the file management interface. You can touch the screen or use the mouse to click on the screen to select the corresponding file or folder. Displays all the files with the specified file types. When you select a file, you can click or tap **Rename**, **Cut**, **Copy**, **Paste**, **Cancel**, **Delete**, or **Security Clear** to perform the specified operation.

The available file types include: State, Measurement Data, and Screen Image. The descriptions for various file types are shown in the following table.

File Type	Format	Suffix Name
State	BIN	.sta
Measurement Data	CSV	.csv
Screen Image	IMAGE	.jpg/bmp/png

NOTE

RSA6000 can only recognize files whose filenames consist of Chinese characters, English letters, or numbers. If the filename or folder name contains strings other than the above mentioned characters, the file or the folder might not be displayed normally in the file manager interface.

5.10.2 Copy

Copies the currently selected file or folder.

5.10.3 Cut

Cuts the currently selected file or folder from the specified path.

5.10.4 Paste

Pastes the file or folder.

When the current path has contained a file or folder whose name is the same as the one that you want to paste, after you perform the paste operation, the original file or folder will be overwritten.

5.10.5 Rename

Renames a file that has been stored. After you select a file, click or tap this menu name to input a new filename.

5.10.6 Delete

Deletes the selected file.

5.10.7 New Folder

Creates a folder under the current directory, and the file is named with a default filename. To modify this filename, click or tap **Rename** to rename the file.

5.10.8 Security Clear

Click or tap **SecurityClear**, then a prompt message "Confirm SecurityClear?" is displayed. Click or tap **Confirm** to clear all the saved files from the internal memory. Click or tap **Cancel** to cancel security clear operation.

5.11 Save

RSA6000 allows you to save various types of files to the internal or external memory.

Click or tap  > **Save** to enter the file saving interface. The available file types to be saved include: State, Preset, Measurement Data, and Screen Image.

5.11.1 State

Click or tap **State** to enter the state saving menu. The state can be saved to the register or the file.

1. Save to File

Click or tap **Save to File** to save the current state in the default filename or user-defined filename.

2. **Register1 through Register16**

When any one of the items from Register1 to Register16 is selected, the current state of the instrument will be saved to the corresponding register. The register supports quick save and recalling instrument state. The register menu displays the time for saving the instrument state.

5.11.2 Preset

1. **Select Preset**

Click or tap **Select Preset** to select the desired preset settings. The available choices include "Default", "User1", "User2", "User3", "User4", "User5", and "User6".

2. **Register1 through Register16**

When any one of the items from Register1 to Register16 is selected, the current state of the instrument will be saved to the corresponding register. The register supports quick save and recalling instrument state. The register menu displays the time for saving the instrument state.

5.11.3 Measurement Data

Click or tap **Meas Data** to enter the measurement data saving menu. The selected measurement data type (e.g. RF Spectrum, AF Spectrum, measurement results) can be saved to the specified file. The data will be saved in .csv format. They are separated with a comma, and this is convenient for you to analyze the data in software like Excel.

1. **Save to File**

Click or tap this menu to save the currently selected type of measurement data in the default filename or user-defined filename.

2. **Measure Type**

Selects the measurement data type to be saved. The measurement data types supported by the instrument include RF Spectrum, AF Spectrum, Demod waveform, Demod Max, Demod Min, Demod Average, and measurement results.

5.11.4 Screen Image

Click or tap **Screen** to enter the screen saving menu. You can also click or tap  on the quick operation toolbar to quick save the screen image.

1. **Save to File**

Click or tap **Save to File** to save the current screenshot in the default filename or user-defined filename.

2. **Screenshot Info**

   a. Image Format

   Click or tap Format to select the file format of the current screen image to be "*png", "*.bmp", or "*.jpg".

   b. Invert

   Click or tap the ON/OFF tab for **Invert** to enable or disable inverting the color of the current screen image.

5.12 Recall

RSA6000 allows you to recall various types of files from the internal or external storage memory.

Click or tap  > **Recall** to enter the file recalling menu. You can recall the state file.

5.12.1 State

Click or tap **State** to enter the state recalling menu. The state can be recalled from the register or the file.

1. **Load from File**

   Click or tap **Load from File** to enter the file management interface. Select a file and then click or tap **Confirm** to confirm loading the specified file.

2. **Register1 through Register16**

   When any one of the items from Register1 to Register16 is selected, the state of the specified register will be recalled.

5.13 Shortcut Key

5.13.1 Auto

Press this key to perform auto demodulation to make demodulation analysis for the signal, and the measurement parameters will be automatically set. Before performing this function, set the center frequency to the carrier frequency of the carrier waveform of the signal under test.

5.13.2 Preset

Press this key to recall the preset setting and restores the system settings of the analyzer to its factory defaults.

Parameter Name	ADM Parameter	
Freq		
Center Frequency	1 GHz	
AF Start Freq	0	
AF Stop Freq	10 kHz	
Span	75 kHz	
BW		
Channel Bandwidth	25 kHz	
AF Resolution Bandwidth	96 Hz	
AF RBW Mode	Auto	
Ampt		
Ref Value	RF Spectrum View	0 dBm
	AF Spectrum View	AM: 100% FM: 100 kHz PM: 10 rad
	Demodulation Waveform View	AM: 0% FM: 0 Hz PM: 0 rad
Scale/Div	RF Spectrum View	10 dB
	AF Spectrum View	
	Demodulation Waveform View	AM: 20% FM: 100 Hz PM: 1 rad
Meas Setup		
Average State	OFF	
Avg Number	10	

Parameter Name	ADM Parameter
Marker	
Selected Marker	Marker 1
Marker Mode	OFF
Reference Marker	Marker 2
Selected Trace	RF Spectrum
Marker Frequency	1 GHz
Line State	OFF
Peak	
Continuous Peak	OFF
Cont Peak Min	OFF
Trigger	
Trigger Source	Free Run
Trigger Holdoff	OFF, 100 ms
Auto Trig	OFF, 100 ms
Slope	POS
Trigger Delay	OFF, 1 μs
Trigger Level	-25 dBm
System	
Power On	Preset
Power Switch	OFF
Beeper	OFF
Screen Brightness	80%
Fan Speed	56%
Display Time	ON
Auto Calibrate	OFF

Parameter Name	ADM Parameter
Language	English

5.13.3 Single/Continue

Press Single Continue to set the sweep mode to Single or Continuous. For detailed setting methods, refer to the descriptions in *Sweep Mode*.

5.13.4 Restart

Press Restart to restart to sweep. After performing this operation, the sweep or measurement is restarted. The Restart operation aborts the current sweep or measurement. It resets the sweep and trigger systems. All the previously measured data will be remeasured.

5.14 System

Sets the system parameters.

5.14.1 I/O Setting

The analyzer supports the LAN or USB communication interface. In the **System** menu, click or tap **I/O** to enter the I/O setting menu to configure the following parameters.

Network Status

Different prompts will be displayed according to the current network connection status.

- DISCONNECTED!
- CONNECTED

MAC Address

The MAC address of each oscilloscope is unique. When assigning the IP address for the oscilloscope, the system uses the MAC address to identify the instrument.

VISA Address

Displays the VISA address currently used by the the instrument.

IP Configuration Type

The configuration type of the IP address can be DHCP, Auto IP, or Static IP. In different IP configuration types, the configurations for IP address and other network parameters are different.

- **DHCP**

  If "DHCP" is selected, the DHCP server in the current network will assign the network parameters (e.g. IP address, Subnet, Gateway, and DNS) for the the instrument.

- **Auto IP**

  When "Auto IP" is selected, the instrument will acquire the IP address ranging from "169.254.0.1" to "169.254.255.254" and the subnet mask (255.255.0.0) automatically based on the current network configuration. The "Auto IP" works only when "DHCP" is not selected or connection is failed.

- **Static IP**

  If "Static IP" is selected, the instrument is configured with static IP. In this case, you need to disable DHCP and Auto IP manually. At this time, you need to set the IP address, Subnet, Gateway, and DNS manually. At this time, you can self-define the network parameters (e.g. IP address) of the instrument.

  - **Set the IP address**

    The format of the IP address is nnn.nnn.nnn.nnn. The range of the first segment (nnn) of the address is from 0 to 255 (except 127); wherein, the valid range is from 0 to 223. The range for the other three segments is from 0 to 255. You are recommended to ask your network administrator for an IP address available.

    This setting will be saved to the non-volatile memory; if "Power On" is set to "Last", then DHCP and Auto IP are disabled at the next power-on. The instrument will load the preset IP address automatically.

  - **Set the subnet mask**

    The format of the subnet mask is nnn.nnn.nnn.nnn. Wherein, the range of "nnn" is from 0 to 255. You are recommended to ask your network administrator for a subnet mask available.

    This setting will be saved in the non-volatile memory; if "Power On" is set to "Last", then DHCP and Auto IP are disabled at the next power-on. The instrument will load the preset subnet mask automatically.

  - **Set the default gateway**

    You can set this parameter in Static IP mode. The format of the gateway is nnn.nnn.nnn.nnn. The range of the first segment (nnn) is from 0 to 223 (except 127), and the range for the other three segments is from 0 to 255. You are recommended to ask your network administrator for a gate address available.

    This setting will be saved to the non-volatile memory; if "Power On" is set to "Last", then DHCP and Auto IP are disabled at the next power-on. The instrument will load the preset gateway automatically.

- **Set the DNS address**

  You can set this parameter in Static IP mode. The format of the DNS address is "nnn.nnn.nnn.nnn". The range for the first segment (nnn) of the address is from 0 to 223 (except 127); and the range for the other three segments is from 0 to 255. You are recommended to ask your network administrator for an address available.

  Generally, you do not need to set the DNS, therefore this parameter setting can be ignored.

TIP

- When the three IP configuration types are all turned on, the priority of the parameter configuration from high to low is "DHCP", "Auto IP", and "Static IP".
- The three IP configuration types cannot be all turned off at the same time.

mDNS

Click or tap the ON/OFF tab for **mDNS** to enable or disable the multicast Domain Name System (mDNS). This system is used to provide the function of DNS server for service discovery in a small network without a DNS server.

Host Name

If mDNS is enabled, you need to configure the mDNS host name, supporting inputting a maximum of 26-byte strings.

Apply the Network Parameter Setting

Click or tap **Apply** to validate the current network parameter setting.

Reset the Communication Interface

Click or tap **Reset**, then the prompt message "Are you sure to reset interface settings" is displayed. Click or tap **Confirm** to confirm resetting interface settings.

5.14.2 Basic Settings

In the **System** menu, click or tap **Setup** to enter the basic setting menu.

Language

This product supports menus in multiple languages. Both Chinese and English are available for the display of the help information, prompt messages, and interface. Click or tap the drop-down button of **Language** to select the specified system language from the drop-down list.

Power On

You can set the system configuration to be recalled when the oscilloscope is powered on again after power-off. Click or tap "Preset" or "Last" for **Power On**.

- Last: returns to the setting of the system at last power-off.
- Preset: restores the system to its factory setting.

Power Switch

- OFF: After the analyzer is connected to power, you need to press the Power key on the front panel to power on the instrument.
- ON: After the analyzer is connected to power, it will be powered on automatically.

Beeper

Click or tap the ON/OFF tab for **Beeper** to enable or disable the beeper. When the beeper is enabled, you can hear the sound of the beeper when you perform the following operations:

- Press a key or a menu key on the front panel
- Enable the touch screen
- When a prompt message is displayed

Screen Brightness

Drag the slide bar of **Screen Brightness** to set the screen brightness. Its settable range is from 0% to 100%.

Fan Speed

Click or tap the slide bar at the right side of **Fan Speed** to set the fan speed of the instrument. Its settable range is from 0% to 100%.

Display Time

Click or tap the ON/OFF tab for **Display Time** to enable or disable the display of the system time.

The system time (date and time) is displayed in the Notification Area at the lower-right corner of the screen. The date is displayed in "yyyy/mm/dd" format, and the time is displayed in "hh:mm:ss" format. When you save the waveform, the output file will contain the time information. Users can set the system time.

- **Date:** Click or tap the "Date" area, then the date setting interface is displayed. Select a proper date, then click or tap **Confirm** to confirm the date modification.
- **Time:** Click or tap the "Time" area, then the time setting interface is displayed.
  - Click or tap the Hour/Minute number and then drag the hour/minute hand to modify the time.
  - After setting, click or tap **Confirm** to confirm the setting.

5.14.3 About this Spectrum

In the **System** menu, click or tap **About**, and then you can view the model, version, and other information about this spectrum analyzer in **About** menu.

- **Model**

  Indicates the product model.

- **Serial number**

  Indicates the serial number of the product, the unique identification for the product.

- **Firmware**

  Indicates the firmware version number of the product.

- **Hardware**

  Indicates the hardware version number of the product.

- **Build**

  Indicates the creation time for the software version.

- **Android.Build**

  Indicates the creation time of the Android operating system.

- **Android.Version**

  Indicates the version number of the Android operating system. For example, 7.1.0.

- **Launcher**

  Indicates the desktop UI version number of the Android operating system.

- **WebControl**

  Indicates the version number of browser remote control module.

- **Upgrade**

  Click or tap **Upgrade**, and the file management interface is displayed. Select the desired upgrade file to upgrade the system. For detailed operations, refer to the descriptions in *Update*.

5.14.4 Options

In the "System" menu, click or tap **Options**, then all the options that have currently been installed can be displayed. For the procedures of installing the option, refer to descriptions in *To View the Option and the Option Installation*.

5.14.5 Calibration

1. **Calibrate Now**

   Click or tap this menu, and the analyzer will use the internal calibration source to perform the self-calibration immediately.

2. **Auto Calibrate**

   Enables or disables auto self-calibration. If auto self-calibration is enabled, the analyzer will perform one self-calibration after it is launched.

5.14.6 Update

This instrument supports local upgrade.

1. Click or tap  > **Update**, then the File Management interface is displayed. Select the update file. For detailed operations, refer to the descriptions in *File Management*.
2. Click or tap **Confirm** to complete the local upgrade.

5.14.7 Help Menu

The built-in help file provides information about the functions and menu introductions of the instrument. Click or tap  > **Help** to enter the help system.

You can get its help information by clicking on the link for the introduction of the specified function.

5.14.8 Shutdown

- Click or tap the function navigation icon  at the lower-left corner of the screen to enter the function navigation. Click or tap **Shutdown** to shut down the instrument. Then, a prompt message "Are you sure to shutdown?" is displayed. Click or tap **Confirm** to confirming shutting down the instrument.
- Press down the power key  , then a prompt message "Are you sure to shutdown?" is displayed. Click or tap **Confirm** to confirming shutting down the instrument.
- Press the power key  continuously for two times to turn off the instrument.
- Long press the power key  for three seconds to turn off the instrument.

5.14.9 Restart

Click or tap the function navigation icon  at the lower-left corner of the screen to enter the function navigation. Click or tap **Restart** to restart the instrument. Then, a prompt message "Are you sure to restart?" is displayed. Click or tap **Confirm** to restart the instrument.

5.14.10 Auto

Click or tap the function navigation icon  at the lower-left corner of the screen, then click or tap **Auto** to start auto setting of the spectrum analyzer. You can also press 

on the front panel to enable auto setting of the analyzer.

6 Appendix

6.1 Appendix A: Options and Accessories

	Description	Order No.
Model	Real-time Spectrum Analyzer, 5 kHz to 8.5 GHz	RSA6085
	Real-time Spectrum Analyzer, 5 kHz to 14 GHz	RSA6140
	Real-time Spectrum Analyzer, 5 kHz to 26.5 GHz	RSA6265
Standard Accessory	Power Cord	-
Options	Vector Signal Analysis Application Software	RSA6000-VSA
	EMI Measurement Application Software	RSA6000-EMI
	Analog Demodulation Application Software	RSA6000-ADM
	Preamplifier (PA), 8.5 GHz	RSA6000-P08
	Preamplifier (PA), 14 GHz	RSA6000-P14
	Preamplifier (PA), 26.5 GHz	RSA6000-P26
	200 MHz Analysis Bandwidth	RSA6000-B200
	200 MHz Real-time Bandwidth	RSA6000-RB200
	Advanced Measurement Kit	RSA6000-AMK
	8.5 GHz Tracking Generator Output	RSA6000-T08
Optional Accessories	DSA utility kit. Refer to *Note[1]* for details.	DSA Utility Kit
	RF adaptor kit. Refer to *Note[2]* for details.	RF Adaptor Kit
	Includes: 50 Ω to 75 Ω adaptor (2pcs)	RF CATV Kit
	Includes: 6 dB attenuator (1pcs), 10 dB attenuator (2pcs)	RF Attenuator Kit
	30 dB high-power attenuator, with the max. power of 100 W	ATT03301H
	N(M)-N(M) RF Cable	CB-NM-NM-75-L-12G
	N(M)-SMA(M) RF Cable	CB-NM-SMAM-75-L-12G
	Near-field Probe	NFP-3
	USB Cable x1	CB-USBA-USBB-FF-150

NOTE

- For all the mainframes, accessories, and options, please contact the local office of RIGOL.
- [1]: Includes N-SMA cable, BNC-BNC cable, N-BNC adaptor, N-SMA adaptor, 75 Ω-50 Ω adaptor, 900 MHz/1.8 GHz antenna (2pcs), 2.4 GHz antenna (2pcs)
- [2]: Includes: N(F)-N(F) adaptor (1pcs), N(M)-N(M) adaptor (1pcs), N(M)-SMA(F) adaptor (2pcs), N(M)-BNC(F) adaptor (2pcs), SMA(F)-SMA(F) adaptor (1pcs), SMA(M)-SMA(M) adaptor (1pcs), BNC T type adaptor (1pcs), 50 Ω SMA load (1pcs), 50 Ω BNC impedance adaptor (1pcs)

6.2 Appendix B: Warranty

RIGOL TECHNOLOGIES CO., LTD. (hereinafter referred to as RIGOL) warrants that the product mainframe and product accessories will be free from defects in materials and workmanship within the warranty period. If a product proves defective within the warranty period, RIGOL guarantees free replacement or repair for the defective product.

To get repair service, please contact your nearest RIGOL sales or service office.

There is no other warranty, expressed or implied, except such as is expressly set forth herein or other applicable warranty card. There is no implied warranty of merchantability or fitness for a particular purpose. Under no circumstances shall RIGOL be liable for any consequential, indirect, ensuing, or special damages for any breach of warranty in any case.

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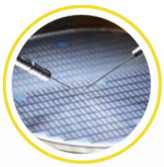

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System Integration

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