TFN FMT715C

Handheld signal comprehensive analyzer

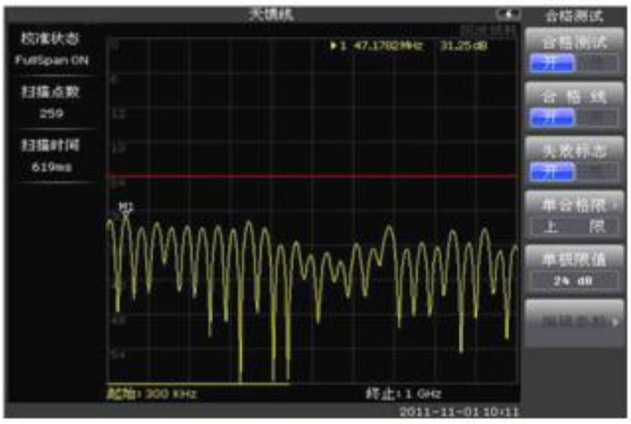
Antenna feeder tester (2MHZ-4400MHZ)

Spectrum analyzer (9KHZ-4400MHZ)

Interference analyzer (2MHZ-4400MHZ)

Excellent
Antenna feeder system testing

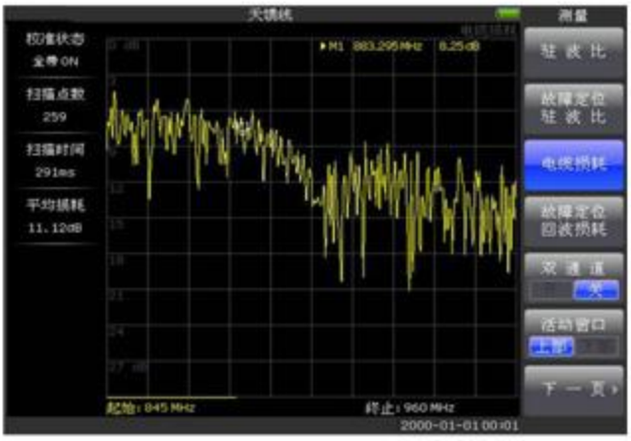
In the fault location analysis function, FDR technology is used to accurately locate small problems, allowing you to quickly measure the condition of the antenna feeder transmission system and improve its installation and debugging efficiency.



1

Fiber optic cable loss/standing wave ratio

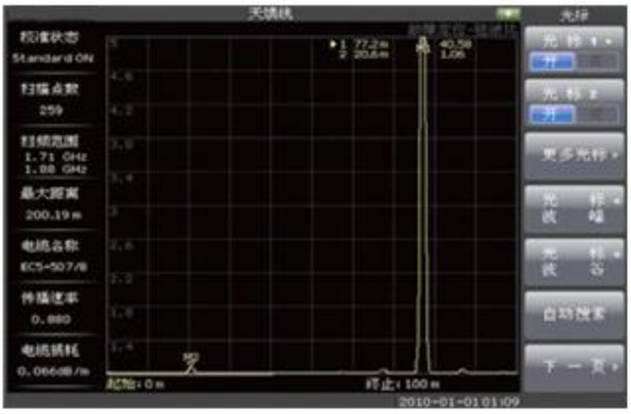
Poor return loss/standing wave ratio indicators can damage the transmitter, reduce the coverage area of the base station, increase call drop rates and call blocking, and reduce the speed of data services.



2

Cable loss

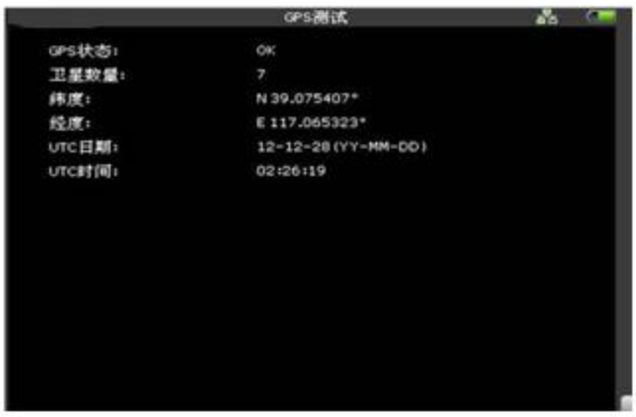
Cable loss measurement is very important. Excessive loss can reduce the coverage area of the base station, mask the issue of return loss, and produce seemingly good erroneous measurement results.



3

Fault point localization (DTF)

Fault location (DTF) represented by standing wave ratio and return loss can accurately distinguish and locate faulty cables, components, and connectors. The fault location displayed in meters or feet generally has poor return loss and standing wave ratio indicators. 2065 data points can allow you to obtain longer measurement distances without sacrificing resolution.



4

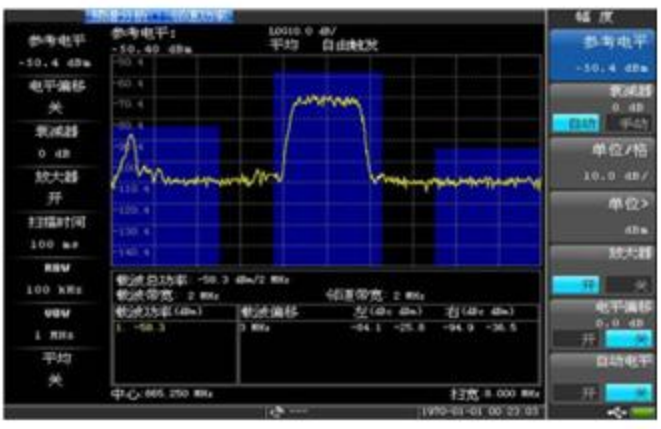
GPS testing

The time benchmark of CDMA stations needs to be synchronized with satellites. E7042C can help you confirm the number of satellites in use, ensuring accurate time benchmark at the measurement location.

Intuitive
Spectrum analysis interface

The main functions include channel power, adjacent channel power, occupied bandwidth, spectrum transmission template, harmonic analysis, field strength, FM/AM phase noise, third-order intermodulation, spurious emission, and dual window spectrum

1



Adjacent channel power test

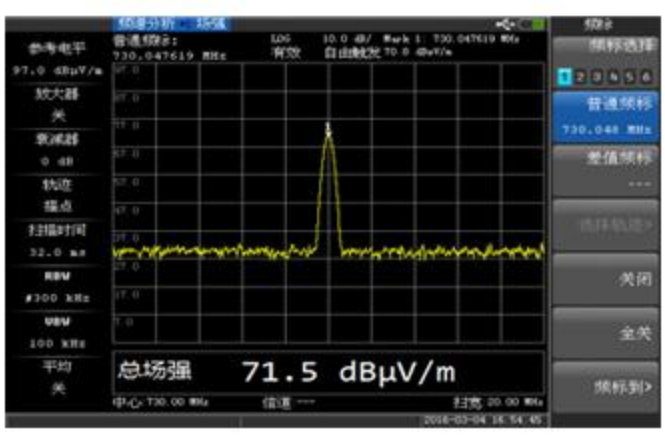
In the figure, use background bars to represent the frequency range and power of each channel. The higher the bar, the higher the amplitude. The power of the channel is displayed on the bar. The difference represents the power difference relative to the carrier channel.

2

Bandwidth occupancy test

In channel settings, settings can be manually entered for "channel interval" and "bandwidth occupancy percentage". The channel spacing is mainly used to measure the frequency range of the percentage power that accounts for the total power

3



Field strength measurement

The instrument is connected to an antenna, which can measure the spatial electromagnetic spectrum caused by the transmission system and automatically calculate the factor of the connected antenna.

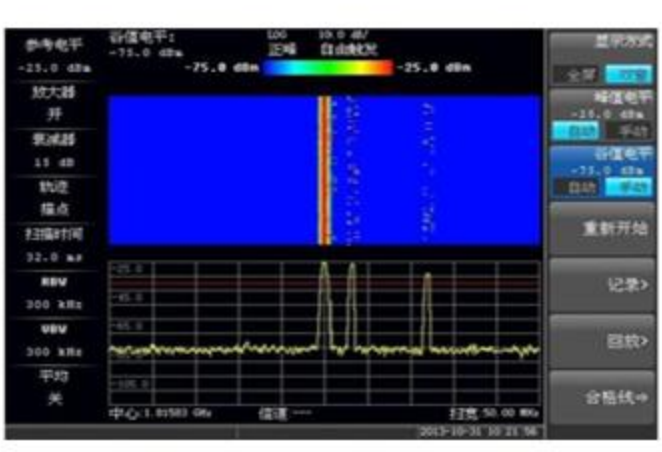
Adopt
Digital afterglow/spectrogram
Analyze interference signals

The main functions include digital afterglow, spectrogram, signal strength, received signal, intensity indication, differential spectrum, signal ID, carrier to interference ratio, shoulder, and interference localization (optional)

1

Digital afterglow test

In actual radio monitoring, it is common to encounter situations where multiple signals in the same frequency band are superimposed together, and strong signals mask weak signals. Traditional technical means for radio signal monitoring face many difficulties, while digital fluorescence technology.



2

Spectral testing

Recording the spectral changes over time in a continuous manner is effective for analyzing intermittent and sudden interference, and can record data continuously for up to 72 hours. For the saved data, it can be directly viewed in the form of video playback in the instrument, analyzing the spectrograms of each time and point. Through this method, we can identify the presence of sudden or instantaneous interference signals.

3

Signal strength test

Signal strength is used to measure the signal strength of a certain point frequency, where the MAX and MIX scales are used to set the range of signal strength that can be displayed currently. Turn on the sound within the current signal strength display range, and as the signal strength gradually increases, the frequency of the prompt sound will gradually increase.

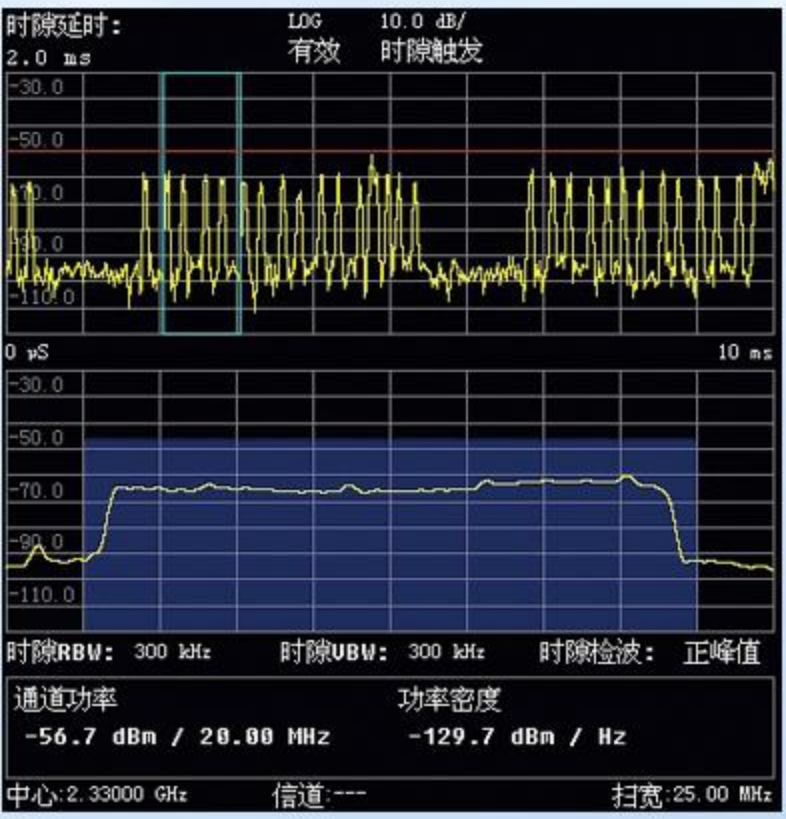
4

Received Signal Strength Indication (RSSI)

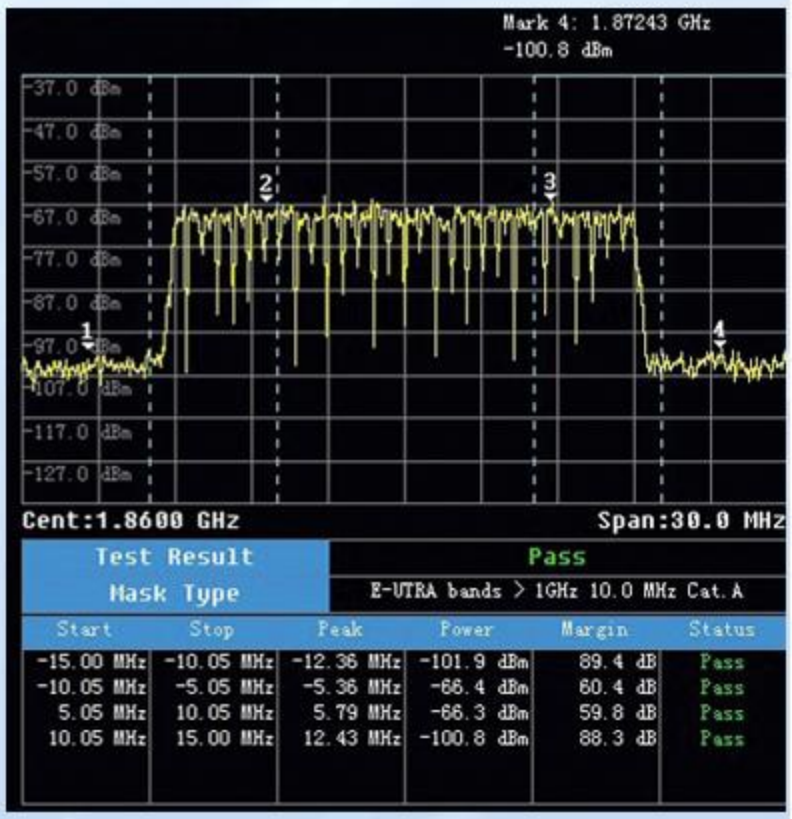
Observing the variation of signal strength over time at a certain frequency is mainly to record the variation of signals at each frequency point over time. Through this function, the characteristics of the main signal or interference signal can be identified within a time zone to determine whether it is stable.

Base station analysis and measurement

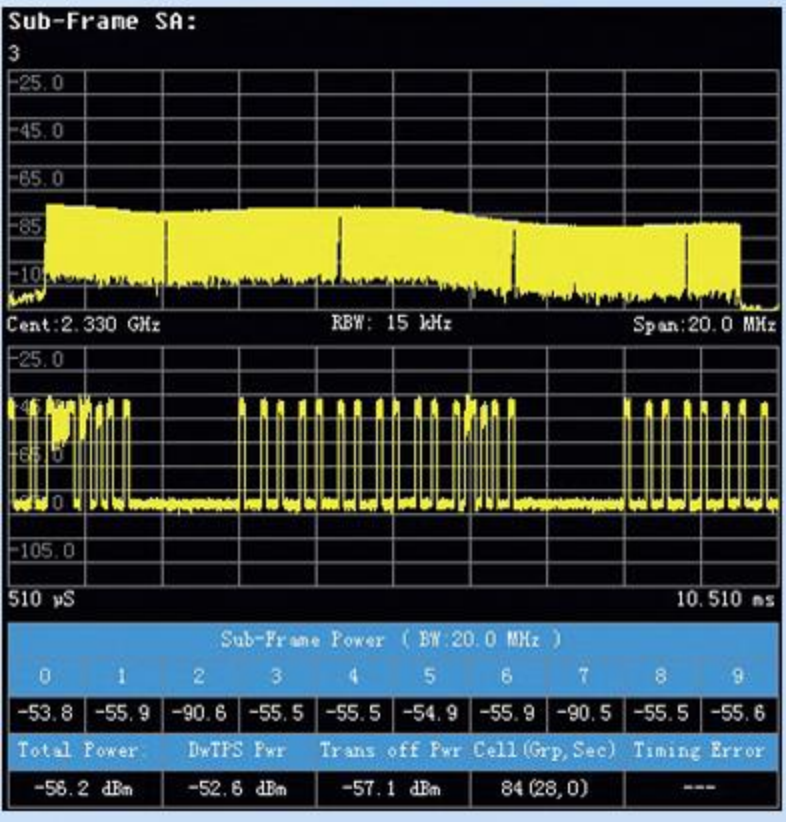
Base station RF testing includes channel power, occupied bandwidth (OBW), adjacent channel leakage ratio (ACLR), spectrum transmission template (SEM), and power time (PVT) measurements.



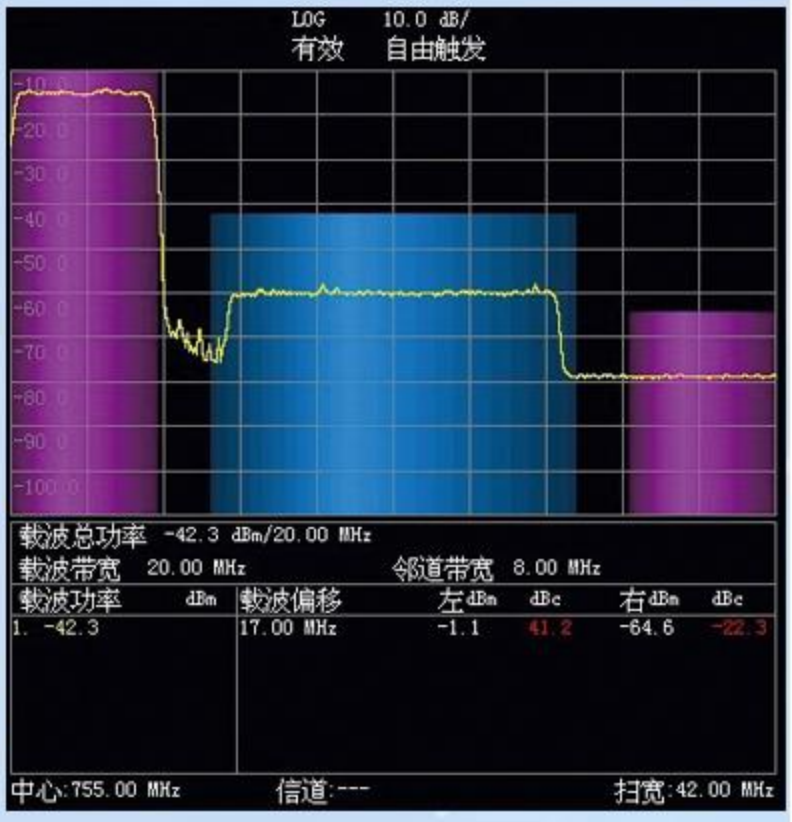
LTE power measurement



LTE spectrum transmission template



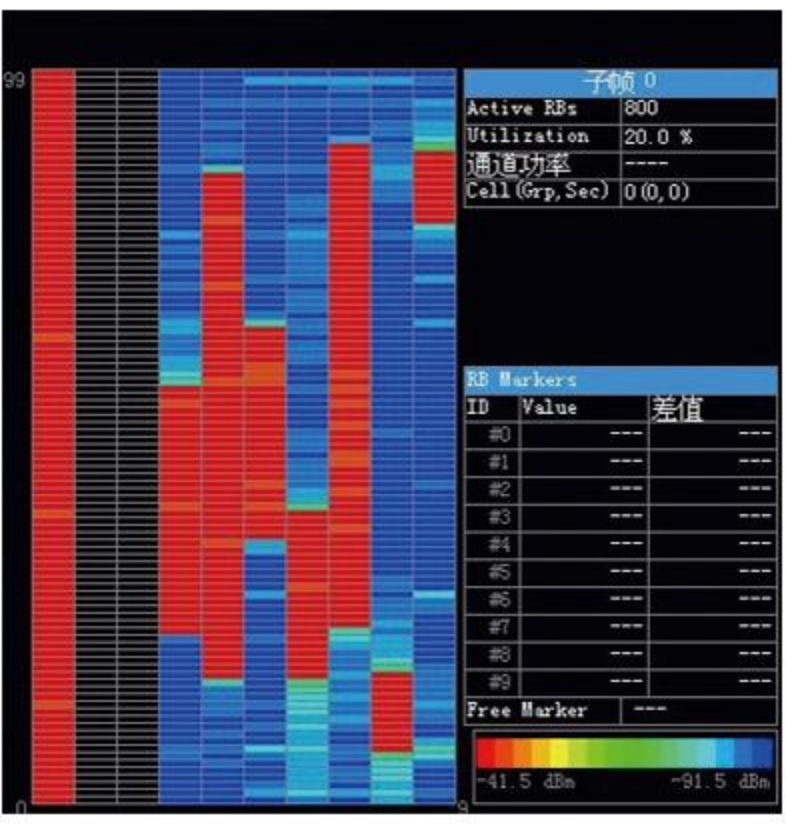
TDD-LTE subframe spectrum (PV) measurement



LTE-ACLR

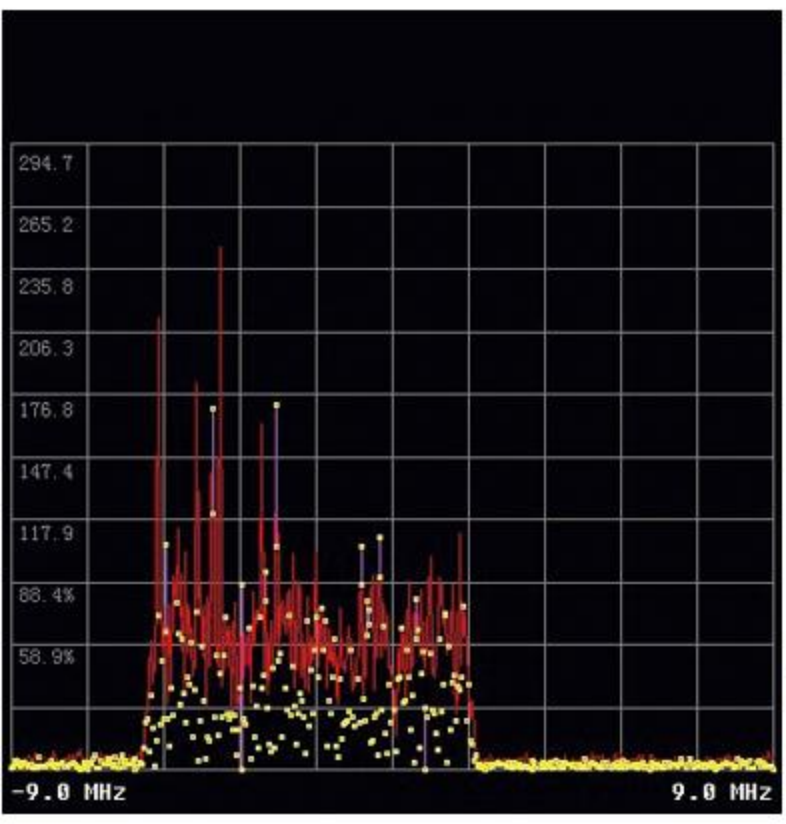
Demodulation analysis of base station signals

Measurement of FDD/TDD-LTE error vector amplitude (EVM), constellation diagram, resource block (RB) control channel power, uplink interference, co frequency interference, and other tests

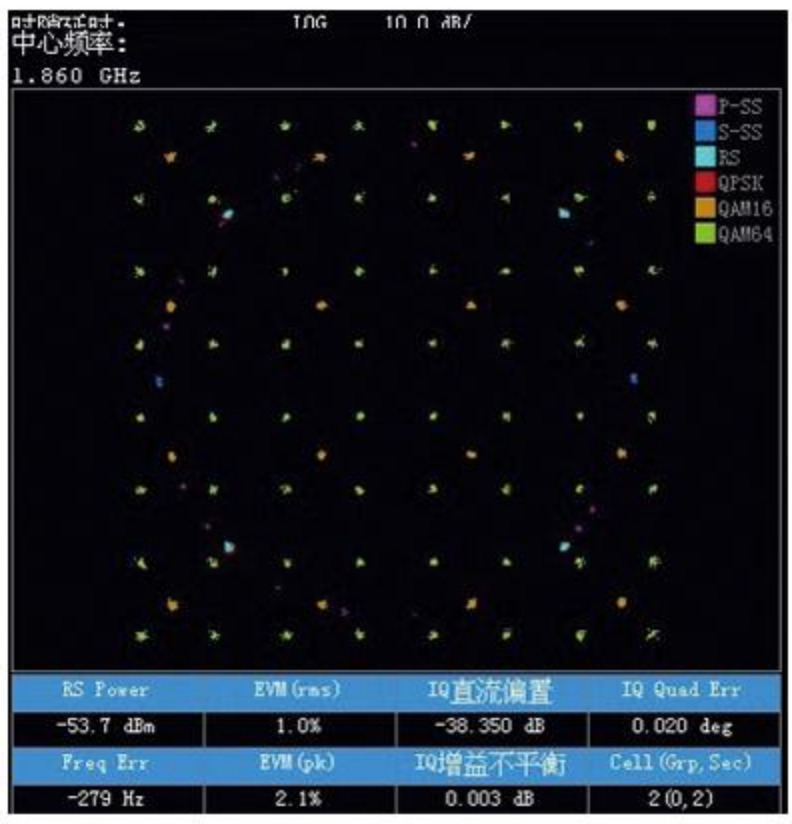


TDD-LTE RB resource block testing

Control channel power



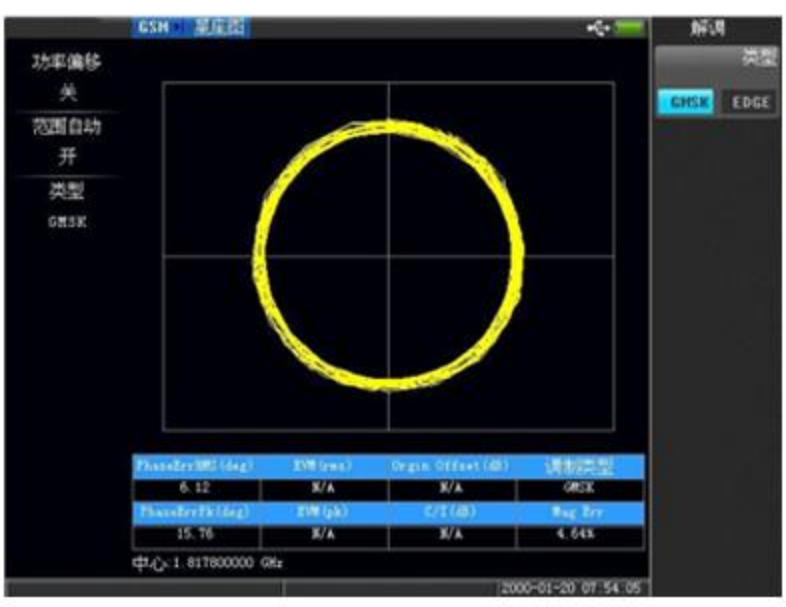
LTE demodulation co frequency interference test



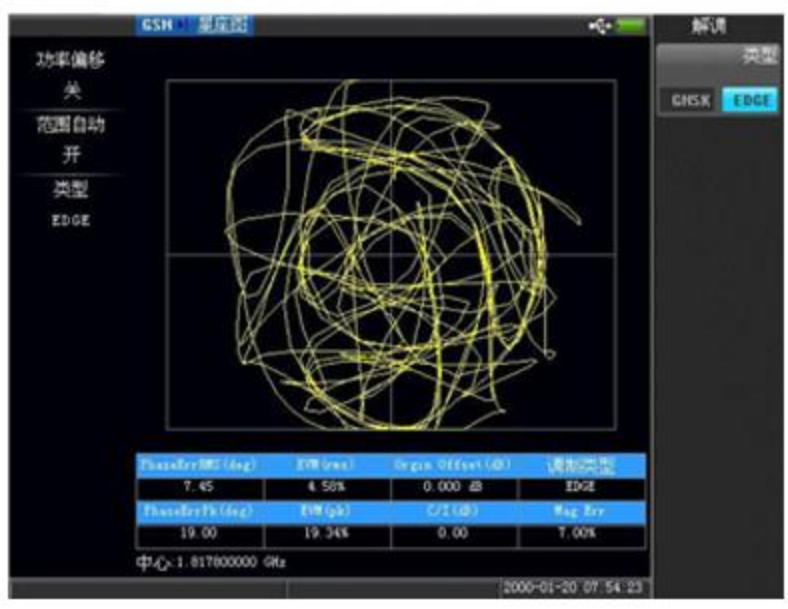
Constellation analysis

GDP testing

Single lane spectrum measurement

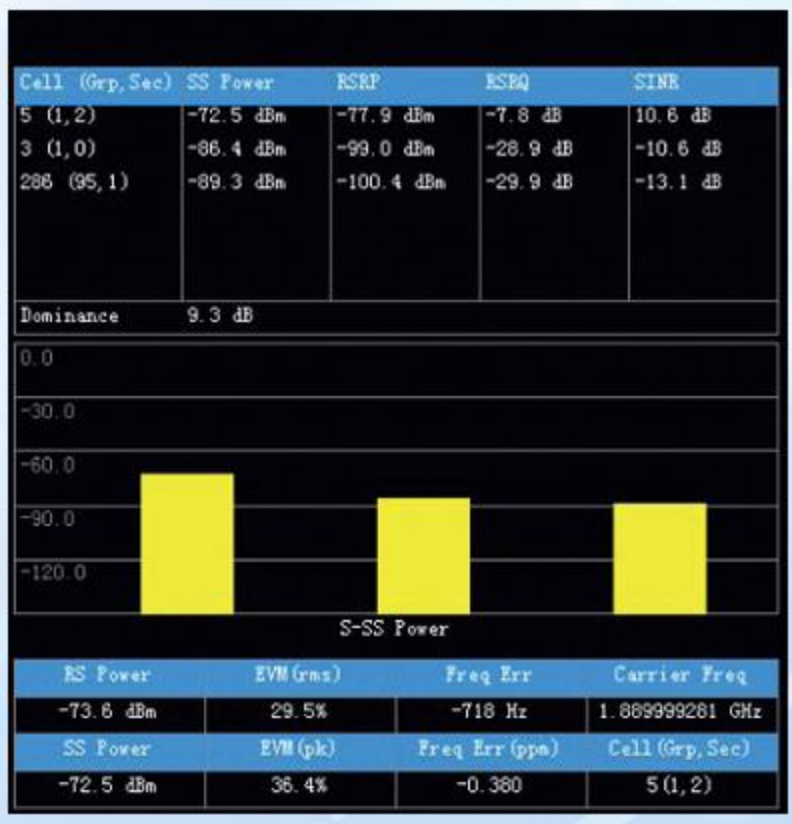


GMSK constellation diagram testing

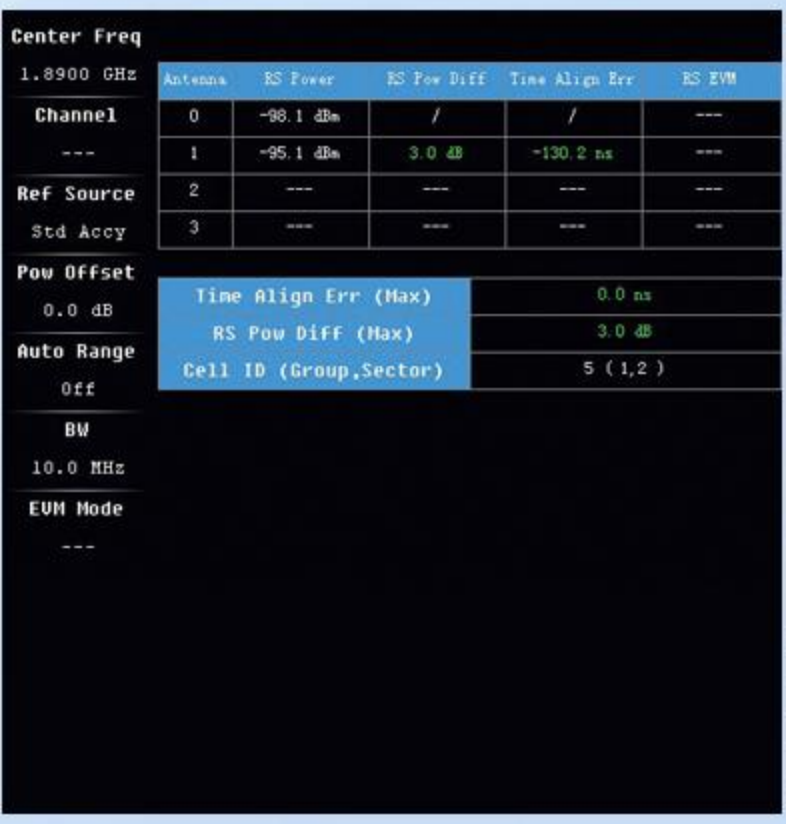


8PSK Constellation Chart Test

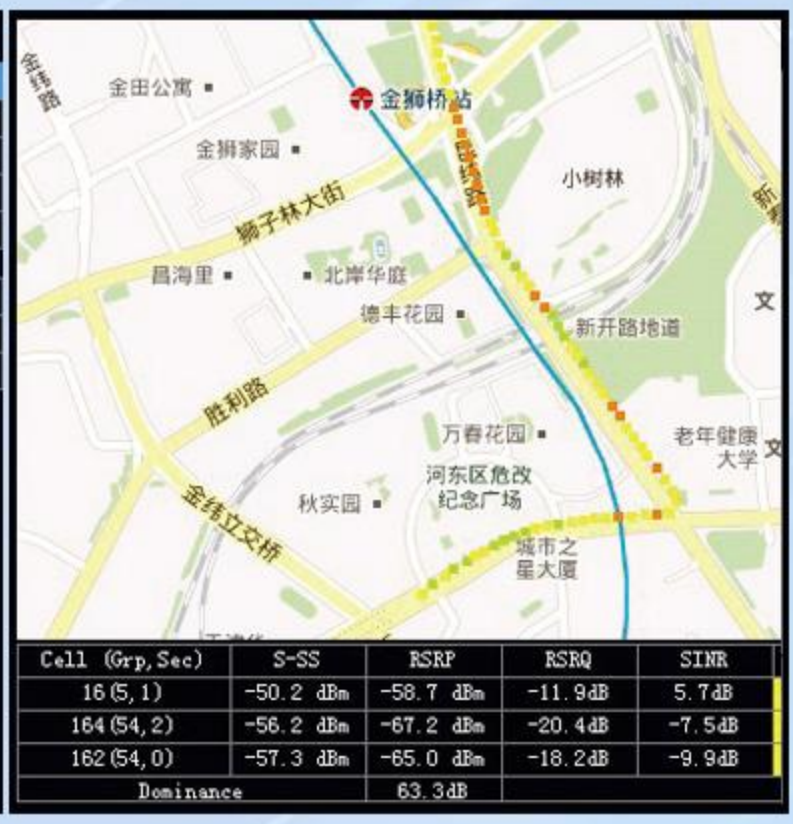
Air port testing provides frequency sweep function, LTE signal demodulation coverage, and LTE multi antenna testing.



Frequency scanner function

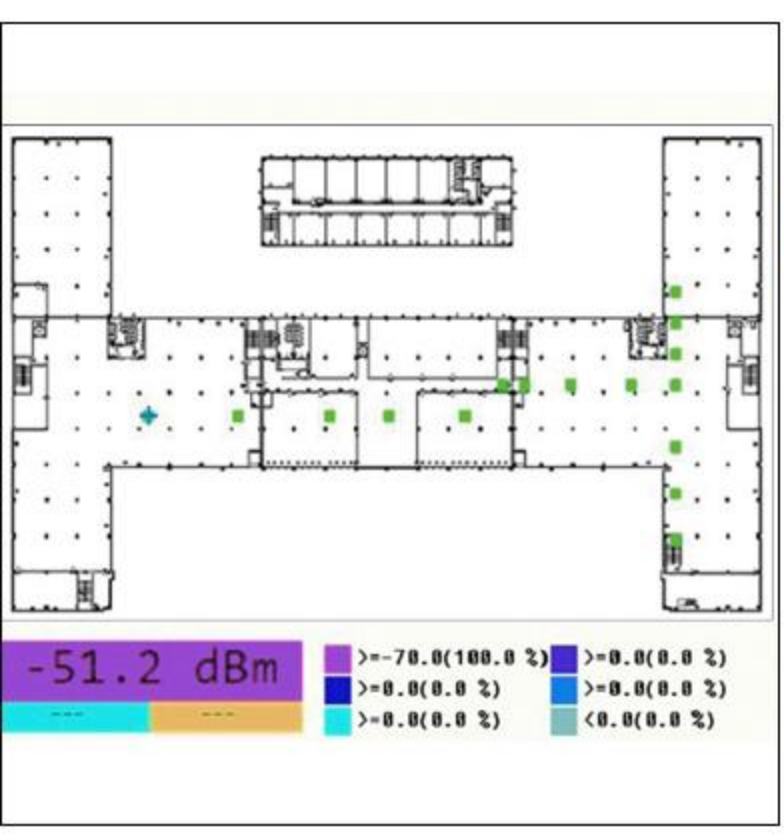


Multi antenna testing

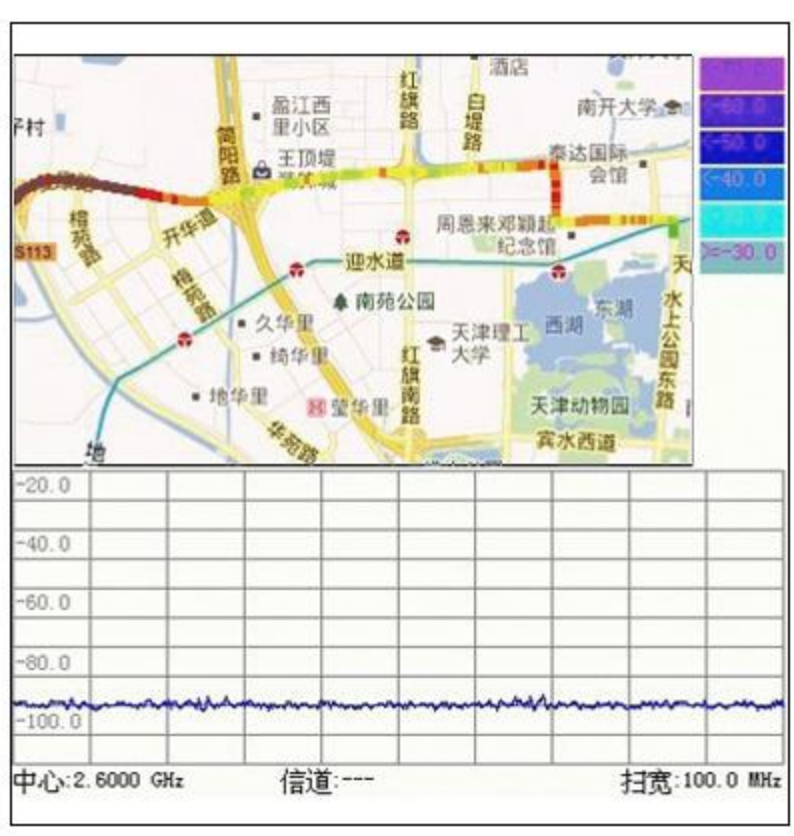


LTE coverage demodulation test

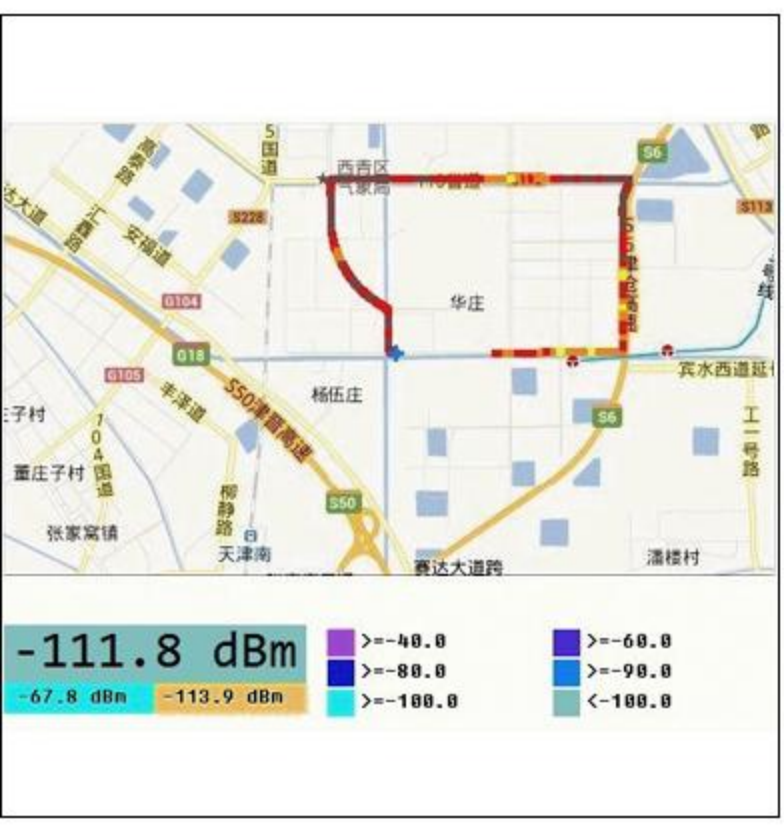
Floor covering options



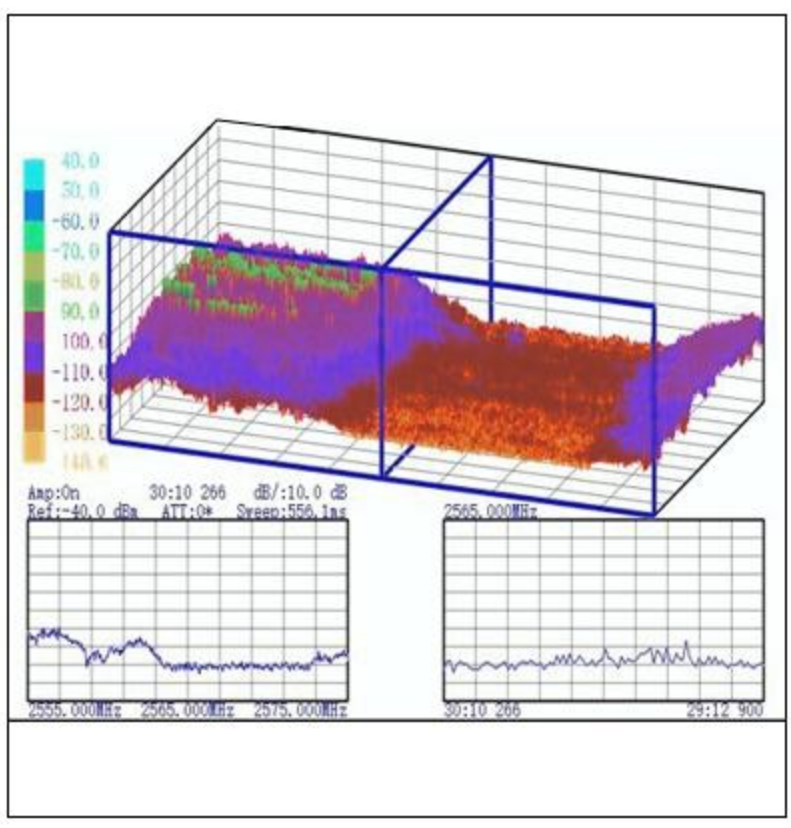
Indoor coverage testing



Clear network testing

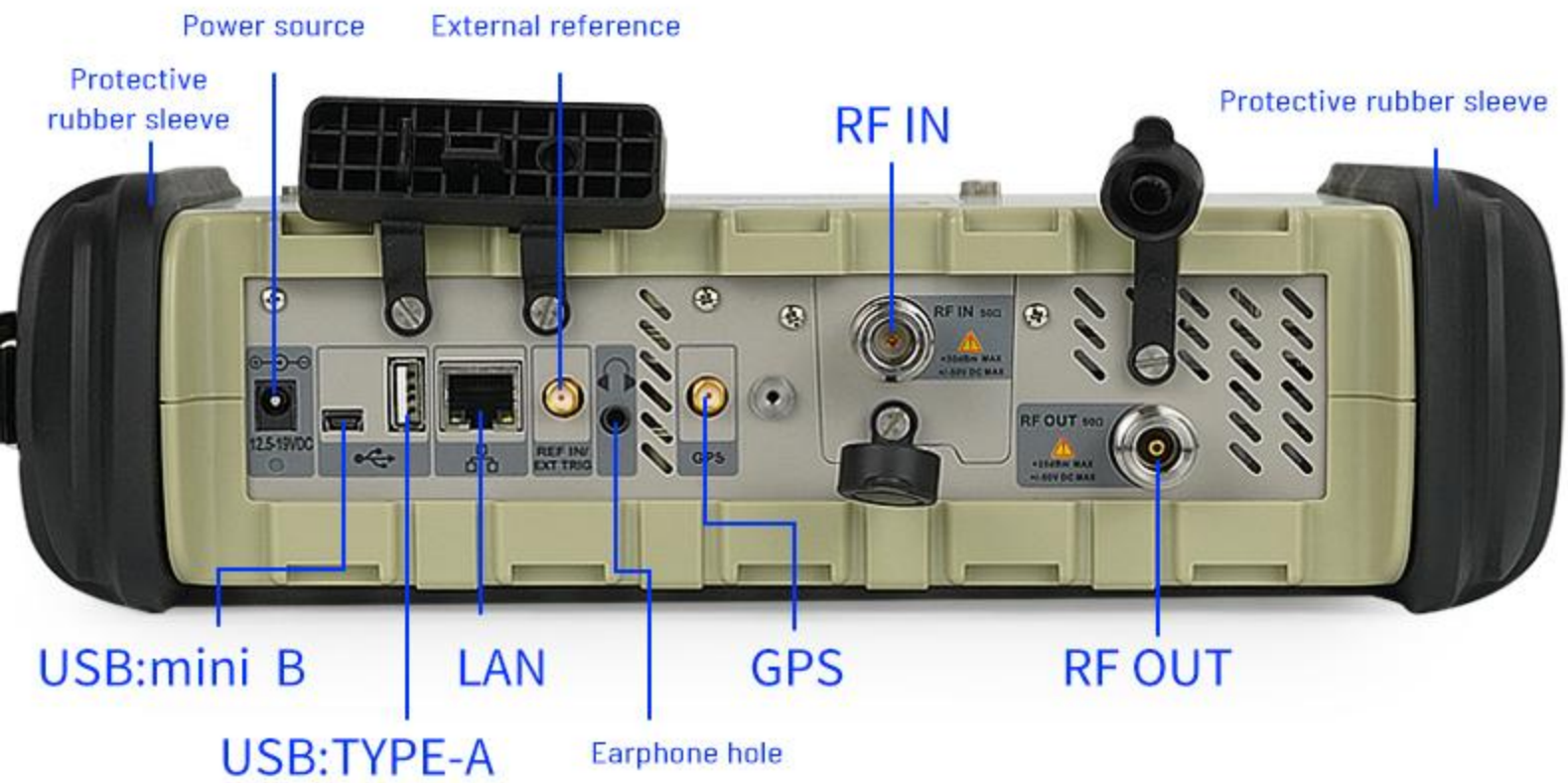


Map coverage test



Clear network analysis software

Port display



Product parameters

Antenna feeder testing	
Frequency	
Frequency range	2MHz～4400MHz
Frequency stability	± 2ppm （0～50° C）
Frequency accuracy	± 2ppm （25±5° C）
Frequency resolution	1Hz
Level	
Output level range	⩾0dBm
System	
Scan points	130， 259， 517, 1033, 2065
Measuring speed	0.8mS/point (return loss) 1mS/point (fault location)
Interference suppression	Frequency: 10dBm (biased within ±10KHz) Channel: 25dBm (biased>1MHz)
Port characteristics	Return loss ≤ -10dB
Directionality	≤ -42dB (after standard calibration) ≤ -38dB (after full band calibration)
Damage level	+25dBm (RF signal) 50V (DC voltage)
Return loss	Measurement range: 0dB~60dB Resolution: 0 01dB
Standing wave ratio	Measurement range: 1~65 Resolution: 0 0001
Cable loss	Measurement range: 0dB~30dB Resolution: 0 01dB
Fault location	Measurement range of return loss: 0dB~60dB Measurement range of standing wave ratio: 1~65 Distance measurement range: (number of points -1)/(span * 2) * Vf (speed factor of cable) * C (speed of light) Distance resolution: ranging range/(number of points -1)
Phase	Measurement range: -1800~+1800 Resolution: 0.010
Smith chart	Resolution: 0 01
Input/output ports	
RF input port	50Ω N Negative type
RF output port	50Ω N Negative type
Mini USB port	USB2.0 4pin
USB port	USB1.1 4pin
LAN port	10/100M RJ45
Power supply and display	
AC-DC power adapter	Input 100-240VAC, 50-60Hz Output 19VDC/3.42A
lithium battery	11.1V/5.2Ah
Charging time	< 5 hour
Continuous working hours	> 4.5 hour, Typical value > 6 hour
liquid crystal	6.5" TFT LCD, 640*480
Language support	Chinese, English
ESD	
Port electrostatic immunity	≥ 8KV (contact discharge) 15KV (air discharge)
Other	
Humidity	When 40℃—95%
Working temperature	-10℃～55℃
Storage temperature	-40℃～80℃
Weight	< 2.2kg
Volume (length x width x height)	258 × 173 ×74mm

Signal Analysis	
Frequency Parameters	
Frequency range	9kHz～4400MHz
Aging rate	<±0.5 ×10-6/year
Stability	±1 x10^{-6}
Temperature stability	<±0.5 ×10-6 (0 - 50)℃
Frequency standard counting accuracy	The signal-to-noise ratio is 25 dB, and the resolution bandwidth (RBW)/scan width is 0 01)
Counting accuracy	±0.5 x10^{-6}±1
Resolving power	1Hz
Scanning and bandwidth	
Range	0Hz (zero band sweep width), 1kHz~4400MHz
Scanning time and triggering method	
Sweep time range	20ms -250s (frequency scan width ≥ 200Hz) 104s -1000s (frequency sweep width=0Hz) 1ms -250s (frequency scan width, fast scan mode)
Time accuracy	<±0.2%
Trigger Mode	Free triggering, video triggering, time slot triggering, external triggering
Resolution bandwidth	
Range	1Hz -3MHz with approximately 10% step rate
Bandwidth accuracy	<±10%
Selectivity	(60dB/3dB bandwidth ratio):<5:1
Video bandwidth	
Range	Hz -3 MHz with approximately 10% step
Stabili	
Phase noise	Typical value<-110dBc/Hz @ Continuous signal offset 100kHz Typical value<-100 dBc/Hz @ Continuous signal offset of 10 kHz Typical value<- 90 dBc/Hz @ Continuous signal offset of 1 kHz
Amplitude	
Attenuator	
Range	0dB - 55dB
Stepping	5dB/(1dB option)
Built in amplifier	
Frequency range	2MHz～4400MHz
gain	25dB (Typical value)
Noise coefficient	4dB (Typical value)
Maximum safe input level	+30dBm (Peak power/inlet attenuation>15dB)
	50VDC
Third order intermodulation interception point	Typical value>12dBm
Display average noise level: (No signal input, 0dB attenuation, 100Hz RBW, normalized to 1Hz, sampled value detection)	
Amplifier off	≤-150dBm，2MHz～1GHz ≤-142dBm，1GHz-3GHz ≤-142dBm，3GHz-4.4GH

Amplifier off	≤-165dBm, 10 MHz～1GHz ≤-160dBm, 1GHz～3GHz ≤-158dBm, 3GHz-4.4GHz
Spurious signal response range	
Second Harmonic	<-70 dBc-20dBm mono mixer input, amplifier turned off
Remaining Response	(No signal input, attenuator is 0)
	≤-80dBm 1MHz - 6000MHz
Display Range	
logarithmic scale	0.1-0.9 dB/grid, in 0.1dB steps;
	1-40dB/grid, 1dB step
Linear scale	10 grids
Scale units	dBm, dBmV, dBμV, mV
Frequency standard reading resolution	At 0.03 dB logarithmic level
	Under 0.03% linearity of reference level
trajectory	Three trajectory outputs
detection mode	Sampling value, positive peak value, negative peak value, normal value, average value
Frequency standard function	Peak, next peak, frequency standard to center, frequency standard to reference, etc
Frequency standard display	Normal, Differential, Fixed, Frequency Count
Reference level	-167 dBm— +35dBm
Level accuracy	Typical value ≤± 1.0dB @+25 ± 5 "C
Resolution bandwidth switching accuracy	Typical value<± 0.1dB
Input attenuator switching accuracy	Typical value<± 0.3dB

Transmission options

Frequency	
Frequency range	2MHz～4400MHz
Dynamic range	80dB

Directional Power Meter

Specification	
Frequency range	300MHz～4GHz
Measuring range	0.15W~150W average power 4.0W~400W peak power
Input impedance	50Ω(Nominal)
Insertion loss	300MHz～1GHz Maximum 0.05dB 1GHz～4GHz Maximum 0.1dB
Inserting standing wave ratio	300MHz～2.5GHz Maximum 1.05 2.5GHz～4GHz Maximum 1.10
Directionality	300MHz～3GHz 30dB 3GHz～4GHz 28dB
Average power	
Power measurement range	0.15W～150W
Peak to average power ratio	Maximum 12dB
Measurement uncertainty	±4%±0.05W(+15～+35° C) ±7%±0.05W(-10～+50° C)
Burst power	
Power measurement range	Average 2W~150W
Pulse width	1μs～50ms
Duty cycle	0.001～1
Measurement accuracy	± (6% + 0.05/D W) Increase by 3% when exceeding 35 ° C or below 15 ° C

Peak power	
Measuring range	4W～400W
Measurement uncertainty	Pulse width>200 μs, ± 7% ± 0 2W When 1μs<pulse width<200μs ± 10% ± 0.4W Pulse width<1μs ± 15% ± 0.4W When the pulse width is less than 0.5 μs, ± 20% ± 0.4W When exceeding+35 ° C or below+15 ° C Increase by 3% Duty cycle (D)<0.1 increases by 0.1W Cycle>0.1s increase (1.5%+0.15 W)
Reflective power measurement characteristics	
Measuring range	0. 0 ～ 23dB (Return loss) 1. 15 ～99. 99 (Standing Wave Ratio) 0. 07～ 1. 0 (Reflection coefficient)
Environmental adaptability	
Working temperature	- 10～ +50 ° C

1.3 Terminal type power meter

Main technical indicators	
Frequency range:	50MHz～4GHz (Visual power sensor option)
Wide dynamic range:	55 dynamic range, -35~+20dBm
Standing wave ratio:	1. 1:1
Display resolution:	1dB, 0. 1dB, 0. 01dB, 0. 001dB
Size:	124*44*24 (Excluding 1.8m USB cable)
Weight:	250g
Electrical performance index	
Dynamic range:	-35dB～+20dB
Power measurement uncertainty:	Typical value: ± 0.2dB Maximum: ± 0.4 dB
Measurement resolution:	Typical value: 0 01dB
Measurement speed:	Typical value: 100 mSec