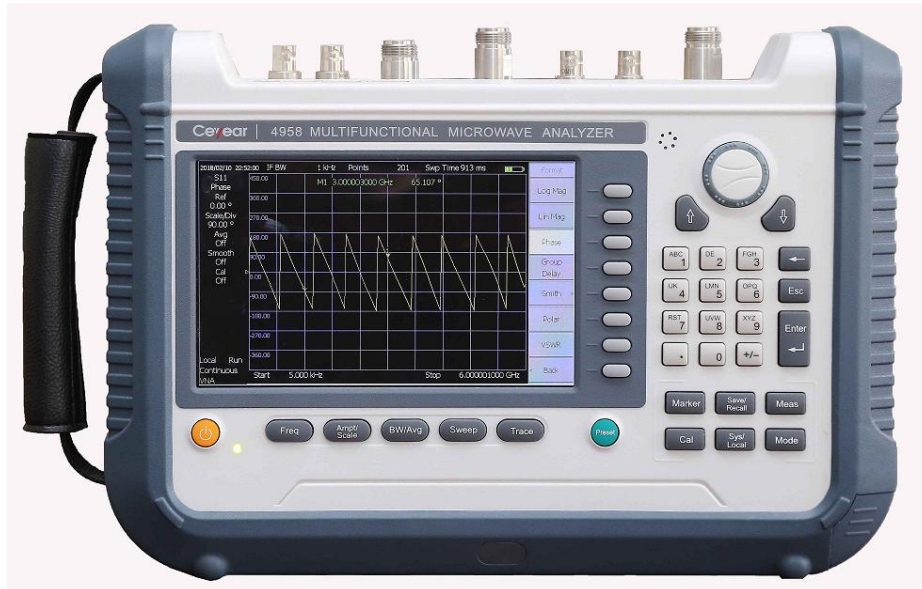


4958 Multifunctional Microwave Analyzer

(1MHz~20GHz)



Product Overview

4958 Multifunctional Microwave Analyzer integrates multiple functions, such as tests of cable and antenna SWR, distance to fault (DTF), insertion loss and gain, spectrum analysis and power measurement, etc. It is flexible and convenient to carry with the frequency range from 1MHz to 20GHz. Battery is available for power supply, which makes it suitable for field tests. Used widely in several fields including field installation, performance test, daily maintenance and emergency maintenance test of electronic equipment in terms of radar, communication and ECM. The analyzer can help upgrade field repair and support of users.

Main Characteristics

- ◆ Multiple measurement modes:
 - Cable & Antenna test: for test of cable and antenna (return loss, DTF, etc.);
 - Network analysis: for test of full S-parameters (various display types);
 - Spectrum analysis: for spectrum analysis (channel power, occupied bandwidth, etc.);
 - Power monitoring: for power measurement;
 - Vector voltage measurement: for measurement of vector voltage;
 - USB power measurement: for power measurement of USB interface.
- ◆ High performance:
 - Frequency range of Cable & Antenna test is 1MHz~20GHz, frequency resolution is 10Hz;
 - Frequency range of network analysis is 1MHz~20GHz, frequency resolution is 10Hz, dynamic range

is 80dB~95dB;

Frequency range of spectrum analysis is 100KHz~20GHz, sideband noise is -105dBc/Hz@1MHz (1GHz carrier).

◆ Flexibility:

Small and light with built-in battery, provides easy field operation;

Perfect auto diagnosis and auto status test;

Intelligent power management, indication of remaining capacity and low capacity alarm.

◆ Friendly man-analyzer interfaces:

Chinese and English menus with instructions and help info;

7-inch high-brightness true-color TFT LCD, good visibility even under direct sunlight.

◆ Universal interfaces:

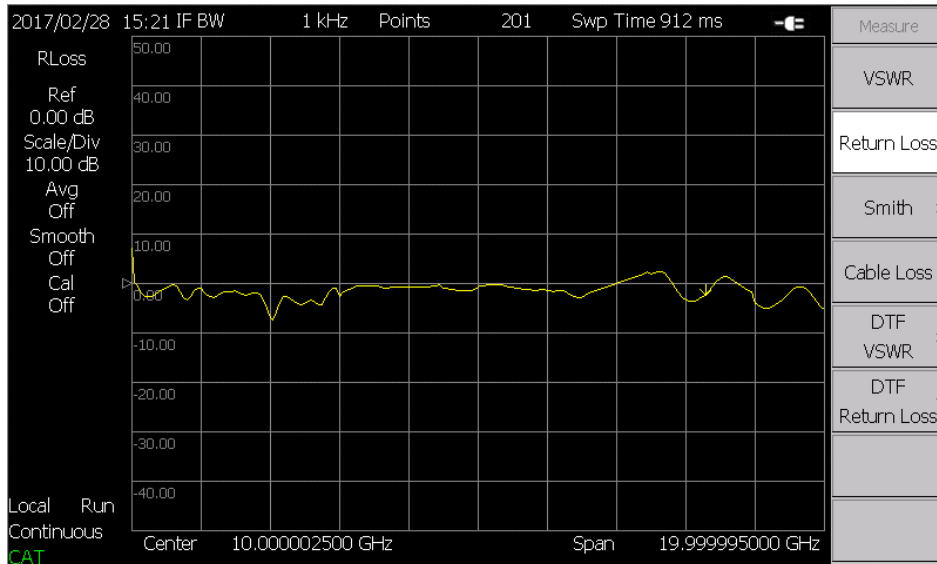
External input bias T is available, provides power supply for active DUT;

Two types of USB2.0 interfaces, for connection of portable storage device and communication with PC;

One 100M network interface, for construction of local network or remote control.

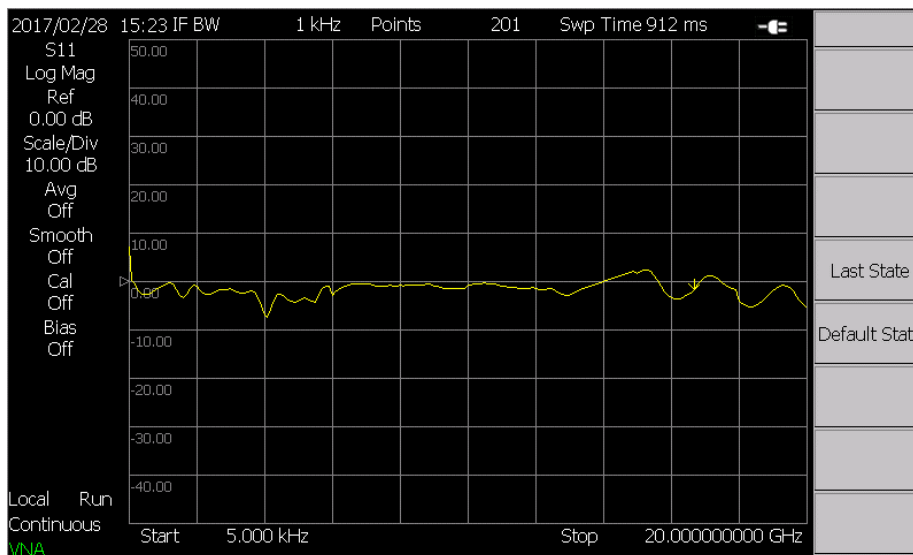
Cable & antenna test

Frequency range of the Cable & Antenna test is 1MHz~20GHz, frequency resolution is 10Hz. It can measure voltage SWR, return loss, impedance, cable loss of DUT and other parameters. DTF is also available to identify impedance mismatch precisely.



Network analysis

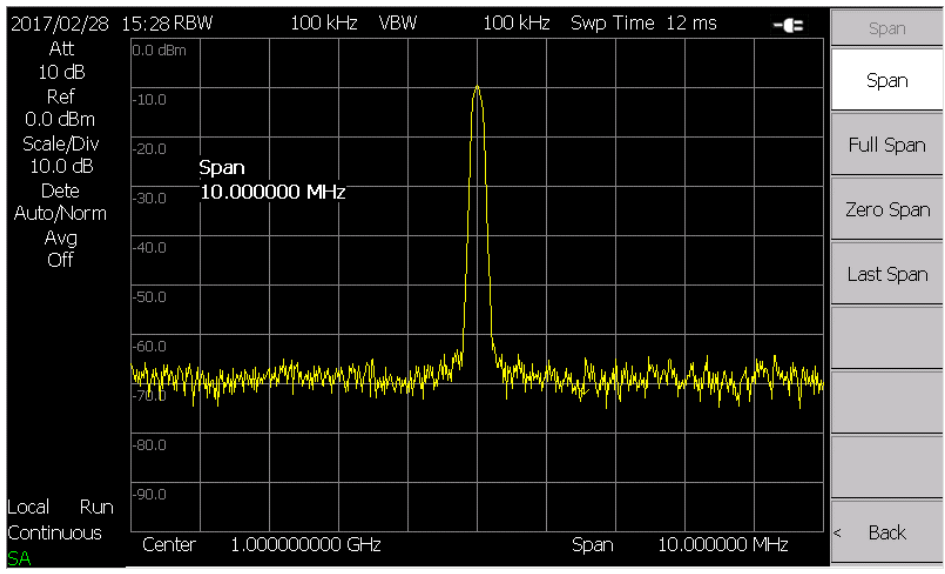
Frequency range of the network analysis is 1MHz~20GHz, frequency resolution is 10Hz. Analysis and measurement of full 4S-parameters vector network are all available. The analyzer can test full S-parameters of amplifiers, filters, attenuators and diplexers, etc., with display formats as logarithmic, linear, phase, impedance, polar coordinates and so on.



Spectrum analysis

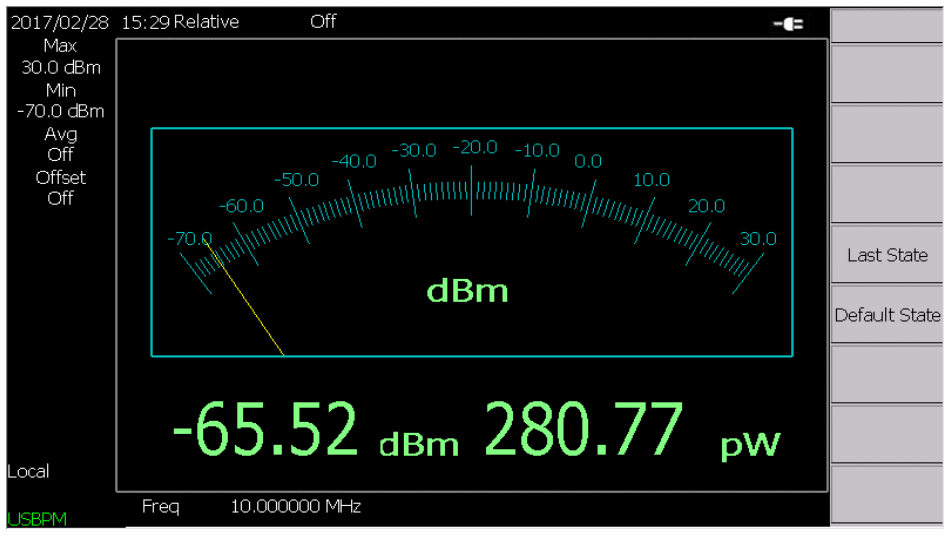
Frequency range of spectrum analysis is 100kHz~20GHz. With the features of wide frequency band, high resolution, high level of sensitivity, large dynamic range, etc., it can acquire special info which cannot be easily

obtained from time-domain measurement, such as spectrum purity, signal distortion, spurious signal, inter-modulation and so on.



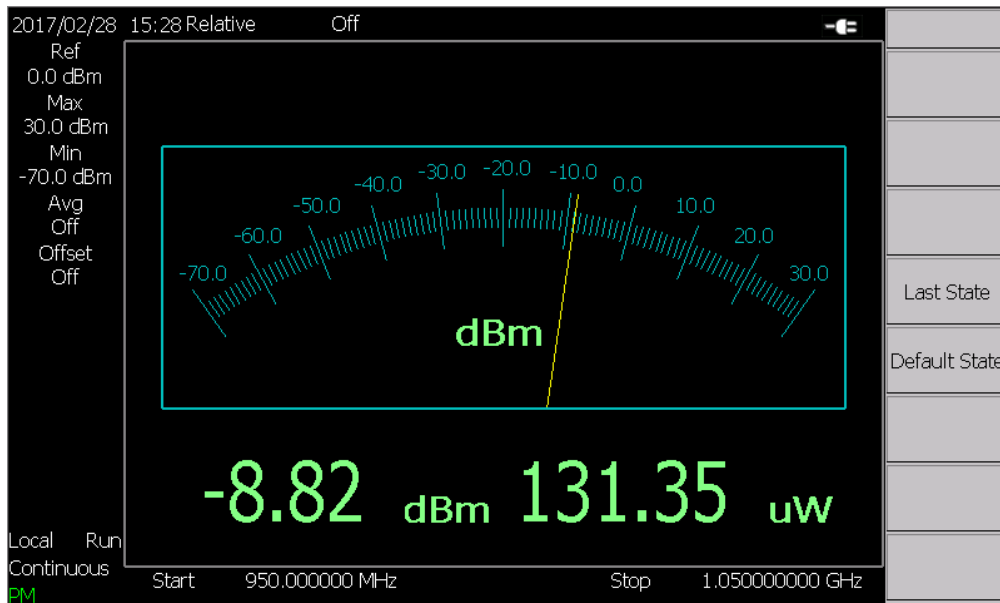
USB power measurement (option)

Users may choose 8723X Series USB Power Sensor produced by CETI for power measurement, which can test the RF/microwave signal power at the frequency up to 40GHz.



Power Monitoring (option)

Frequency of power test ranges from 100KHz to 20GHz. And power measurement of signal is available by spectrum input port.



Vector Voltage Measurement (option)

Frequency range of vector voltage measurement is from 1MHz to 20GHz. The analyzer can achieve accurate test of cables or other pieces under test by deploying integration scheme instead of traditional vector voltage meter.



Typical Applications

◆ Test in multi fields:

- Test of filter
Test filter specs like insertion loss, ripple wave, out-of-band rejection, etc..
- Measurement of time domain
Test cable length and DTF by cable and antenna test or time domain of network analysis.
- Test of radar and communication system
Measure radar cross parameters

Be used in design of all kinds of military and civil radar systems to precisely test frequency, power and phase noise of all kinds of signals during R&D. It can also test different kinds of spurious signals, harmonic distortion and modulation characteristic of signals.

- Monitoring and management of spectrum

Manage RF signals within the control range and identify and search all kinds of interfering signals, such as monitoring and management of military radio, broadcast station, communication equipment, airport, base station and sensitive regions. Monitoring of radio is also available due to audio demodulation function of it.

- Monitoring of communication satellite

Monitor spectrum quality, power and power control status of satellite signals, determine and search interfering signals to keep safe, reliable and stable operation of satellite network.

- Test of RFID

For RF identification system, the analyzer is used for transmitting spurious radiation by interrogator and tests on filed strength, frequency deviation, occupied bandwidth, polling and timing measurement, etc..

- Test of Bluetooth

For tests on transmitter power, power spectrum, modulation, spurious radiation of transceiver of Bluetooth system, etc..

◆ Test of components, parts and instruments

To measure amplitude of S-parameters, phase and group delay of DUT with highly efficient and powerful capability at error correction, it is widely used in military and civil fields, such as components, radar, aerospace, electronic jamming and countermeasure, communication, radio and television.

For components like cables, connectors, amplifiers, filters, mixers, attenuators, isolators and couplers, the analyzer can conduct tests on parameters including gain, frequency response, bandwidth, insertion loss, conversion loss, isolation and distortion.

Be used for tests on several kinds of instruments and equipment. For example, the analyzer can test specs like frequency, power, phase noise, spurious, harmonic distortion and modulation characteristic in terms of maintenance, repair and monitoring of signal generators.



Technical Specifications


Item		Specifications
Cable & Antenna tester	Frequency range	1MHz~20GHz
	Frequency accuracy	$\pm 1 \times 10^{-6}$
	Frequency resolution	10Hz
	Data points	11, 21, 51, 101, 201, 501, 1001
	Effective directivity	32dB~42dB
	Effective source match	30dB
Network analysis	Frequency range	1MHz~20GHz
	Frequency accuracy	$\pm 1 \times 10^{-6}$
	Frequency resolution	10Hz
	Data points	11, 21, 51, 101, 201, 501, 1001
	IF bandwidth	10Hz~100kHz, 1-2-10 steps
	Effective directivity	32dB~42dB
	Effective source match	30dB
	S21 Dynamic range	80dB~95dB
Spectrum Analysis	Frequency range	100kHz~20GHz (usable to 9kHz)
	Tunable resolution	1Hz
	Span	100Hz~20GHz, 0Hz
	Resolution bandwidth	1Hz~3MHz, 1-3-10 steps
	Video bandwidth	1Hz~3MHz, 1-3-10 steps
	Noise sideband	$\leq -97\text{dBc/Hz}@10\text{kHz}$ (CF=1GHz) $\leq -98\text{dBc/Hz}@100\text{kHz}$ (CF=1GHz) $\leq -105\text{dBc/Hz}@1\text{MHz}$ (CF=1GHz)
	Displayed average noise level	$\leq -151\text{dBm/Hz}$ (10MHz~4GHz, preamplifier is on) $\leq -133\text{dBm/Hz}$ (10MHz~8GHz) $\leq -123\text{dBm/Hz}$ (8GHz~20GHz)
	absolute amplitude accuracy	$\pm 2.0\text{dB}$ (20°C~30°C, input 0dBm~-50dBm) $\pm 2.7\text{dB}$ (0°C~50°C, input 0dBm~-50dBm)
	Residual response	$\leq -80\text{dBm}$
	Reference level range	-80dBm~+30dBm

Item		Specifications
	Input VSWR	$\leq 1.7: 1$ ($\leq 6\text{GHz}$, typical value) $\leq 2.1: 1$ ($> 6\text{GHz}$, typical value)
Power measurement (option)	Frequency range	10MHz~18GHz (depending on the sensor, please see Options)
	Power range	Please see datasheet of sensor for more detail
	Power accuracy	Please see datasheet of sensor for more detail
Frequency measurement	Frequency range	100kHz~20GHz
	Frequency resolution	1Hz
	Frequency accuracy	$\pm[\text{readout frequency} \times (1 \times 10^{-6}(23^\circ\text{C}) + 10^{-6}/10^\circ\text{C}) + 10\text{Hz}]$
	Sensitivity	-40dBm
Interface	Test interface of cable and antenna	Type N(F)
	Test interface of VNA	Type N(F)
	Test interface of spectrum analysis	Type N(F)
Control interface	USB, LAN	
Operating temperature	0°C ~ +50°C	
Storage temperature	-40°C ~ +70°C	
Size	Max.:330mm (W)×230mm (H)×110mm (D)	
Weight	Less than 5kg	
Supply	AC	220V~ ±10%, 50Hz±5%
	Built-in battery	Nominal voltage: 10.8V, consecutive working time≥3h
Power consumption	≤28W	
Cooling method	Internal air cooling	

Ordering Information

Main Unit: 4958 Multifunctional Microwave Analyzer

Standard Package

No.	Description	Instruction	Diagram
1	User Manual	Offer guidance for users, introduce instrument functions	
2	Power Cord Set	Standard tri-prong power cord + AC-DC Adapter (Input: 100-240V~50/60Hz, 1.7A. Output: 18.0V-3.33A) Rechargeable lithium-ion battery	

Options

Model	Description	Function	Diagram
4958-H01	Rechargeable battery (NI2040HD)	Battery powered	
4958-H02	Type T male cal kit (31101A)	To calibrate main unit	
4958-H03	Type T female cal kit (31101B)	To calibrate main unit	
4958-H04	3.5mm cal kit (31121)	To calibrate main unit	
4958-H06	87231 USB Power sensor	Frequency Range: 10MHz~18GHz	
4958-H07	87232 USB Power sensor	Frequency Range: 50MHz~26.5GHz	
4958-H08	87233 USB Power sensor	Frequency Range: 50MHz~40GHz	
4958-H09	87230 USB Power sensor	Frequency Range: 9MHz~6GHz	
4958-H10	Multifunctional soft bag	Portable package and toolkit for main unit	
4958-H12	Type N test cable SC-35-MM-24-TVAC	For measurement	
4958-H13	3.5mm test cable SC-35-MM-24-TVAC	For measurement	
4958-H11	Transit case	Convenient for transportation	
4958-S01	USB power measurement (require USB power sensor in	Achieve power measurement by USB interface	

	addition)		
4958-S02	Power monitoring	For power measurement	
4958-S03	Vector voltmeter	For vector voltage measurement	
4958-S04	GPS positioning	For reporting current location	