4959B/D/E/G/H/K Microwave Analyzer

(9kHz/300kHz~9GHz/18GHz/26.5GHz/44GHz/50GHz/54GHz)



Ceyear Technologies Co., Ltd.

Product Overview

The Ceyear 4959 series microwave analyzer, with a frequency range of 9kHz/300kHz~54GHz, is designed with various measurement functions, such as spectrum analysis, dual-port vector network analysis, antenna and cable analysis, vector voltmeter, USB continuous wave/pulse power measurement, optical time-domain meter, optical power meter, field strength measurement, IQ analysis, interference analysis, analog demodulation analysis, and 40MHz bandwidth real-time spectrum analysis. This product is designed with a 10.1-inch LCD touch screen for handheld operation, and works at -20°C to 55°C. It features battery power supply, small size, light weight, and easy control, which is suitable for on-site maintenance testing of electronic communication equipment.

Main Features

- **Wide frequency range coverage**

  9 kHz/300 kHz ~ 54GHz (spectrum/vector network)

- **Excellent performance index**

  Dynamic range (vector network analysis): 113dB (10MHz<f≤20GHz, typical)

  Single sideband phase noise (spectrum analysis):

  ≤-110dBc/Hz@100kHz frequency offset@1GHz carrier (typical)

  Explicit average noise level (spectrum analysis):

  ≤ -163dBm/Hz (2MHz~6GHz, preamplifier ON, typical)

- **Rich measurement functions**

  Standard functions:

  Spectrum analysis, vector network analysis

  Optional functions:

  Antenna feeder analysis, vector voltmeter, interference analysis (waterfall plot, RSSI), channel scanning, field strength measurement, USB continuous wave power measurement, USB peak power measurement, USB optical time-domain meter, analog demodulation analysis (AM, FM, PM), location analyzer, 40MHz bandwidth real-time spectrum analysis (supporting digital afterglow spectrum and waterfall plot display), IQ analysis, time gate sweep, gate scanning, etc.

- **Excellent vector network analysis**

  Simultaneous measurement of four S-parameters, time-domain analysis of amplitude and phase, mixed reflection S-parameter testing full 2-port calibration, unknown through calibration, waveguide calibration, electronic calibration (external), definition of calibration parts

- **Practical antenna feeder analysis**

  Testing of return loss, and 1-port cable loss, Fault location capability (DTF), TDR cable analysis capability available to determine the location and nature (short circuit, open circuit, etc.) of the fault

- **Vector voltmeter with intuitive display**

  Amplitude, phase and electrical length measurements, A/B and B/A measurements supported to measure the amplitude-phase coherence of the receiver channel

- **Flexible optical time-domain meter and optical power meter**

  Optical time-domain reflectometer:

  Fiber type: G.652, single mode 9/125

  Measurement wavelength: 1310nm±20nm & 1550nm±20nm, dynamic range: 38dB (typical)

  Optical power meter:

  Calibration wavelength:

  850/980/1270/1300/1310/1490/1550/1577/1625/1650nm

  Measurement range:

  -50dBm ~+20dBm (typical) (single optical port shared with OTDR)

- **Various Auxiliary Interfaces**

  10MHz reference I/O interface, GPS/BeiDou antenna interface, Zero-sweep IF output interface Wi-Fi communication interface, LAN, USB, Micro-SD and other interfaces

- **Convenient use**

  10.1" LCD and capacitive touch screen, with marker dragging supported

  Spectrum analysis mode: 6 independent markers, 3 display traces

  Vector network analysis: 8 independent cursors, 4 display windows, 8 display traces

- **Good field adaptability**

  Operating temperature: -20°C ~55°C, storage temperature: -50°C ~70°C

  Total weight without battery: about 3.7kg~3.9kg (depending on model)

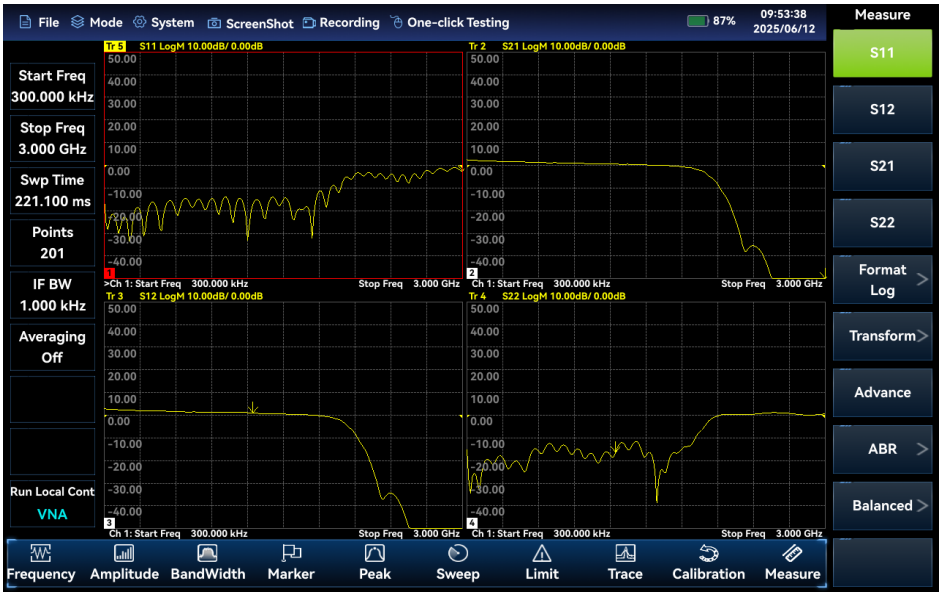
  Three display modes, including Default, Outdoor, Night

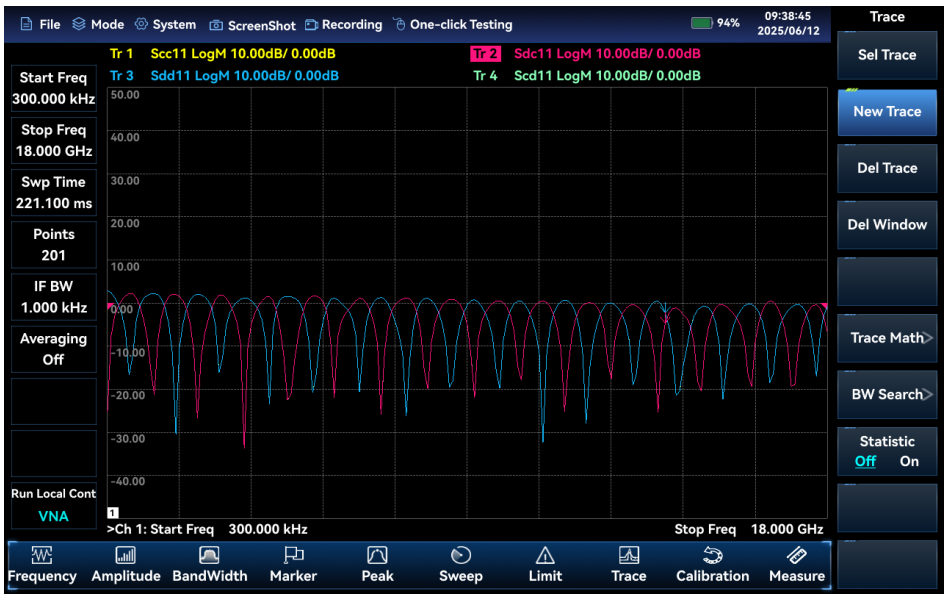
  Built-in high-capacity lithium-ion battery, with a typical battery life of 3 hours (depending on model and measurement mode)

Rich measurement functions and options

Vector network analyzer:

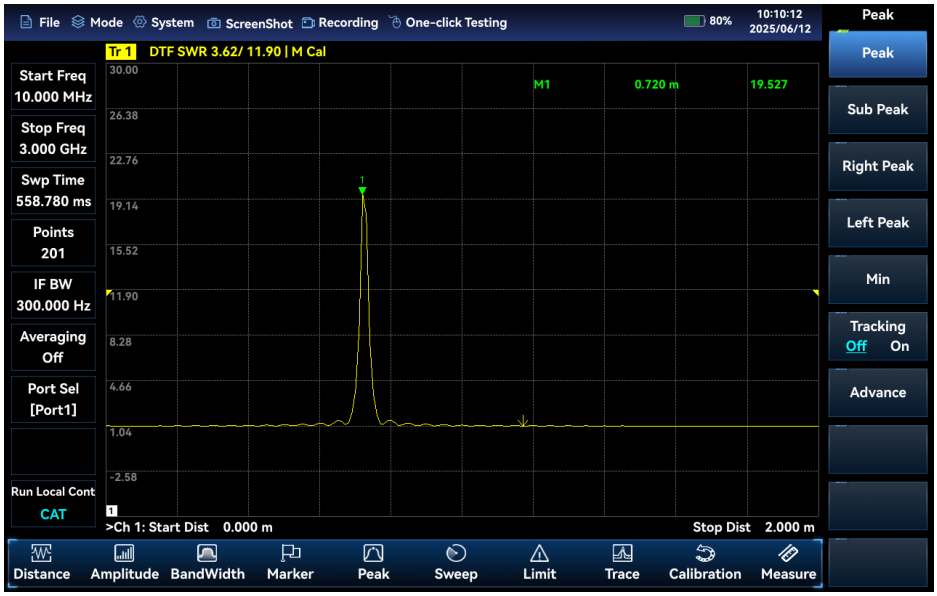
The vector network analyzer of the 4959 series microwave analyzer is designed as standard with four S-parameter vector network analysis and measurement capability, supporting S-parameter testing of components such as amplifiers, filters, attenuators and duplexers, and mixed reflection S-parameter test, and also supporting display formats including log, linear, phase, group delay, Smith plot, polar coordinates, VSWR etc.

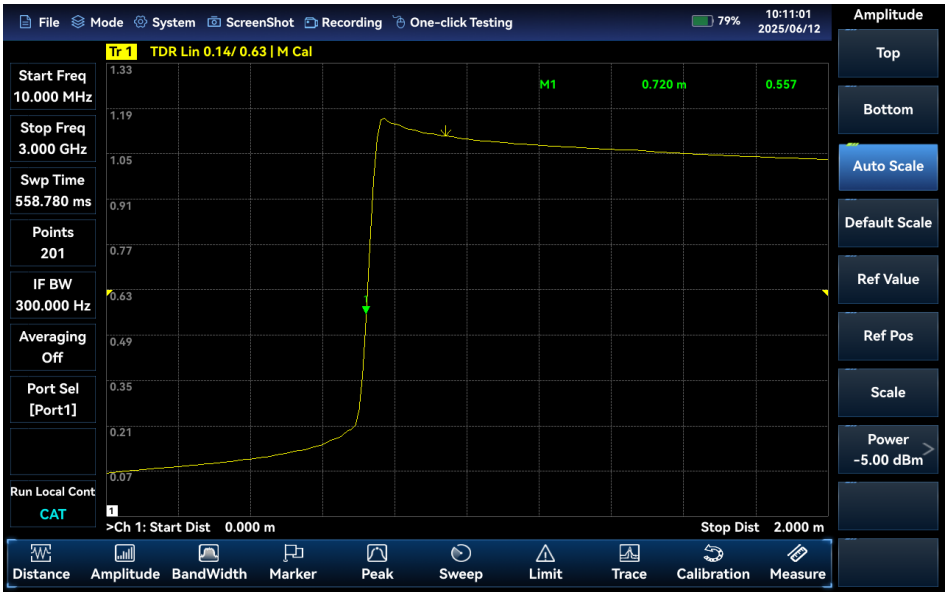




Antenna feeder analyzer (optional):

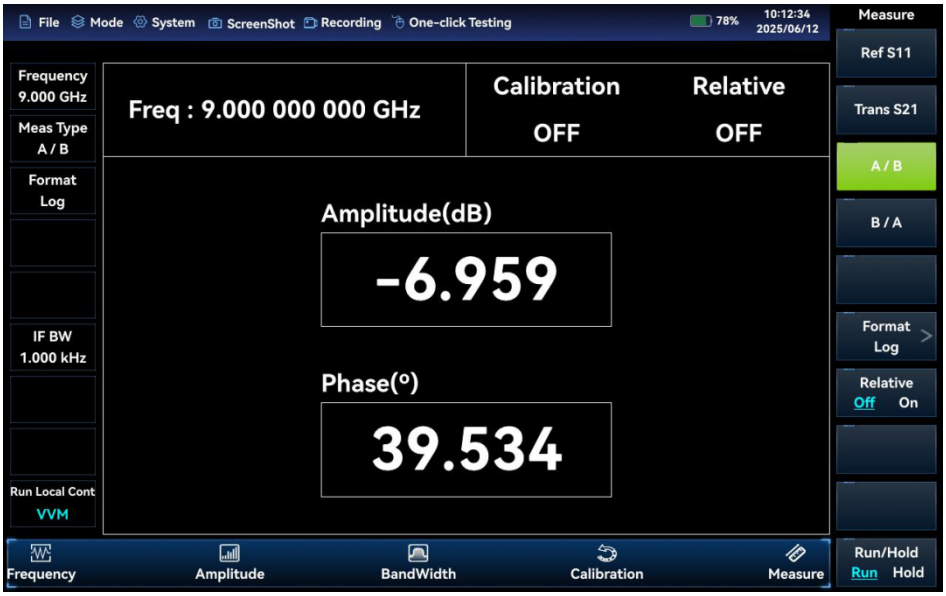
The antenna feeder analyzer of the 4959 series microwave analyzer supports measurement of return loss, VSWR, impedance, cable loss, and distance to faults of cables, feeders, and other DUTs, among which the measurement of return loss and distance to faults will help the user determine the specific causes of system performance degradation in the antenna feeder system. The antenna feeder analyzer supports TDR testing to analyze the types of cable faults. In addition, the instrument is also built in with some commonly used parameters of cables and feeders for ease of use.





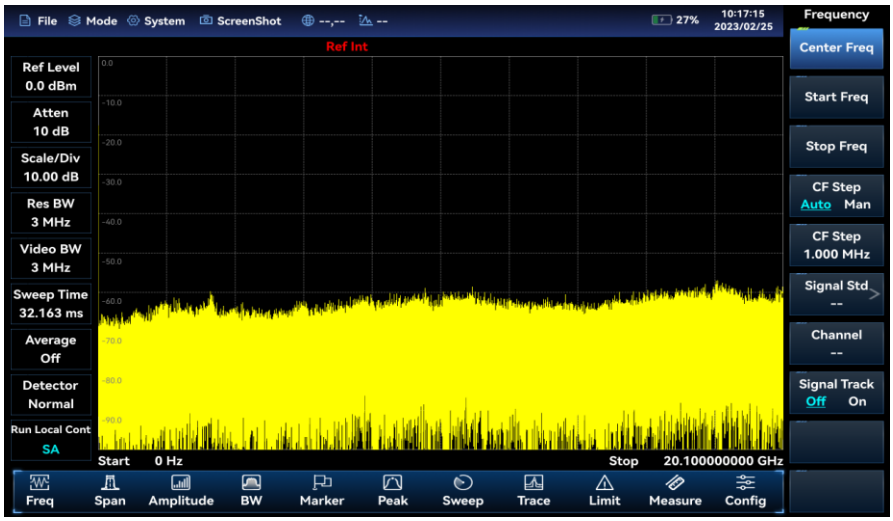
Vector voltmeter (option):

The vector voltmeter of the 4959 series microwave analyzer supports matching measurement of electrical length and phase shift of the DUTs, and also supports A/B and B/A measurement to measure the amplitude and phase consistency of the receiver.



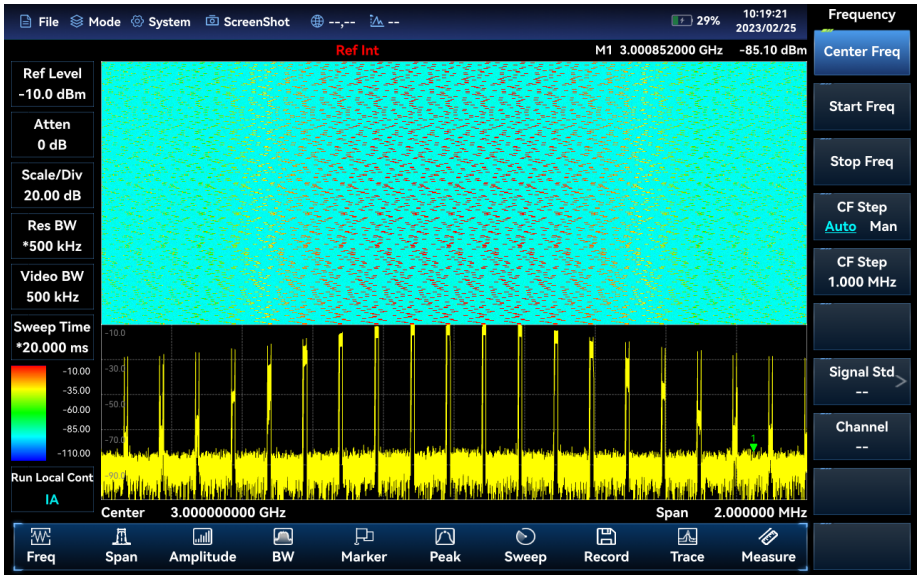
Spectrum analysis:

The 4959 series microwave analyzer supports testing of channel power, occupied bandwidth, adjacent channel power, spectrum transmitter mask, carrier-to-noise ratio, audio demodulation, harmonic distortion, spectrum transmitter mask, multi-carrier adjacent channel power, and third-order cross-modulation as standard, and feature high sensitivity, fast sweep speed, large dynamic range, and good phase noise index. The 4959 series microwave analyzer is built-in with multiple predefined signal standards that can be called up directly, and support noise marker and frequency counter, simultaneous display of 3 traces, multiple wave detector modes including Standard, Positive Peak, Negative Peak, Sampling, Average and RMS, as well as signal tracking and peak tracking function, and peak list function.



Interference analysis (option):

The interference analysis option includes a spectrum measurement, a waterfall chart, and an RSSI measurement function. The waterfall chart uses a three-dimensional display mode of frequency, amplitude, and time. You can easily observe periodic or intermittent signals in the waterfall chart. The color of the waterfall chart indicates the strength of the signal amplitude. The RSSI (Received Signal Strength Indicator) is mainly used to measure the intensity of a point frequency signal over time. Both the waterfall chart and the RSSI measurements support automatic signal storage.



Channel sweep (option):

The channel scan measurement mode measures signal power on multiple channels. This power is displayed as either a bar graph or a list and can be measured for up to 20 channels. There are three measurement modes, depending on how the channels are set up: Channel Scan, Frequency Scan, and List Scan. All of these modes allow you to set the channel bandwidth and the number of channels.



Analog demodulation analysis (option):

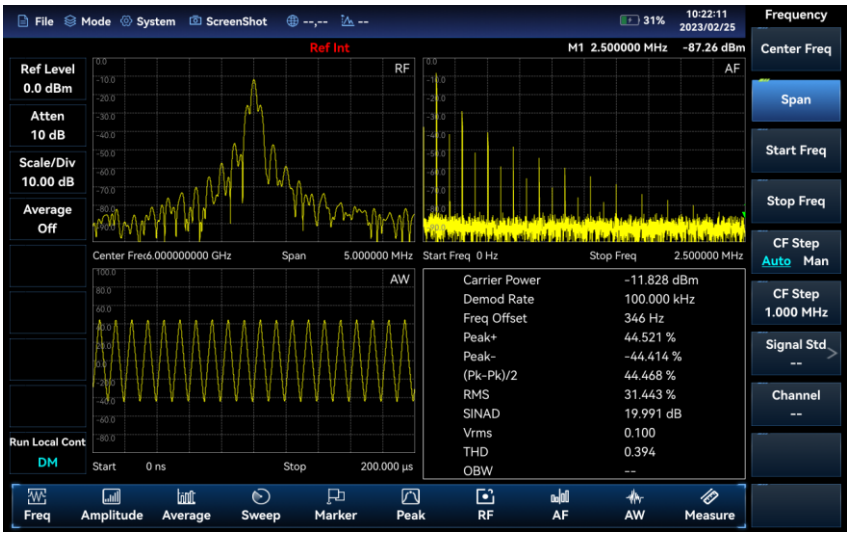
The demodulation analysis measurement mode displays AM, FM, and PM modulated signal plots and analyzes related parameters. The main plots and related parameters are measured as shown below.

RF spectrum: similar to the spectrum analysis mode, this plot displays the spectrogram of the modulated signal and allows for measurement of the occupied bandwidth.

Audio spectrum: displays the spectrogram of the demodulated audio signal.

Audio waveform: displays the waveform of the demodulated audio signal in the time domain.

Parameter Analysis: It measures and analyzes the carrier power, modulation rate, carrier frequency deviation, modulation depth (AM), modulation frequency deviation (FM), modulation phase deviation (PM), signal-to-noise ratio, modulation distortion, and total harmonic distortion of the modulated signal.



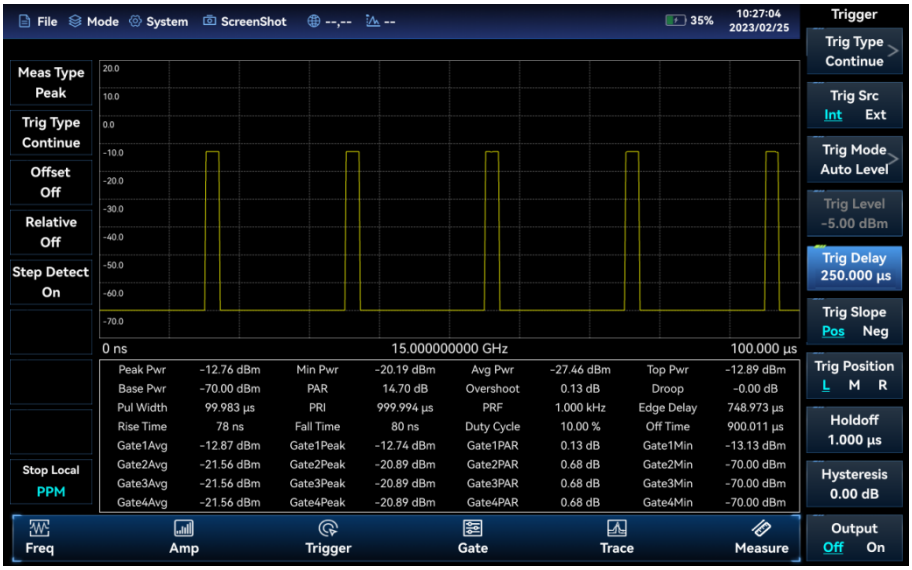
USB power measurement (option):

With the external USB power probe of the Ceyear 87230/87231/87232/87233 series, the USB power measurement function can be used to measure CW signal power of up to 40GHz.



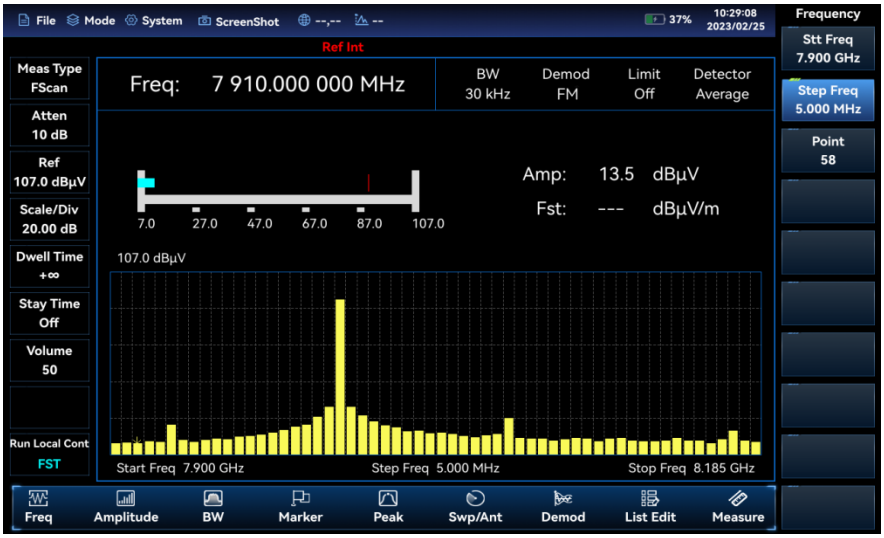
USB peak power measurement (option):

By connecting to the Ceyear 87234D/E/F/L USB peak power probe via the USB interface, this function can be used to test RF/microwave signals up to 67GHz, enabling pulse power measurement in a large dynamic range.



Field strength measurement (option):

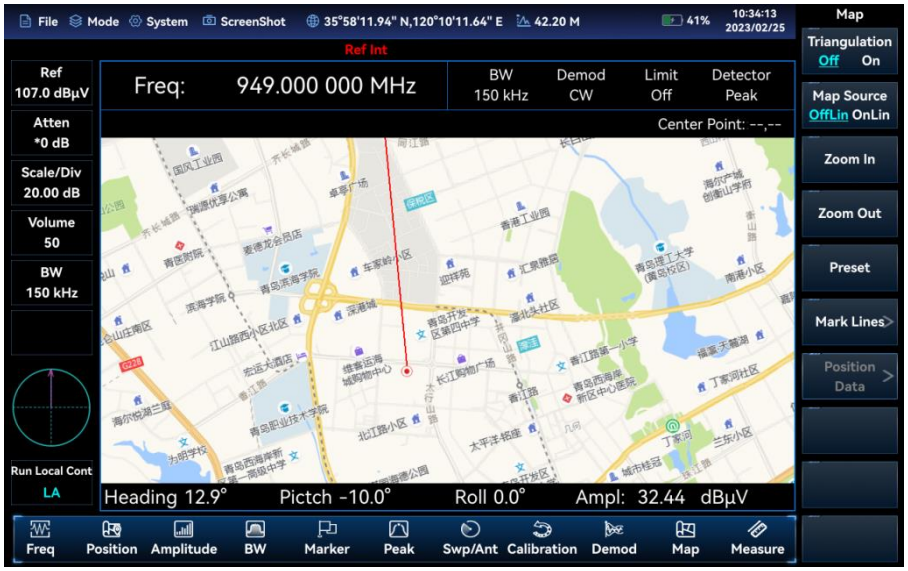
The 4959 series microwave analyzer is equipped with a portable antenna for field strength measurement, space electromagnetic environment monitoring and radio management, in which users are allowed to call antenna files directly or customize antenna factors. Field strength measurement can be divided into three modes: point frequency measurement, frequency sweep measurement and list sweep measurement. Whereas, the point frequency measurement can be used to observe the frequency offset, amplitude value and field strength value of the current point by setting the point frequency rate. By setting the initial frequency, step frequency and sweep points, the amplitude and field strength changes in a frequency range can be observed. List sweep measurements can be used to observe amplitude values and field strength values at list frequency points by calling a pre-edited or saved list.



Location analyzer (option):

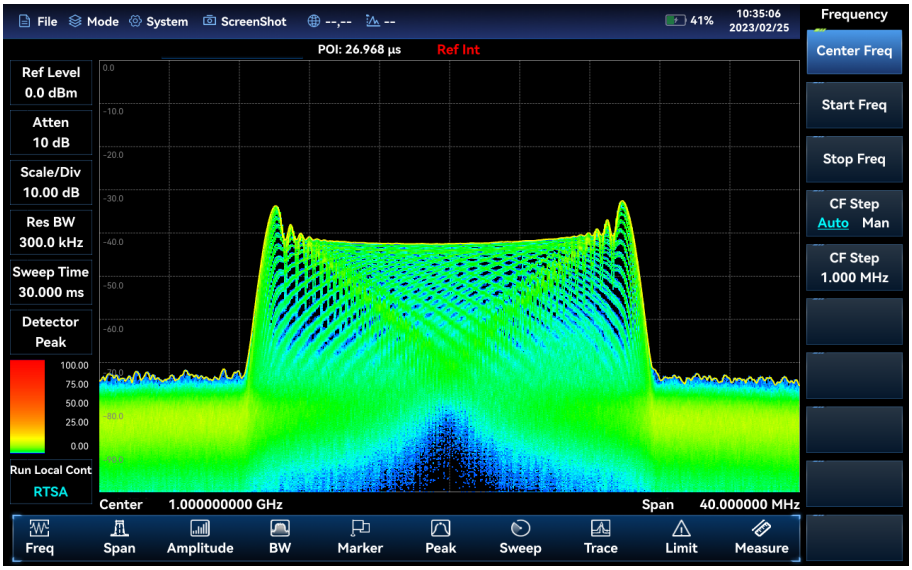
The location analyzer option shall be used together with directional antenna, e-compass and GPS/BDS for direct finding of interference signals, horizontal sweep & direction finding and map cross-location function. The ZE9080 series antenna and handle, if used, is built in with an e-compass, and thus it is not required to install one additionally.





Real-time spectrum analyzer (option):

The real-time spectrum analysis function is mainly used for the capture and analysis of transient time-varying signals and burst signals. The real-time analysis bandwidth is up to 40MHz, which can realize the digital afterglow and waterfall plot measurement function of transient signals.



Outdoor map (option):

The outdoor map option, which is a measuring function in the spectrum analysis mode, can be used for RSSI testing and ACPR testing of interfering signals, and the test results can be marked on the map in real time according to time or distance. The test results marked on the map can be saved to the instrument and can be called for later viewing.



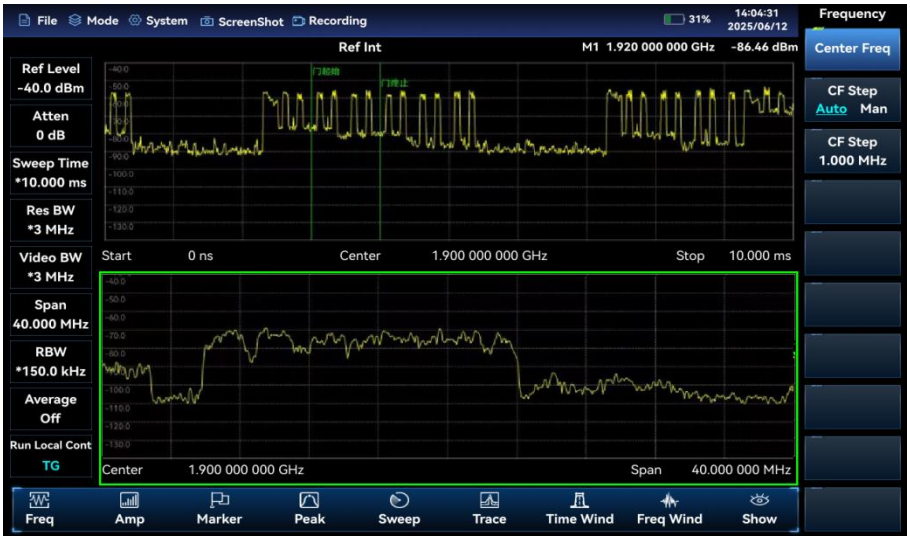
Indoor map (option):

The indoor map option can be used for RSSI test and ACPR test. Since the GPS signal cannot be received indoors, the user needs to manually move the position and mark the test results on the map. The test results marked on the map can be saved to the instrument and can be called for later viewing. Users can convert the plan in picture format into tile diagram and store it in the instrument through special software (presented with options).



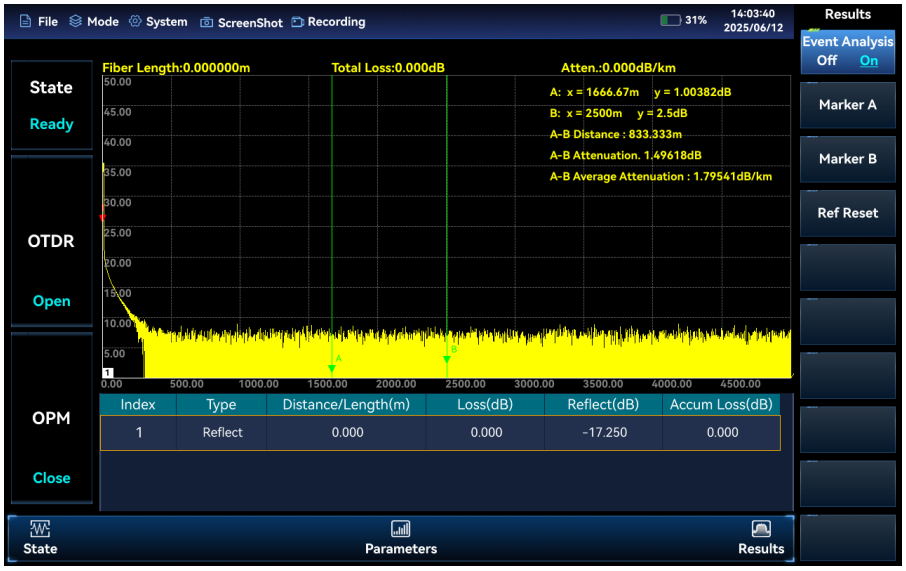
Time gate function (option):

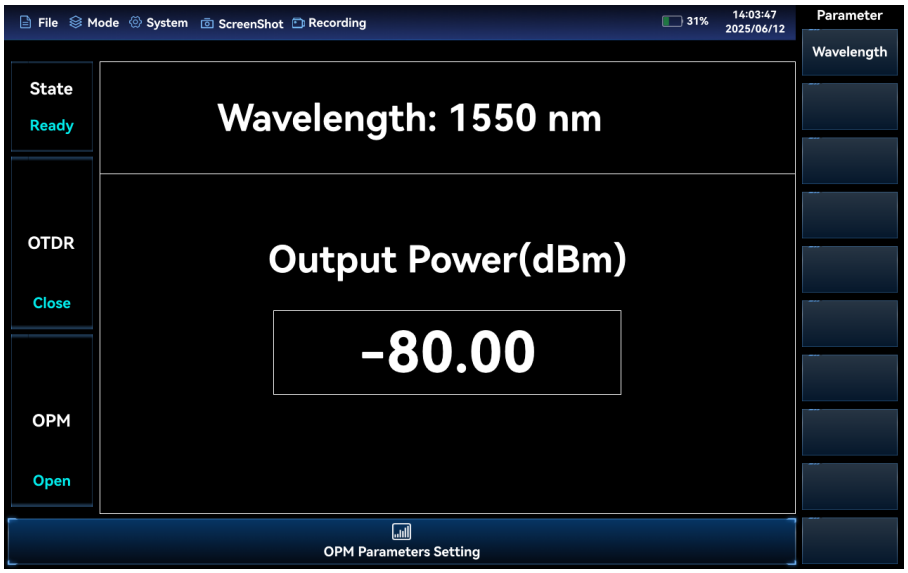
Designed for interference detection of TDD signals, the time gate sweep function is divided into time domain window and frequency domain window. In the time domain window, the signal of a specific time period can be selected by setting [Gate Delay] and [Gate Width]. The frequency domain result of the selected signal will be displayed in the frequency domain window. The time gate sweep mode is zero sweep width state, with various parameter settings for distinguishing the uplink frame and the downlink frame in the TDD signal in the time domain; By setting [Gate Delay] and [Gate Width], you can select the uplink signal, so as to achieve the effect of "filtering" the downlink signal (downlink signal will have an impact on the search of interference signals).



Optical time domain reflectometer(option):

The optical time-domain reflectometer of the 4959B/D/E/G/H/K microwave analyzer, when being used together with an external USB optical time-domain reflectometer, can achieve locating and analysis of optical fiber fault, as well as optical power measurement.





Typical Applications

- **Field comprehensive performance evaluation of electronic equipment**

The 4959 Series Microwave Analyzer offers high performance, fast sweep speed, multiple testing functions, and simple operation. It is handheld, small, lightweight, and adaptable to various environments. It can be powered by batteries and is ideal for field installation, commissioning, and maintenance of electronic equipment.

- **Field test and diagnosis of transmitter and receiver**

The 4959 series microwave analyzer is designed with multiple measurement function modes including vector network analysis, cable and antenna testing, spectrum analysis, real-time spectrum analysis, interference analysis, analog demodulation analysis, power measurement, channel sweep and field strength measurement, as well as multiple intelligent measurement functions including channel power, occupied bandwidth, neighboring channel, power, carrier-to-noise ratio, spurious template and harmonic distortion measurements, allowing for the testing of main performance parameters of transmitting and receiving subsystems, such as the VSWR, reflection coefficient, insertion loss, return loss and impedance characteristics of the antenna feeder subsystem, the frequency and spectrum characteristics of the transmitting subsystem, and center frequency, gain, differential loss, bandwidth and dynamic range of the receiving subsystem.

- **Multi-parameter testing for cable TV, wireless communication, etc**

The 4959 series microwave analyzer is applicable to operators and equipment manufacturers in cable TV, cellular phone systems, digital mobile telecommunication operators and equipment manufacturers for on-site integrated testing of spectral distribution, antenna feeder contact performance, components’ S-parameters, and feedthrough power.

Technical Specifications

Model	4959B: 9kHz/300kHz-9GHz (spectrum/vector network) 4959D: 9kHz/300kHz to 18GHz (spectrum/vector network) 4959E : 9kHz /300kHz to 26.5GHz (spectrum/vector network) 4959G : 9kHz /300kHz to 44GHz (spectrum/vector network) 4959H : 9kHz /300kHz to 50GHz (spectrum/vector network) 4959K: 9kHz / 300kHz to 54GHz (spectrum/vector network)
Spectrum analysis indicators	
Frequency reference accuracy	Nominal frequency: 10MHz Aging rate: ± 0.5ppm/year Initial calibration accuracy. ±0.3ppm Temperature stability: ±0.1ppm (-20°C~+55°C, relative to 25°C±10°C) Frequency reference accuracy=± (to last calibration date × aging rate + temperature stability + calibration accuracy)
Frequency readout accuracy	±(frequency reading × frequency reference accuracy + 1% × span + 10% × resolution bandwidth)
Span	Range: 0Hz (zero sweep width), 10Hz - upper limit of frequency range of corresponding model Accuracy: ±1.0%
sweep time	Range: 1 μs~6000s (zero span) Accuracy: ±1.0% (zero span)
Resolution bandwidth	Bandwidth range: 1Hz~20MHz (1-2-3-5-8x steps)
VBW	Bandwidth range: 1Hz~20MHz (1-2-3-5-8x steps)
Sideband noise **(carrier 1GHz, +15°C~ +35°C)**	≤-108dBc/Hz@10kHz ≤-110dBc/Hz@100kHz ≤-118dBc/Hz@1MHz ≤-129dBc/Hz@10MHz
Displayed average noise level **(50Ω load connected at input, 0dB input attenuation, average detector, RBW normalized to 1Hz, +15°C to +35°C)**	4959B/D： Preamplifier ON: ≤-120dBm 9kHz≤f<100kHz ≤-140dBm 100kHz≤f<2MHz ≤-157dBm 2MHz≤f≤9GHz ≤-156dBm 9GHz<f<14GHz ≤-154dBm 14GHz≤f≤18GHz Preamplifier OFF ≤-110dBm 9kHz≤f<100kHz ≤-120dBm 100kHz≤f<2MHz ≤-138dBm 2MHz≤f<9GHz ≤-136dBm 9GHz<f<14GHz ≤-136dBm 14GHz≤f<18GHz 4959E/G/H/K： Preamplifier ON: ≤-110dBm 9kHz≤f<100kHz ≤-120dBm 100kHz≤f<2MHz ≤-157dBm 2MHz≤f≤9GHz ≤-156dBm 9GHz<f<14GHz ≤-154dBm 14GHz≤f<21GHz

	≤-154dBm 21GHz≤f<32GHz ≤-152dBm 32GHz≤f<40GHz ≤-148dBm 40GHz≤f≤44GHz ≤-145dBm 44GHz<f≤50GHz ≤-135dBm 50GHz<f≤54GHz Preamplifier OFF ≤-110dBm 9kHz≤f<100kHz ≤-120dBm 100kHz≤f<2MHz ≤-138dBm 2MHz<f≤9GHz ≤-136dBm 9GHz<f<14GHz ≤-136dBm 14GHz≤f<21GHz ≤-135dBm 21GHz≤f<32GHz ≤-133dBm 32GHz≤f<40GHz ≤-130dBm 40GHz≤f≤44GHz ≤-126dBm 44GHz<f≤50GHz ≤-123dBm 50GHz<f≤54GHz
Second harmonic distortion (Attenuation 0dB, -30dBm input, preamplifier OFF)	≤-70dBc (50MHz~27GHz)
Third-order intermodulation distortion (-15dBm dual tone signal, 100 kHz spacing, 0dB attenuation, preamplifier OFF)	≥ +10dBm (50MHz~54GHz)
Mirror, multiple and out-of-Band response (-10dBm Mixer Level)	<-65dBc (10MHz≤f<7.5GHz), <-60dBc (7.5GHz≤f<10.5GHz), <-65dBc (10.5GHz≤f≤50GHz), <-60dBc (50GHz<f≤54GHz)
Residual response (50 Ω load connected to input port, 0 dB input attenuation)	Preamplifier ON: ≤-100dBm (10MHz≤f<3GHz) ≤-100dBm (3GHz≤f≤9GHz) ≤-95dBm (9GHz<f<12GHz) ≤-95dBm (12GHz≤f<20GHz) ≤-90dBm (20GHz≤f≤54GHz)
Reference level	Range: Logarithmic scale -150dBm~+30dBm Conversion error: ±0.70dB （ reference level 0dBm~-60dBm ）
Overall level uncertainty (operating temperature: 15°C~35°C, Attenuation 10dB 0dBm~-50dBm input. Preamplifier OFF, resolution Bandwidth 1kHz, other parameters: auto	±1.30dB (10MHz≤f≤20GHz) ±1.80dB (20GHz<f≤44GHz) ±2.50dB (44GHz<f≤50GHz) ±2.80dB (50GHz<f≤54GHz)

Input attenuator	Attenuation range 0dB-30dB, 2dB step
Maximum safe input level (continuous wave, ≥10dB attenuation. Preamplifier OFF)	4959B/D: +27dBm continuous wave (input frequency ≥50MHz) 4959E/G/H/K: +25dBm continuous wave (input frequency ≥ 50MHz)
Scale display	Logarithmic scale: 0.1-10db per raster, minimum 0.1dB step (10 rasters) Scale unit: V, A, W, dBm, dBW, dBV, dBmV, dBμV, dBA, dBmA, dBμA
Detection mode	Normal, PosP, NegP, Smp, Avg, Rms.
Vector network analysis indicators	
Frequency accuracy	±0.9ppm
Frequency resolution	1Hz
IFBW	3Hz, 10Hz, 30Hz, 100Hz, 300Hz, 1kHz, 3kHz, 10kHz, 30kHz, 100kHz
Power level	High, Low, Manual Setting Power
Port output power	High power: ≥-8.0dBm 300kHz≤f≤10MHz ≥3.0dBm 10MHz<f≤9GHz ≥0.0dBm 9GHz<f≤20GHz ≥-2.0dBm 20GHz<f≤26.5GHz ≥-8.0dBm 26.5GHz<f≤44GHz ≥-8.0dBm 44GHz<f≤50GHz ≥-12.0dBm 50GHz<f≤54GHz Low power: ≤-35dBm 10MHz≤f≤54GHz
Port output power accuracy	Note: -10dBm output, 23±5°C ±2.0dB 300kHz≤f≤26.5GHz ±2.5dB 26.5GHz<f≤50GHz ±3.0dB 50GHz<f≤54GHz
Valid directivity	≥42dB 300kHz≤f≤4GHz ≥34dB 4GHz<f≤20GHz ≥26dB 20GHz<f≤54GHz
Reflection tracking	±0.06dB 300kHz≤f≤20GHz ±0.08dB 20GHz<f≤50GHz ±0.12dB 50GHz<f≤54GHz
Effective load matching	≥30dB 300kHz≤f≤4GHz ≥27dB 4GHz<f≤26.5GHz ≥23dB 26.5GHz<f≤54GHz
Transmission tracking	±0.08dB 300kHz≤f≤4GHz ±0.16dB 4GHz<f≤26.5GHz ±0.24dB 26.5GHz<f≤50GHz ±0.28dB 50GHz<f≤54GHz
System dynamic range	≥90dB 300kHz≤f≤10MHz ≥103dB 10MHz<f≤20GHz ≥93dB 20GHz<f≤26.5GHz ≥90dB 26.5GHz<f≤40GHz ≥81dB 40GHz<f≤50GHz ≥80dB 50GHz<f≤54GHz

Trace noise	Note: The output power of port within the band of 300kHz≤f≤10MHz is set to -5dBm; and the output power of port within the band of 10MHz<f≤54GHz is set to 0dBm, with IF bandwidth set to 100Hz , S21 and S12. Amplitude trace noise (dB rms): 0.0040 300kHz≤f≤10MHz 0.0015 10MHz<f≤10GHz 0.0018 10GHz<f≤20GHz 0.0040 20GHz<f≤26.5GHz 0.0050 26.5GHz<f≤36GHz 0.0050 36GHz<f≤50GHz 0.0100 50GHz<f≤54GHz Phase trace noise within the band (deg rms): 0.0600 300kHz≤f≤10MHz 0.0200 10MHz<f≤10GHz 0.0270 10GHz<f≤20GHz 0.0500 20GHz<f≤26.5GHz 0.0600 26.5GHz<f≤36GHz 0.1200 36GHz<f≤50GHz 0.5000 50GHz<f≤54GHz
Overall dimensions	316.5mm (width) ×236.5mm (height) ×75mm (depth) (excluding side straps, panel connector, interface plugs, rear bracket closure)
Weight	4959B/D: ≤3.7kg (excluding built-in battery) 4959E/G/H/K: ≤3.9kg (excluding built-in battery)
Operating temperature range	-20°C~+55°C (battery discharging temperature -20°C~+55°C, battery charging temperature +10°C~+45°C)
Storage temperature	-50°C~+70°C (battery storage temperature -20°C~+50°C, storage time < 1 month)
Electromagnetic compatibility	Comply with relevant requirements of 3.9.1 in GJB 3947A-2009
Power input type	AC power adapter: input voltage 100V ~ 240V AC, 50Hz/60Hz, output voltage 19V DC, 4.7A. Built-in Li-ion battery: nominal voltage 10.8V
Battery power endurance time	Typical value 3h
Test port	4959B/D: N-type female adapter 4959E: 3.5mm male adapter 4959G/H: 2.4mm male adapter 4959K: 1.85mm male adapter
Other interface	10MHz reference input/output: SMA female External trigger input interface: SMA female GPS antenna interface: SMA female (optional), IF output interface: SMA female (optional) Wi-Fi/4G antenna interface: SMA female (optional, in which the input interface of 4G antenna is reserved and temporarily not supported).
Communication and auxiliary interfaces	USB interfaces: 2 USB3.0 Type A interfaces, 1 USB2.0 Type C type interface and 1 USB3.0 Type C interface (reserved). LAN interface: Standard RJ-45 type. Earphone interface: standard 3.5mm. Memory card/SIM card: MicroSD card and SIM card (for reserved 4G option) slots

Ordering Information

- **Mainframe**

Model	Name	Frequency range
4959B	RF microwave analyzer	9kHz/300kHz ~ 9GHz
4959D	Microwave analyzer	9kHz/300kHz ~ 18GHz
4959E	Microwave analyzer	9kHz/300kHz ~ 26.5GHz
4959G	Microwave analyzer	9kHz/300kHz ~ 44GHz
4959H	Microwave analyzer	9kHz/300kHz ~ 50GHz
4959K	Microwave analyzer	9kHz/300kHz ~ 54GHz

- **Standard configuration**

No.	Name	Quantity	Description
1	Power cord	1	
2	9000mAh rechargeable li-ion battery	1	
3	Power adapter	1	
4	Quick Start Guide	1	Quick Start Guide
5	Product certificate of conformity	1	Certificate of Conformity

- **Option**

No.	Option No.	Option name	Function
1	4959-01	English version	Including English signs, menus and Quick Start Guide.
2	4959-02	User' manual (Chinese version)	User' manual (Chinese version).
3	4959-03	User' manual (English version)	User' manual (English version).
4	4959-04	Programming manual (Chinese version)	Programming manual (Chinese version).
5	4959-05	Programming manual (English version)	Programming manual (English version).
6	4959-S01	USB power measurement	It provides power measurement function, which can be used with an external USB CW power probe 87230/87231/87232/87233.
7	4959-S02	USB peak power	Peak power measurement, when being used

No.	Option No.	Option name	Function
			together with 87234D/E/F/L USB peak/average power meter.
8	4959-S03	Interference Analysis	It provides waterfall plot, RSSI measurement and other functions.
9	4959-S04	Channel sweep	It can measure the signal power of multiple channels.
10	4959-S05	Field strength measurement	It can be used to measure the radiation strength of the electric field of the device under test.
11	4959-S06	Outdoor map	The outdoor interference map can be used for RSSI testing and ACPR testing, and the testing results can be marked on the map in real time according to time or distance. However, it shall be used together with 4959-H01 options.
12	4959-S07	Indoor map	RSSI test and ©ACPR measurements in indoor map mode, with test results marked on the map through the correlation of signal strength and color
13	4959-S08	Analog demodulation analysis	It can realize the analysis and measurement of AM, FM and PM modulation signals.
14	4959-S09	Zero span IF output	It outputs analog IF signal at zero span.
15	4959-S10	Time gate function	Time-division interference signal testing, and air-port wireless signal testing when being used together with 4959-H01 option.
16	4959-S11	Location analyzer	Locating of external interference sources or unknown signals, when being used together with 4959-H01 optional, USB e-compass and directional antenna.
17	4959-S12	40MHz BW real-time spectrum analysis	It provides 40MHz BW real-time spectrum analysis.
18	4959-S13	List Sweep	It enables continuous sweeping measurement of multiple frequency bands.
19	4959-S14	IQ analysis	Capturing and display of IQ data.
20	4959-S15	GSM/EDGE measurement	2G GSM/EDGE demodulation analysis is possible with the 120MHz bandwidth real-time spectrum analysis option.
21	4959-S16	LTE analysis	Demodulation of 4G LTE FDD/TDD signals can be analyzed with the 120MHz bandwidth real-time spectrum analysis option.
22	4959-S17	5G NR measurement	Demodulation analysis of 5G NR signals is possible with the 120MHz bandwidth real-time spectrum analysis option.
23	4959-S18	Vector signal analysis	Various single-carrier digital modulation signal demodulation analysis, with a variety of display

No.	Option No.	Option name	Function
			windows, such as spectrum graph, vector graph, constellation graph, eye graph and error/symbol table, provided for the user analyze the modulation signal characteristics.
24	4959-S19	EMI analysis	EMI sweep, point frequency spot and list sweep functions, as well as wave detector modes including CISPR average, CISPR RMS and quasi-peak supported
25	4959-S20	Phase noise testing	Provide the single sideband phase noise curve and single point phase noise testing.
26	4959-S23	Noise figure analysis	Provide noise figure analysis function, need to be used with 16615 series noise source.
27	4959-S30	Antenna feeder analyzer	Testing of return loss, VSWR and breakpoints of cables and feeders.
28	4959-S31	Vector voltmeter	Testing of cable phase shift and electrical length.
29	4959-S32	TDR	Analysis of the location and nature of cable faults
30	4959-S33	Electronic calibration	This software option includes additional electronic calibration parts for vector network analysis, cable and antenna analysis, vector voltmeter, and other calibrations.
31	4959-S34	Optical time domain reflectometer	Optical time-domain reflectometer and optical power meter functions
32	4959-S35	Mixed reflection S-parameter	Differential S-parameter measurements.
33	4959-S36	VNA time-domain measurement	Time-domain measurement in vector network analysis mode.
34	4959-H01	GPS/Beidou function	GPS or BSD positioning when an external antenna is connected.
35	4959-H02	WiFi wireless communication	Wireless data transmission and communication with external devices.
36	4959-H03	Aluminum alloy trolley case	Aluminum alloy trolley case
37	4959-H04	Trolley case	Trolley case
38	4959-H05	Portable backpack	Portable backpack
39	4959-H06	Power adapter	Power adapter.
40	4959-H07	9900mAh rechargeable li-ion battery	Backup battery pack, nominal voltage 10.8V, battery capacity 9900mAh, not suitable for air transportation.
41	4959-H08	9000mAh rechargeable li-ion battery	Backup battery pack, nominal voltage 10.8V, battery capacity 9000mAh, allowed for air transportation.
42	4959-H09	On-board power adapter	The on-board charger with input voltage of 12~24V and output voltage of 19V can be used

No.	Option No.	Option name	Function
			to power handheld measuring instruments.
43	4959-H10	Intelligent battery charging dock	Lithium-ion battery charging standard
44	4959-H11	Memory card	Mrico SD card, capacity 128G.
45	87230	USB CW power probe	Frequency range: 9kHz ~ 6GHz, interface type N(m).
46	87231	USB CW power probe	Frequency range: 10MHz ~ 18GHz, interface type N(m).
47	87232	USB CW power probe	Frequency range: 50MHz ~ 26.5GHz, interface type 3.5mm(m).
48	87233	USB CW power probe	Frequency range: 50MHz ~ 40GHz, interface type 2.4mm(m).
49	87234D	USB peak/average power meter	Frequency range: 50MHz ~ 18GHz, interface type N(m).
50	87234E	USB peak/average power meter	Frequency range: 50MHz ~ 26.5GHz, interface type 3.5mm(m).
51	87234F	USB peak/average power meter	Frequency range: 50MHz ~ 40GHz, interface type 2.4mm(m).
52	87234L	USB peak/average power meter	Frequency range: 500MHz ~ 67GHz, interface type 1.85mm(m).
53	4959-H20	ZE9080 directional antenna A	Frequency range 9kHz ~ 20MHz, interface type N(f). (H24 option is recommended for use)
54	4959-H21	ZE9080 directional antenna B	Frequency range 20MHz ~ 200MHz, interface type N(f).
55	4959-H22	ZE9080 directional antenna C	Frequency range 200MHz ~ 500MHz, interface type N(f). (H24 option is recommended for use)
56	4959-H23	ZE9080 directional antenna D	Frequency range: 500MHz ~ 8GHz, interface type N(f). (H24 option is recommended for use)
57	4959-H24	ZE9080 antenna amplifier	Frequency range: 9kHz ~ 8GHz, N(f), Use together with ZE9080 antenna module A/B/C/D option, and built-in with amplifier and electronic compass.
58	4959-H25	ZE9080 antenna transportation case	The ZE9080 antenna-specific transportation case can be used to contain ZE9080 antenna modules A/B/C/D and ZE9080 antenna amplifiers.
59	4959-H26	700MHz ~ 6GHz directional antenna	Active log periodic antenna, frequency 700MHz ~ 6GHz, interface type SMA (f).

No.	Option No.	Option name	Function
60	4959-H27	680MHz ~ 10GHz directional antenna	Active log periodic antenna, frequency 680MHz ~ 10GHz, interface type SMA (f).
61	4959-H28	680MHz ~ 20GHz directional antenna	Active log periodic antenna, frequency 680MHz ~ 20GHz, interface type SMA (f).
62	4959-H29	6GHz omni-directional antenna	Portable omni-directional antenna, frequency 680MHz ~ 6GHz, interface type SMA (m).
63	4959-H30	8GHz omni-directional antenna	Portable omni-directional antenna, frequency 300MHz ~ 8GHz, interface type SMA (m).
64	4959-H31	700MHz ~ 6GHz passive directional antenna	Passive log periodic antenna, frequency 700MHz ~ 6GHz, interface type SMA (f).
65	4959-H34	USB e-compass	External USB e-compass for use together with H45/H46/H47 option, and 4959-S11 option.
66	4959-H35	N/SMA-JJ RF cable (2m)	N/SMA double-positive RF coaxial cable, DC ~ 18GHz, 2m long.
67	4959-H36	PBS1 near-field probe	The highest operating frequency is 9GHz, including one electric field probe and magnetic field probes of 6mm, 12mm, 25mm and 50mm, one each, and the interface type is SMB (m).
68	4959-H37	120MHz bandwidth real time spectrum analysis	Provides 120MHz bandwidth real-time spectrum analysis function.
69	4959-H38	Handheld directional antenna.	Passive log-periodic antenna, with the frequency range of 380MHz~20GHz, and with built-in e-compass and RF test cable (interface type: N (male)).
70	4959-H39	Handheld high-gain direction finding antenna	Horn antenna, with the frequency range of 18GHz~40GHz, and with built-in e-compass and RF test cable (interface type: N-type positive). 2.92 mm positive).
71	31101A	Coaxial calibration kits	N(M), DC-18GHz, for vector network analysis, antenna testing, vector voltmeter calibration, etc.
72	31101B	Coaxial calibration kits	N(F), DC-18GHz, for calibration of vector network analyzer, CAT and VVM.
73	31121	Coaxial calibration kits	3.5mm, DC-26.5GHz, for calibration of vector network analyzer, CAT and VVM.
74	31123A	Coaxial calibration kits	2.4mm, DC-50GHz, for calibration of vector network analyzer, CAT and VVM. CAT and VVM.
75	20209LB	Coaxial calibration kits	1.85Mm, DC-67GH.
76	20402	Electronic calibration kit	300kHz ~ 18GHz (N type)

No.	Option No.	Option name	Function
77	20403	Electronic calibration kit	10MHz ~ 26.5GHz (3.5mm)
78	20404	Electronic calibration kit	10MHz ~ 50GHz (2.4mm)
79	20409	Electronic calibration kit	10MHz ~ 67GHz (1.85mm)
80	4959-H49	N-type male-male calibration cable GORE-OSZKUZKU0240	Cable for calibration or testing
81	4959-H50	N-type female-male calibration cable GORE-OSZKUZKV0240	Cable for calibration or testing
82	4959-H51	3.5 mm female-female calibration cable GORE-0RD02D02024.0	Cable for calibration or testing
83	4959-H52	3.5mm female-male calibration cable GORE-0RD01D02024.0	Cable for calibration or testing
84	4959-H53	2.4 mm female-female calibration cable GORE-0K0CK0CK024.0	Cable for calibration or testing
85	4959-H54	2.4mm female-male calibration cable GORE-0K0CJ0CK024.0	Cable for calibration or testing
86	4959-H55	2.4mm (female-male), 50GHz calibration cable 0Z0CJ0CK024.0	Cable for calibration or testing
87	4959-H56	2.4mm (female-male), 50GHz calibration cable 0Z0CK0CK024.0	Cable for calibration or testing
88	4959-H57	1.85mm (female-male), 67GHz calibration cable 0F0CB0CA024.0	Cable for calibration or testing
89	4959-H58	1.85mm (female-male), 67GHz calibration cable 0F0CA0CA024.0	Cable for calibration or testing
90	87302FZ	Test cable	3.5/3.5-KK test cable (0.6m)
91	87302FE	Test cable	3.5/3.5-KJ test cable (0.6m)
92	87302AZ	Test cable	N/N-JJ test cable (0.6m)
93	87302BA	Test cable	N/N-KJ test cable (0.6m)
94	4959-H63	AL50-35FNM-01.00M test cable	3.5mm/N-KJ test cable (1.0m)
95	4959-H64	AL50-35MNM-01.00M test cable	3.5mm/N-JJ test cable (1.0m)
96	4959-H65	AL50-24F35F-01.00M test cable	2.4mm/3.5mm-KK test cable (1.0m)
97	4959-H66	AL50-24F35M-01.00M test	2.4mm/3.5mm-KJ test cable (1.0m)

No.	Option No.	Option name	Function
		cable	
98	4959-H67	USB optical time domain reflectometer	This is for USB optical time-domain reflectance and optical power measurements.
99	4959B-JL	Measurement service	Measurement and calibration services and measurement reports are provided, which applies to 4959B only.
100	4959D-JL	Measurement service	Measurement and calibration services and measurement reports are provided, which applies to 4959D only.
101	4959E-JL	Measurement service	Measurement and calibration services and measurement reports are provided, which applies to 4959E only.
102	4959G-JL	Measurement service	Measurement and calibration services and measurement reports are provided, which applies to 4959G only.
103	4959H-JL	Measurement service	Measurement and calibration services and measurement reports are provided, which applies to 4959H only.
104	4959K-JL	Measurement service	Measurement and calibration services and measurement reports are provided, which applies to 4959K only.
105	4959B-EWT1	An extended warranty beyond the standard warranty period is available for 1 year.	An extended warranty beyond the standard warranty period is available for 1 year. For a 2-year extension, 2 items can be selected, and so on. The service does not include calibration and covers only one-way shipping costs. Product shipping charge.
106	4959D-EWT1	An extended warranty beyond the standard warranty period is available for 1 year.	An extended warranty beyond the standard warranty period is available for 1 year. For a 2-year extension, 2 items can be selected, and so on. The service does not include calibration and covers only one-way shipping costs.
107	4959E- EWT1	An extended warranty beyond the standard warranty period is available for 1 year.	An extended warranty beyond the standard warranty period is available for 1 year. For a 2-year extension, 2 items can be selected, and so on. The service does not include calibration and covers only one-way shipping costs.
108	4959G- EWT1	An extended warranty beyond the standard warranty period is available for 1 year.	An extended warranty beyond the standard warranty period is available for 1 year. For a 2-year extension, 2 items can be selected, and so on. The service does not include calibration and covers only one-way shipping costs.
109	4959H- EWT1	An extended warranty beyond the standard warranty period is available for 1 year.	An extended warranty beyond the standard warranty period is available for 1 year. For a 2-year extension, 2 items can be selected, and so

No.	Option No.	Option name	Function
			on. The service does not include calibration and covers only one-way shipping costs.
110	4959K-EWT1	An extended warranty beyond the standard warranty period is available for 1 year.	An extended warranty beyond the standard warranty period is available for 1 year. For a 2-year extension, 2 items can be selected, and so on. The service does not include calibration and covers only one-way shipping costs.

CEYEAR TECHNOLOGIES CO., LTD
Tel: +86 532 86896691
Email: sales@ceyear.com
http://www.ceyear.com