



4957D/E/F

Handheld Multifunctional Analyzer

(18GHz/26.5GHz/40GHz)



Ceyear Technologies Co., Ltd.

Product Overview

With frequency range of 18GHz/26.5GHz/40GHz, 4957D/E/F microwave analyzers integrate multiple functions such as dual-port vector network analysis, cable and antenna feeder test, vector voltage measurement, spectrum analysis (channel power, adjacent channel power, occupied bandwidth, interference analysis and frequency counting), field strength measurement and power measurement, providing you with powerful comprehensive test capabilities.

Dual-port vector network analysis can make comprehensive RF network parameters measurement quickly and accurately, providing logarithmic, linear, phase, group delay, impedance chart, polar coordinate, SWR and other display formats, and providing time domain measurement options.

Cable and antenna feeder test can measure the SWR, return loss, impedance, cable loss and other parameters of microwave networks such as antenna feeders, transmission lines and cables, and can conveniently measure impedance discontinuity points in feeders and cables, with DTF function.

The vector voltage measurement function adopts an integrated solution instead of the traditional vector voltmeter to accurately test the electrical length of cables and some other devices under test.

Spectrum analysis is a spectrum analyzer with standard functions, which can measure the spectrum characteristics comprehensively in an electromagnetic environment.

The field strength measurement function has a friendly user interface and higher test sensitivity. With the corresponding test antenna, it can effectively monitor the electromagnetic spectrum and is widely used in space electromagnetic environment monitoring and radio management.

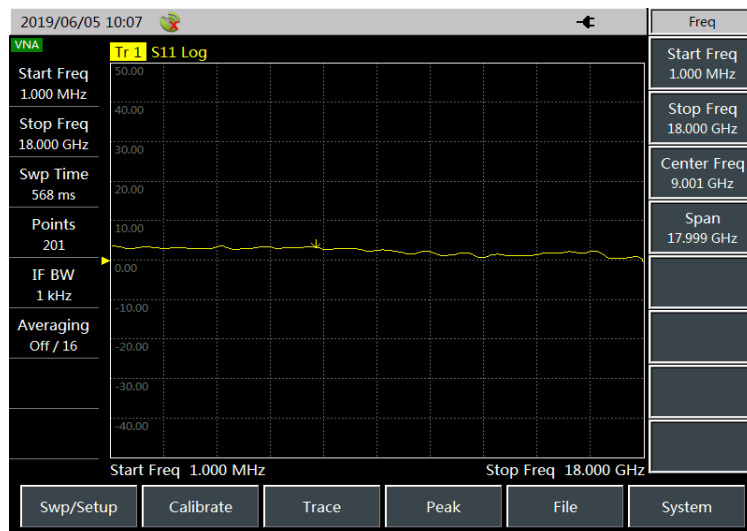
The USB power sensor is configured to achieve large dynamic range and high-precision power measurement, and can also carry out power monitoring through the spectrum input port.

Main Characteristics

- Rich test functions: antenna feeder test, vector network analysis, spectrum analysis, field strength measurement, power monitoring, vector voltage measurement, USB power measurement, etc.
- Small size, light weight, secondary environmental adaptability, easy to carry and test in special occasions
- 8.4-inch LCD touch screen, easy to operate, friendly man-machine interface, visual display
- Test data can be stored and called, and three kinds of storage media are available: 1.5G or more high-capacity internal storage, USB external storage, SD external storage
- Battery powered, suitable for field use, intelligent power management, with remaining battery capacity indication and low battery alarm function, and sleep energy-saving function
- With six-independent cursor display function, and the cursor position can slide with the finger
- With data storage, playback and comparison functions
- With USB, LAN and other interfaces for program control and data transmission

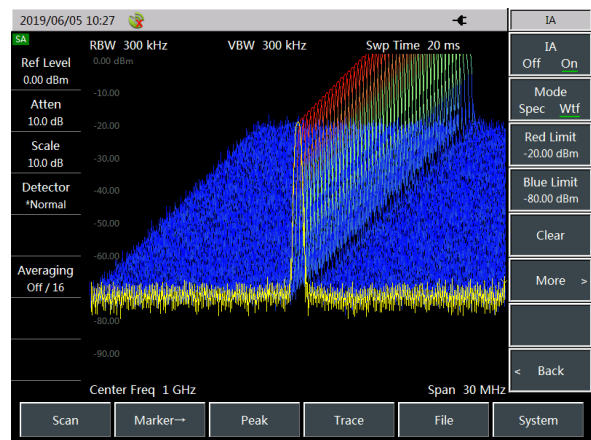
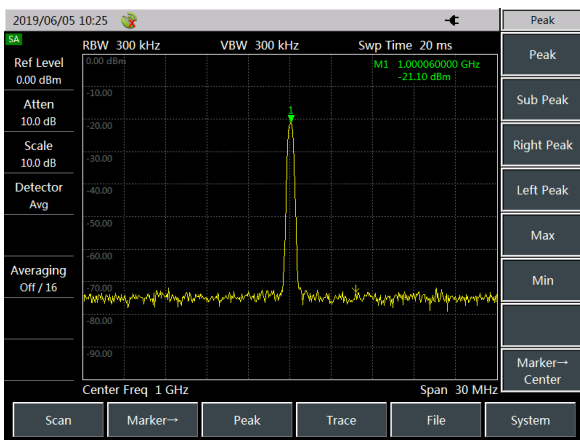
Network Parameter Measurement

With the frequency range of network analysis of 30kHz~18GHz/26.5GHz and 50MHz~40GHz, 4957D/E/F microwave analyzers can realize standard vector network analysis and measurement of full 4S parameters, and can test full S parameters of amplifier, filter, attenuator, duplexer and other devices, providing logarithmic, linear, phase, group delay, impedance, polar coordinate, SWR and other display formats.



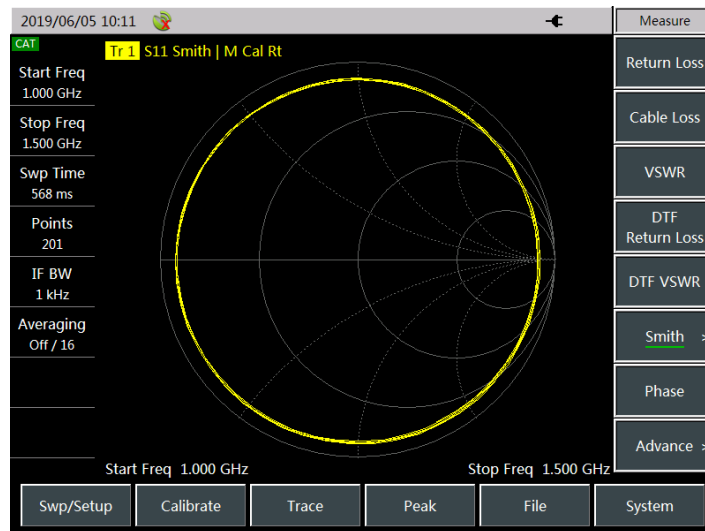
Spectrum Analysis

With the frequency range of the spectrum analysis function (spectrum analysis, field strength, channel power, occupied bandwidth, adjacent channel power ratio, interference analysis, frequency counting) of 100kHz~18GHz/26.5GHz/40GHz, 4957D/E/F microwave analyzers have such features as wide frequency band, high sensitivity, wide dynamic range and good phase noise, can realize fast and efficient signal detection and measurement, can display three traces at the same time, have different optional detector modes such as standard, sample, positive peak, negative peak and mean, and have interference analysis, spectrogram, waterfall plot, data recording and playback functions.



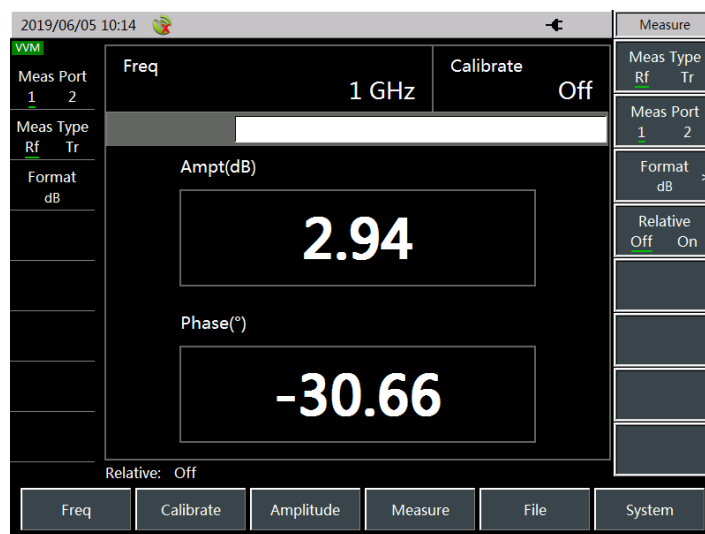
Cable and Antenna Test

As cable and antenna feeder testers, 4957D/E/F microwave analyzers can be used to measure the return loss, VSWR, impedance, cable loss and distance to fault of cables, feeders and other devices under test. The measurement of return loss and distance to fault will help you determine the specific cause of performance degradation of the overall system in the cable and antenna feeder system. In addition, some common cable and feeder parameters are built in for convenient use.



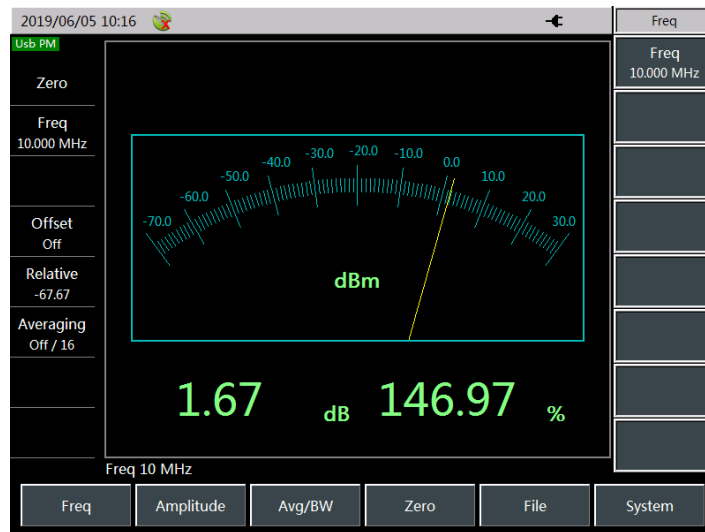
Vector Voltage Measurement (option)

With the frequency range of vector voltage measurement of 30kHz~18GHz/26.5GHz and 50MHz~26.5GHz, 4957D/E/F microwave analyzers can accurately measure the electrical length and phase shift of devices under test, and can perform reflection and transmission test.



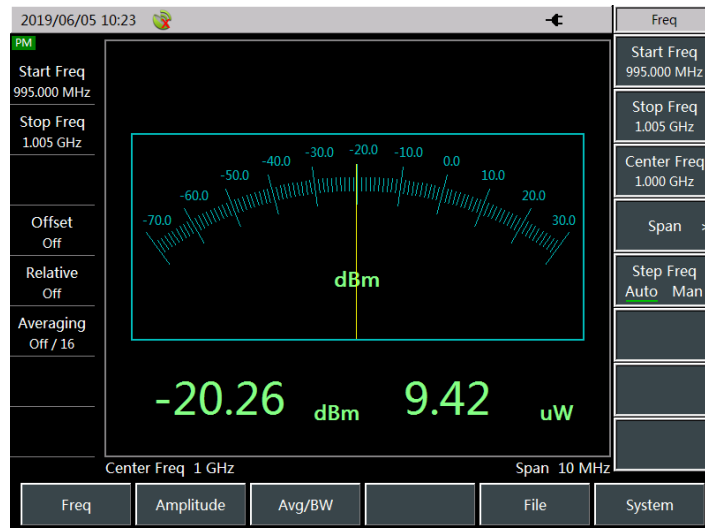
Power Measurement Based on USB Power Sensor (option)

4957D/E/F microwave analyzers can use 872XX series USB Continuous Wave Power Sensors of Ceyear to measure power, and can test RF/microwave power up to 40GHz.



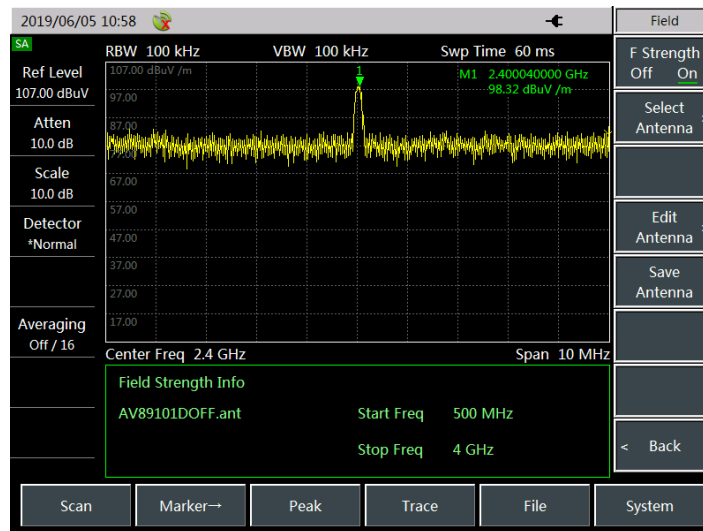
Power Monitoring (option)

4957D/E/F microwave analyzers can also carry out power monitoring and measurement through the spectrum input port, with frequency range of 100kHz~18GHz/26.5GHz/40GHz.



Field Strength Measurement (option)

4957D/E/F microwave analyzers can also be used for field strength measurement together with the corresponding test antennas (e.g., 89101A/B/C/D of Ceyear), and are widely used in space electromagnetic environment monitoring and radio management. The testers support user antennas, allowing users to define their own antennas.



Supporting list sweep

In addition to frequency sweeping, spectrum analysis, antenna feeder test and network analysis also support list sweep. Parameters in each band are independent.

Supporting upper and lower limit lines

Spectrum analysis, antenna feeder test and network analysis support the limit line test. The limit line can be used as a visual reference, and can also be used as the basis for PASS/FAIL judgment. If the test data exceed the upper limit line or fall below the lower limit line, the loudspeaker will sound "dripping" to remind the user that the data have exceeded the limit line.

Chinese and English menu, easy to use

Both Chinese and English menus are available in the testers, one-click switching is very convenient.

Sleep energy-saving function

The analyzer has a sleep energy-saving function, and the sleep time can be set. When the sleep function is activated, the testers will automatically turn off the display or shut down if they are not operated for a certain period of time, thus saving electric energy and effectively extending the working time and service life of battery.

More cursors

8 independent cursors are provided, which can display the parameters of the cursor position and can also search for maximum, minimum or peak values. All cursors have the Δ mode, making the test reading easier. In addition, the scale on the left side of the display can facilitate the judgment of the test results.

Automatic software upgrade of USB disk

4957D/E/F analyzers have USB interfaces that can be used for intelligent software upgrade and data backup. You can easily use the USB disk to perform software upgrade and maintenance on the instrument. It takes only a few steps and is simple and quick. You can restart the instrument after the upgrade.

Typical Application

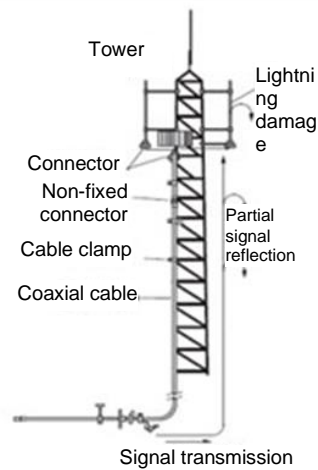
4957D/E/F microwave analyzers are compact and portable. With many test parameters and comprehensive test functions, they are very suitable for multi-parameter test occasions, and can be battery-powered. As a powerful tool for field engineering installation, debugging, daily maintenance and repair of various microwave electronics, the testers can be widely used in various fields such as radar, communication, radio & television and radio management, and are also a good choice for teaching in colleges and universities.

Test of main performance parameters of radar

With full functions, 4957D/E/F analyzers can test the main performance parameters of radar antenna feeder, transmitting/receiving subsystem and other subsystems up to 18GHz/26.5GHz/40GHz, including the SWR, reflectance, insertion loss, return loss and impedance characteristics of antenna feeder subsystem, the transmitting signal frequency and spectrum characteristics of transmitting subsystem, and the center frequency, gain, differential loss, bandwidth and dynamic range of receiving subsystem.

Multi-parameter test in such fields as cable TV and wireless communication

Cable TV, cellular telephone system, digital mobile communication operators and equipment manufacturers use 4957D/E/F testers to perform integrated test on spectrum distribution, antenna feeder contact performance, S parameters of components and parts and feedthrough power in the field.



Technical Specifications

		4957D	4957E	4957F
Antenna feeder test	Frequency range	30kHz~18GHz	30kHz~26.5GHz	50MHz~40GHz (Minimum frequency can up to 10MHz)
	Frequency accuracy	$\pm 1 \times 10^{-6}$		
	Power level	Large, small		
	Data points	11~10001		
	Effective directivity	≥ 40 dB 2MHz~500MHz ≥ 36 dB 500MHz~9GHz ≥ 32 dB 9GHz~18GHz	≥ 40 dB 2MHz~500MHz ≥ 36 dB 500MHz~9GHz ≥ 32 dB 9GHz~18GHz ≥ 30 dB 18GHz~26.5GHz	≥ 35 dB 50MHz~500MHz ≥ 32 dB 500MHz~18GHz ≥ 30 dB 18GHz~26.5GHz ≥ 28 dB 26.5GHz~40GHz
Vector network analysis	Frequency range	30kHz~18GHz	30kHz~26.5GHz	50MHz~40GHz (Minimum frequency can up to 10MHz)
	Frequency accuracy	$\pm 1 \times 10^{-6}$		
	Power range	Large, small, manual		
	Output power accuracy	± 2.5 dB 10MHz~18GHz	± 2.5 dB 10MHz~26.5GHz	± 2.5 dB 10MHz~26.5GHz ± 3.0 dB 26.5GHz~40GHz
	Effective source match	≥ 37 dB 2MHz~500MHz ≥ 30 dB 500MHz~9GHz ≥ 28 dB 9GHz~18GHz	≥ 37 dB 2MHz~500MHz ≥ 30 dB 500MHz~9GHz ≥ 28 dB 9GHz~18GHz ≥ 25 dB 18GHz~26.5GHz	≥ 30 dB 50MHz~500MHz ≥ 25 dB 500MHz~18GHz ≥ 22 dB 18GHz~26.5GHz ≥ 18 dB 26.5GHz~40GHz
	Transmission tracking	± 0.25 dB 2MHz~500MHz ± 0.29 dB 500MHz~9GHz ± 0.33 dB 9GHz~18GHz	± 0.25 dB 2MHz~500MHz ± 0.29 dB 500MHz~9GHz ± 0.33 dB 9GHz~18GHz ± 0.35 dB 18GHz~26.5GHz	± 0.25 dB 50MHz~500MHz ± 0.29 dB 500MHz~9GHz ± 0.33 dB 9GHz~18GHz ± 0.35 dB 18GHz~26.5GHz ± 0.40 dB 26.5GHz~33GHz ± 0.50 dB

				26.5GHz~40GHz
	Reflection tracking	$\pm 0.10\text{dB}$ 2MHz~500MHz $\pm 0.13\text{dB}$ 500MHz~9GHz $\pm 0.14\text{dB}$ 9GHz~18GHz	$\pm 0.10\text{dB}$ 2MHz~500MHz $\pm 0.13\text{dB}$ 500MHz~9GHz $\pm 0.14\text{dB}$ 9GHz~18GHz $\pm 0.21\text{dB}$ 18GHz~26.5GHz	$\pm 0.10\text{dB}$ 50MHz~500MHz $\pm 0.13\text{dB}$ 500MHz~9GHz $\pm 0.14\text{dB}$ 9GHz~18GHz $\pm 0.21\text{dB}$ 18GHz~26.5GHz $\pm 0.25\text{dB}$ 26.5GHz~33GHz $\pm 0.30\text{dB}$ 33GHz~40GHz
	System dynamic range	$\geq 85\text{ dB}$ 2MHz~18GHz	$\geq 85\text{ dB}$ 2MHz~18GHz $\geq 80\text{ dB}$ 18GHz~26.5GHz	$\geq 85\text{ dB}$ 50MHz~18GHz $\geq 80\text{ dB}$ 18GHz~26.5GHz $\geq 75\text{ dB}$ 26.5GHz~33GHz $\geq 65\text{ dB}$ 33GHz~40GHz
	Effective directivity	$\geq 40\text{ dB}$ 2MHz~500MHz $\geq 36\text{ dB}$ 500MHz~9GHz $\geq 32\text{ dB}$ 9GHz~18GHz	$\geq 40\text{ dB}$ 2MHz~500MHz $\geq 36\text{ dB}$ 500MHz~9GHz $\geq 32\text{ dB}$ 9GHz~18GHz $\geq 30\text{ dB}$ 18GHz~26.5GHz	$\geq 35\text{ dB}$ 50MHz~500MHz $\geq 32\text{ dB}$ 500MHz~18GHz $\geq 30\text{ dB}$ 18GHz~26.5GHz $\geq 28\text{ dB}$ 26.5GHz~40GHz
Power monitoring	Frequency range	100kHz~18GHz	100kHz~26.5GHz	100kHz~40GHz
	Power range	-60dBm~+20dBm	-60dBm~+20dBm	-50dBm~+20dBm
Spectrum analysis mode	Frequency range	100kHz~18GHz	100kHz~26.5GHz	100kHz~40GHz
	Resolution bandwidth	10Hz~5MHz (1, 3, 10 steps) Accuracy(3.0Db): $\pm 10\%$ 3kHz~3MHz $\pm 15\%$ 5MHz		
	Video bandwidth	1Hz~5MHz (1, 3, 10 steps)		
	Display average noise level	Pre-amplifier(off)	$\leq -135\text{dBm}$ 2MHz~4.5GHz $\leq -131\text{dBm}$ 4.5GHz~7GHz $\leq -127\text{dBm}$ 7GHz~13GHz	$\leq -135\text{dBm}$ 2MHz~4.5GHz $\leq -131\text{dBm}$ 4.5GHz~7GHz $\leq -127\text{dBm}$ 7GHz~13GHz

			$\leq -120\text{dBm}$ 13GHz~18GHz	$\leq -120\text{dBm}$ 13GHz~18GHz $\leq -116\text{dBm}$ 18GHz~ 26.5GHz	$\leq -120\text{dBm}$ 13GHz~18GHz $\leq -116\text{dBm}$ 18GHz~26.5GHz $\leq -113\text{dBm}$ 26.5GHz~40GHz
	Pre-amplifier(on)		$\leq -151\text{dBm}$ 2MHz~4.5GHz $\leq -147\text{dBm}$ 4.5GHz~7GHz $\leq -145\text{dBm}$ 7GHz~13GHz $\leq -$ 140dBm 13GHz~18GHz	$\leq -151\text{dBm}$ 2MHz~4.5GHz $\leq -147\text{dBm}$ 4.5GHz~7GHz $\leq -145\text{dBm}$ 7GHz~13GHz $\leq -140\text{dBm}$ 13GHz~18GHz $\leq -$ 138dBm 18GHz~26.5GHz	$\leq -151\text{dBm}$ 2MHz~4.5GHz $\leq -147\text{dBm}$ 4.5GHz~7GHz $\leq -145\text{dBm}$ 7GHz~13GHz $\leq -$ 140dBm 13GHz~18GHz $\leq -138\text{dBm}$ 18GHz~26.5GHz $\leq -135\text{dBm}$ 26.5GHz~40GHz
	Phase Noise	$\leq -99\text{dBc/Hz}@100\text{kHz}$			
	(CF=1GHz)	$\leq -110\text{dBc/Hz}@1\text{MHz}$			
	Total absolute amplitude accuracy	$\pm 2.0\text{dB}$ 10MHz~18GHz	$\pm 2.0\text{dB}$ 10MHz~18GHz $\pm 2.3\text{dB}$ 18GHz~26.5GHz	$\pm 2.0\text{dB}$ 10MHz~18GHz $\pm 2.3\text{dB}$ 18GHz~26.5GHz $\pm 2.7\text{dB}$ 26.5GHz~40GHz	
	Residual response	$\leq -80\text{dBm}$			$\leq -70\text{dBm}$
	Maximum safe input level	+27dBm			
Type of test port	N-type (female)		3.5mm (male)	2.4mm (male)	
Power supply	Rechargeable lithium-ion battery or power adapter				
Power consumption	$\leq 45\text{W}$ (excluding battery charging)				
Operating temperature	$-10^{\circ}\text{C} \sim +55^{\circ}\text{C}$				
Storage temperature	$-50^{\circ}\text{C} \sim +70^{\circ}\text{C}$				
Maximum weight	5.3kg (excluding battery)				

Maximum dimensions (width x height x depth)	315mmx220mmx102mm (excluding handle and bracket)
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Ordering information

- **Main Unit**

4957D microwave analyzer: 100kHz/30kHz - 18GHz

4957E microwave analyzer: 100kHz/30kHz - 26.5GHz

4957F microwave analyzer: 100kHz/50MHz - 40GHz

- **Standard configuration:**

No.	Designation	Description
1	Power cord assembly	Standard three-core power cord Power adapter: Input 100 - 240V 50/60Hz Output 15V 4A Rechargeable lithium-ion battery
2	CD	Containing user manual, programming manual, USB driver, program-controlled function library, program-controlled example, and installation file required for program-controlled function library
3	Quick start guide	QuickStart
4	Certificate of conformity	Factory certificate
5	USB cable	

- **Options:**

Model	Designation	Function
4957D-01	User manual	-
4957D-02	Programming manual	-
4957D-03	English User manual	
4957D-04	English Programming manual	
4957D-S02	Antenna feeder test (software)	Used for test of return loss, SWR and breakpoints of cables and feeders
4957D-S03	Vector voltmeter (software)	Used for test of cable phase shift and electrical length
4957D-S04	USB power measurement (software, USB power sensor required)	Support external USB power sensor to accurately measure continuous wave signal power
4957D-S05	Power monitoring (software)	Receive external signals from the spectrum input port to measure signal power
4957D-S06	Field strength measurement (software, antenna required)	Provide the corresponding antenna to measure the field strength

4957D-S07	GPS positioning (software, including GPS antenna)	Provide geographical information such as longitude, latitude and altitude
4957D-S08	Provide Electronic calibration software	For the VNA, Cable and Antenna, Vector Voltage meter calibration measurement
4957D-H01	Rechargeable lithium-ion battery	Backup battery
4957D-H02	AC-DC Adapter	Backup
4957D-H03	English (panel, keys, signs)	For customers unfamiliar with Chinese or export
4957D-H04	31101A N-type male calibration kit	DC-18GHz, used for vector network analysis, antenna feeder test and vector voltmeter calibration
4957D-H05	31101B N-type female calibration kit	DC-18GHz, used for vector network analysis, antenna feeder test and vector voltmeter calibration
4957D-H06	31121 3.5mm calibration kit	DC-26.5GHz, used for vector network analysis, antenna feeder test and vector voltmeter calibration
4957D-H07	31123 2.4mm calibration kit	DC-40GHz, used for vector network analysis, antenna feeder test and vector voltmeter calibration
4957D-H08	N-type male-male calibration cable GORE-OSZKUZKU0240	Cable for calibration and test
4957D-H09	N-type female-male calibration cable GORE-OSZKUZKV0240	Cable for calibration and test
4957D-H10	3.5mm female-female calibration cable GORE-0RD02D02024.0	Cable for calibration and test
4957D-H11	3.5mm female-male calibration cable GORE-0RD01D02024.0	Cable for calibration and test
4957D-H12	2.4mm female-female calibration cable GORE-0K0CK0CK024.0	Cable for calibration and test
4957D-H13	2.4mm female-male calibration cable GORE-0K0CJ0CK024.0	Cable for calibration and test
4957D-H14	87230 USB continuous wave power sensor	9kHz~6GHz, used for high-precision power measurement
4957D-H15	87231 USB continuous wave power sensor	10MHz~18GHz, used for high-precision power measurement
4957D-H16	87232 USB continuous wave power sensor	50MHz~26.5GHz, used for high-precision power measurement
4957D-H17	87233 USB continuous wave power sensor	50MHz~40GHz, used for high-precision power measurement
4957D-H18	89101A antenna	10kHz~20MHz, used for field strength measurement
4957D-H19	89101B antenna	20MHz~200MHz, used for field strength measurement

4957D-H20	89101C antenna	200MHz~500MHz, used for field strength measurement
4957D-H21	89101D antenna	500MHz~4000MHz, used for field strength measurement
4957D-H22	89901 antenna	1GHz~18GHz, used for field strength measurement
4957D-H23	89401 antenna amplifier	10kHz~4000MHz, used for field strength measurement
4957D-H24	71522D attenuator	40dB, 25W, used for high power measurement
4957D-H25	71523C attenuator	40 dB, 50W, used for high power measurement
4957D-H26	71524C attenuator	40 dB, 100W, used for high power measurement
4957D-H27	71101 Adapter	N (f)-N (f), used for switching between connectors
4957D-H28	71115 Adapter	3.5mm (m)-N (f), used for switching between connectors
4957D-H29	71116 Adapter	3.5mm (m)-N (m), used for switching between connectors
4957D-H30	71117 Adapter	3.5mm (f)-N (m), used for switching between connectors
4957D-H31	81101 Adapter	N (m)-N (f), used for switching between connectors
4957D-H32	Soft backpack	For carrying
4957D-H33	Aluminum alloy carrying case	For transportation
4957D-H34	Waterproof safety box	For transportation
4957D-H35	89901 antenna controller	Use with 89901(H22) antenna
4957D-H36	20402 Electronic calibration kit	300kHz~18GHz
4957D-H37	20403 Electronic calibration kit	10MHz~26.5GHz
4957D-H38	20404 Electronic calibration kit	10MHz~50GHz

Ce/year
Focus on Measurement
Explore the Future

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