SPECTRUM ANALYZER

AV4024D/E/F/G

9kHz～20GHz/26.5GHz/32GHz/44GHz

Product Overview

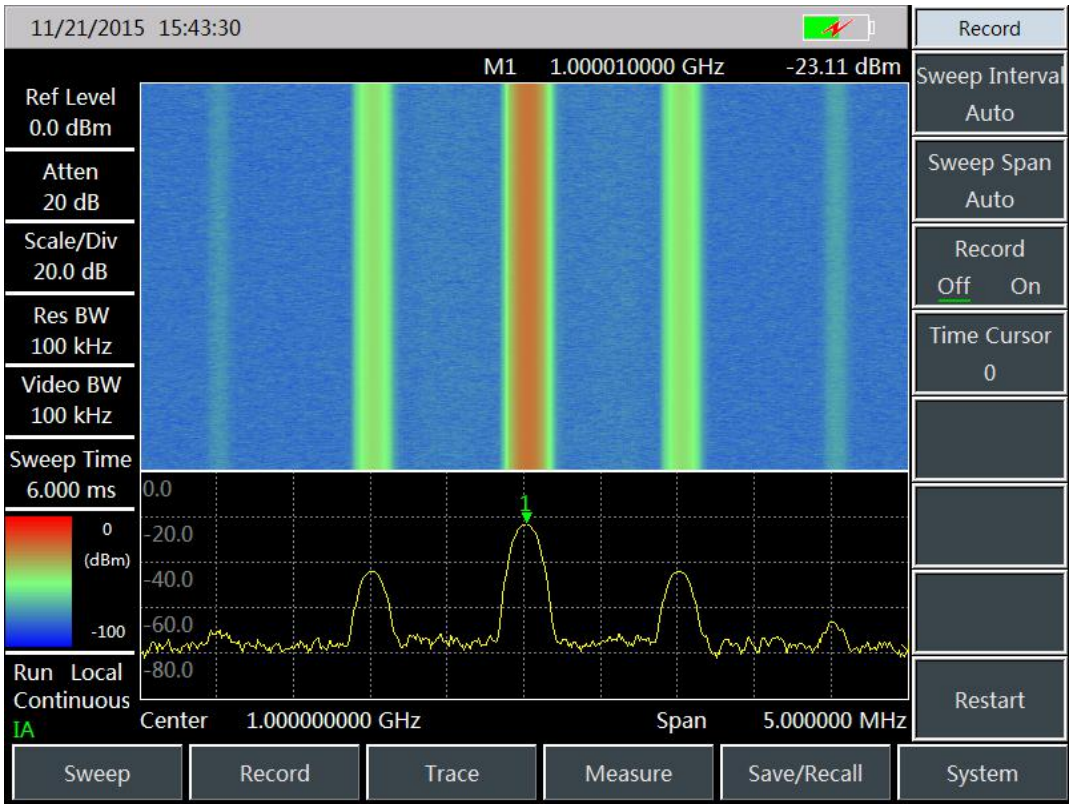
AV4024 series spectrum analyzer has many advantages: wide frequency range, high performance , high sweep speed, various functions, and easy operation. In terms of performance index, it has excellent displayed average noise level, low phase noise, and high sweep speed. In terms of measurement functions, it has measurement functions of spectrum analyzer, interference analyzer, AM/FM/PM analyzer, power meter, channel scanner etc. as well as intelligent measurement functions of channel power, occupied bandwidth, adjacent-channel power ratio, tune&listen, emission mask, and carrier-to-noise ratio etc. AV4024 adopts the integrated design of 8.4 inch LCD and capative touch screen, which improves the display definition and operation convenient. It is handheld, compact and light, with flexible power supply, which is very suitable for field work.

AV4024 can be used for signal and equipment test in the fields of aerospace, microwave & satellite communication, radio communication, radar monitoring, electronic countermeasures & reconnaissance, and precision guidance.

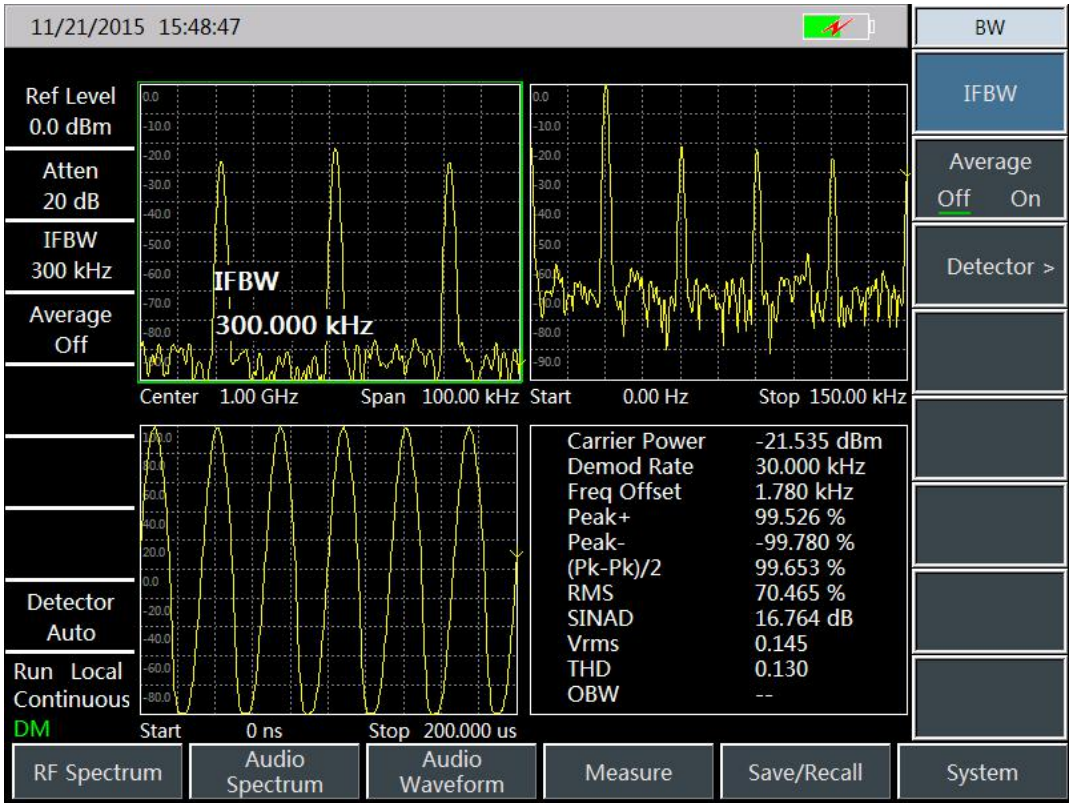
Main Characteristics

- Wide frequency range: from 9kHz to 44GHz, 4 models
- Low displayed average noise level: -163dBm@1Hz RBW(typical)
- Excellent phase noise performance: -106dBc/Hz@100kHz frequency offset@1GHz carrier
- High sweep speed: for 1GHz span, shortest sweep time <20ms
- Resolution bandwidth: 1Hz～10MHz
- Full-band pre-amplifier: standard configuration
- Various measurement functions: spectrum analyzer, interference analyzer (spectrogram, RSSI),AM/FM/PM analyzer, channel scanner, high accuracy power meter etc.
- Various intelligent measurement functions: field strength measurement, channel power, occupied bandwidth, adjacent-channel power ratio, tune&listen, carrier-to-noise ratio, emission mask.
- Various auxiliary test interface: 10MHz reference input/output interface, GPS antenna interface, zero span IF output interface, external triggering input interface etc.
- Easy & convenient user operation: 8.4 inch high definition LCD and large font display, convenient capacitive touch screen operation, combination of LCD and touch screen, various display modes, and automatic adjustment of backlight brightness etc.
- Working temperature range: -10℃～50℃; Power supplied by battery or adapter.

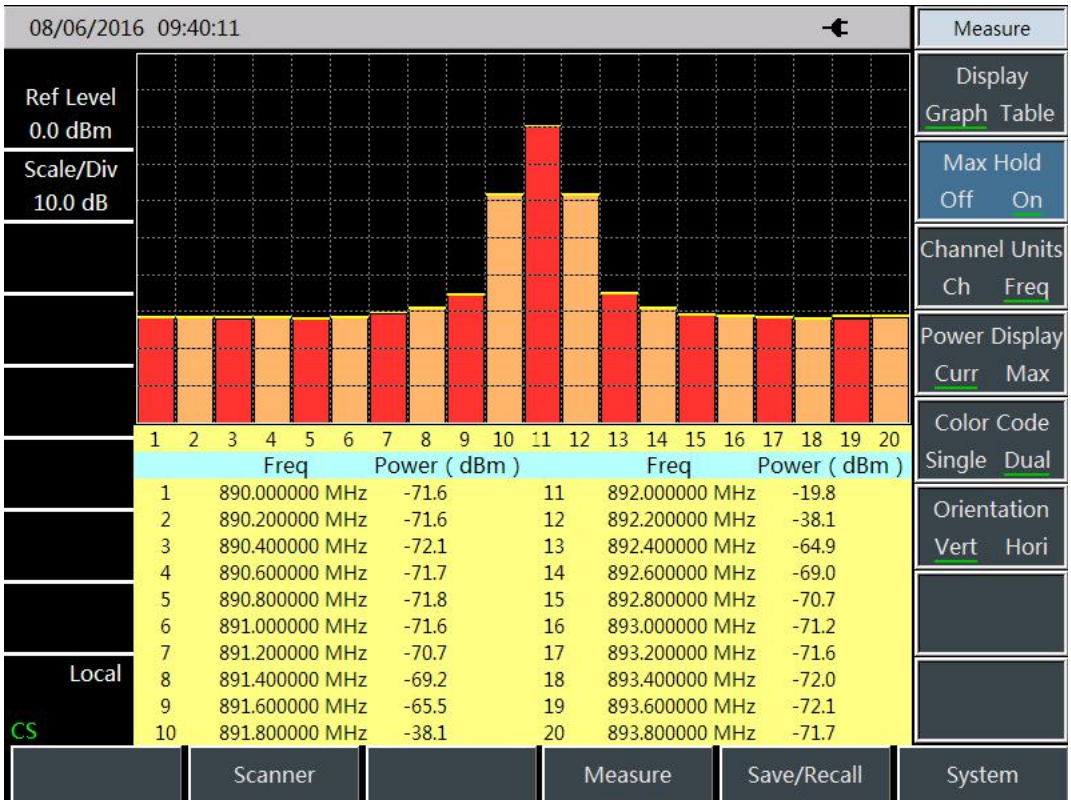
Various measurement functions



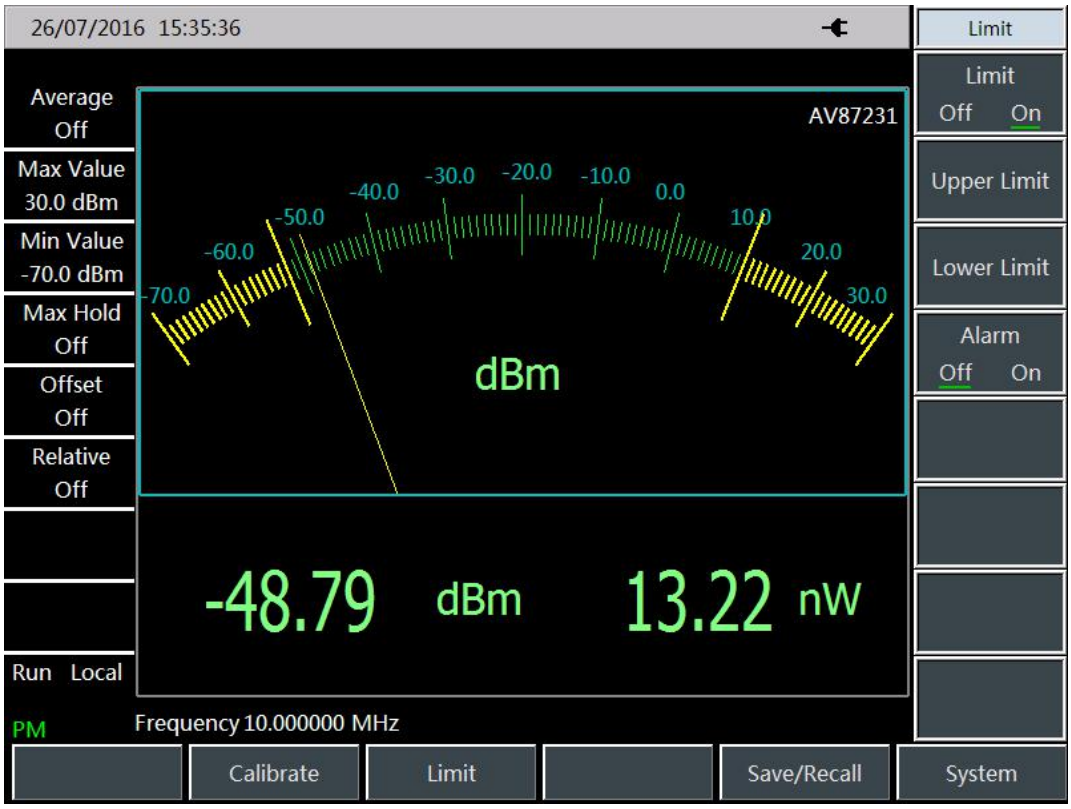
Interference analyzer (spectrogram)



AM/FM/PM demodulation

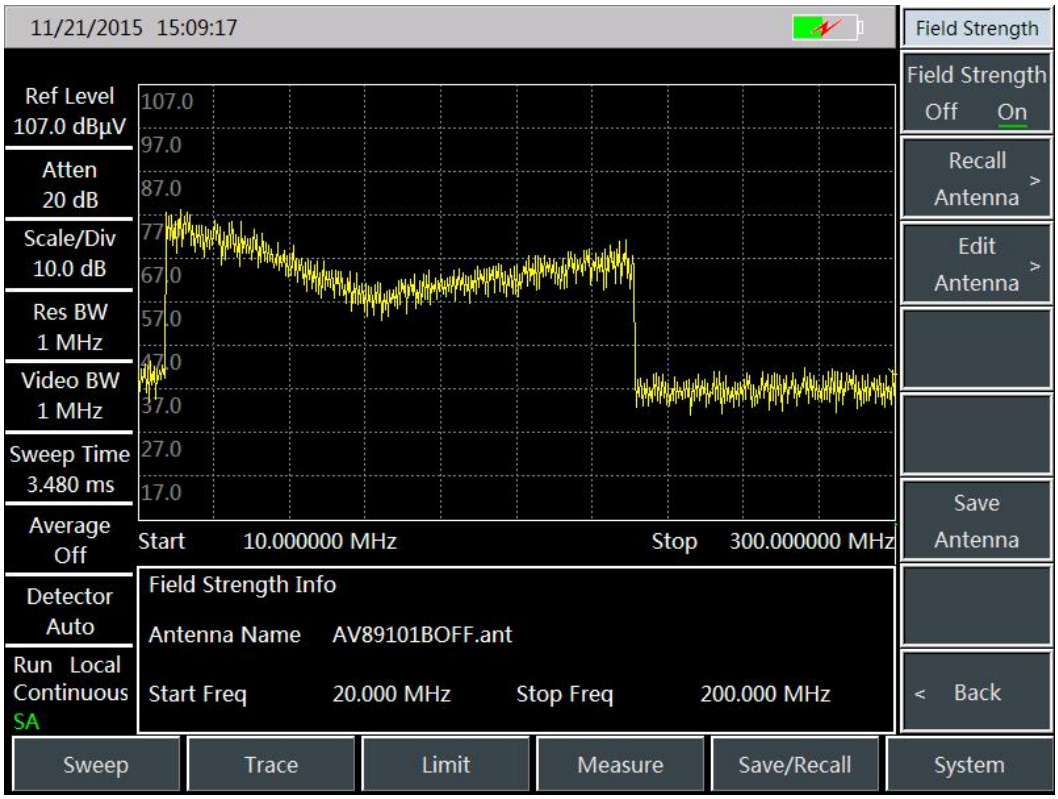


Channel scanner

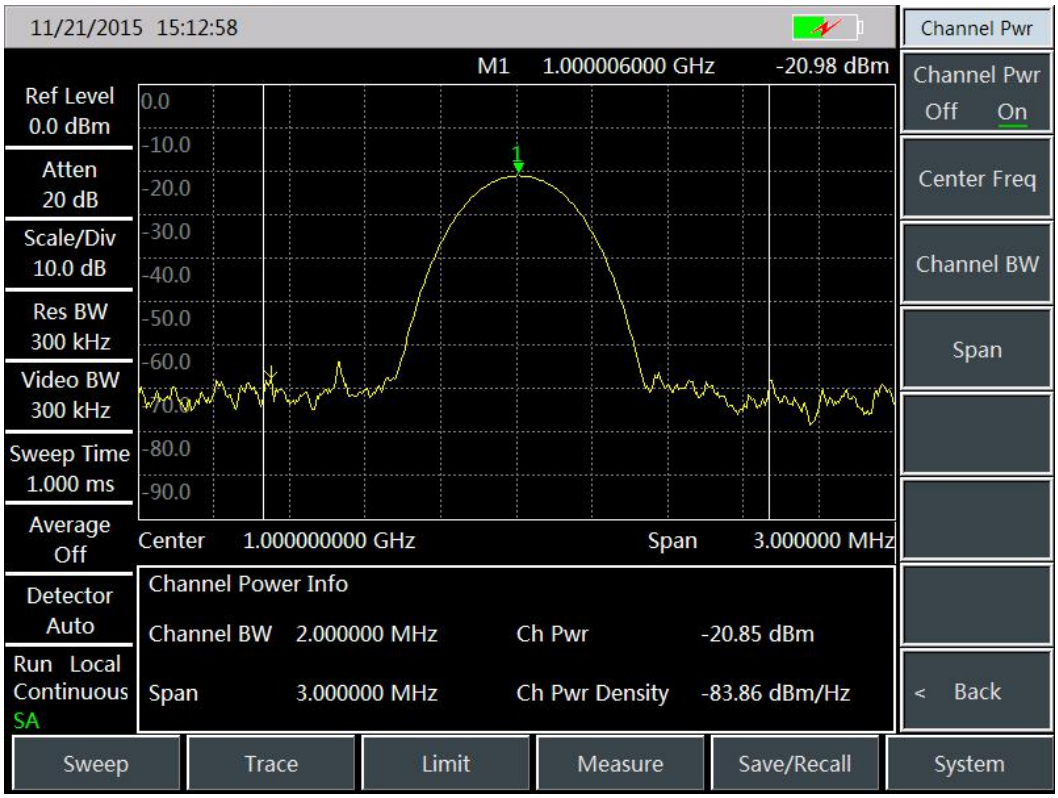


Power meter (USB power probe)

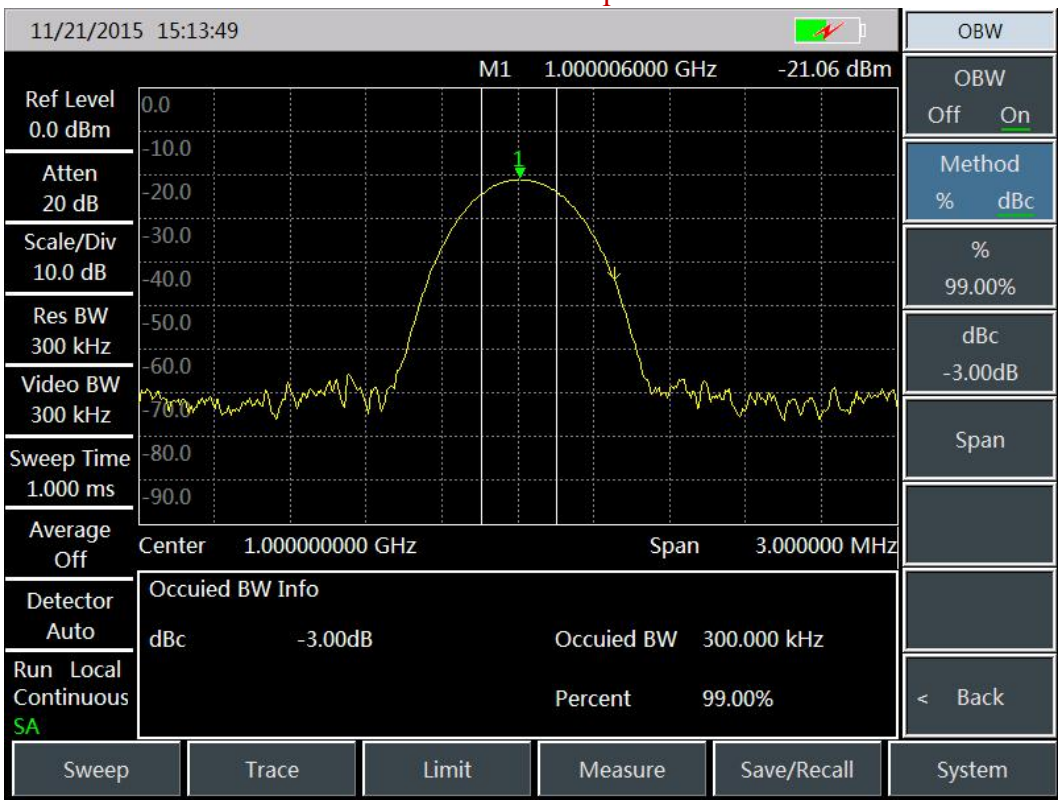
Comprehensive intelligent measurement function



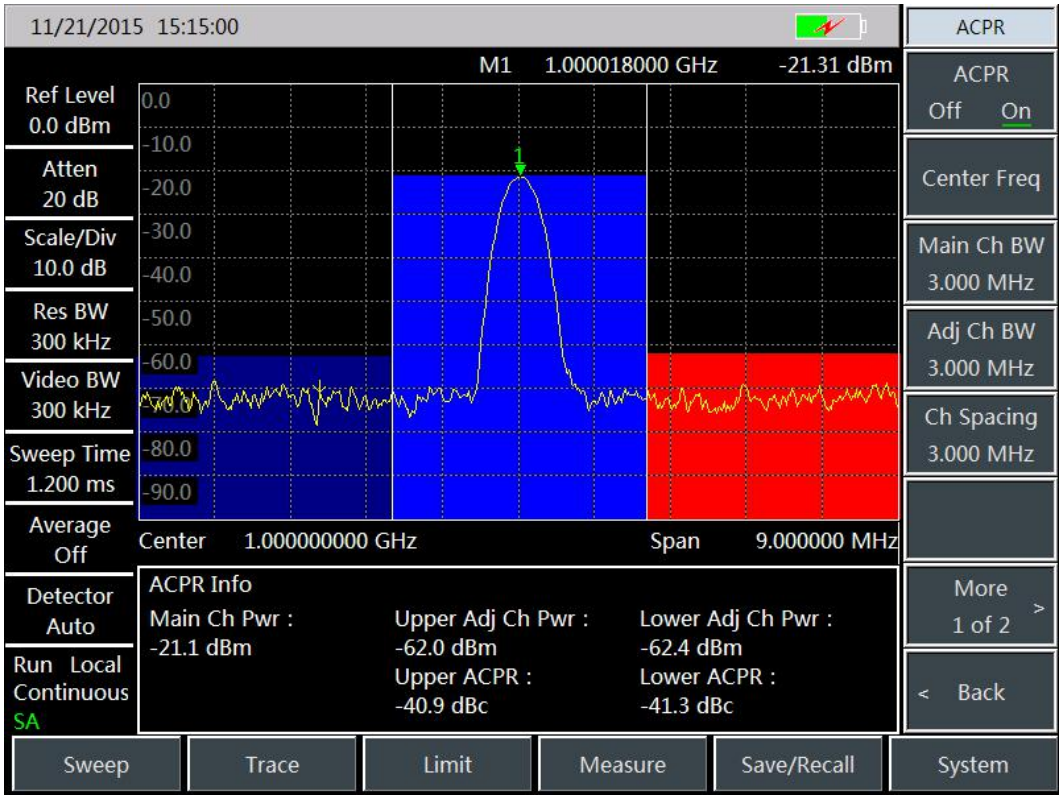
Field strength measurement



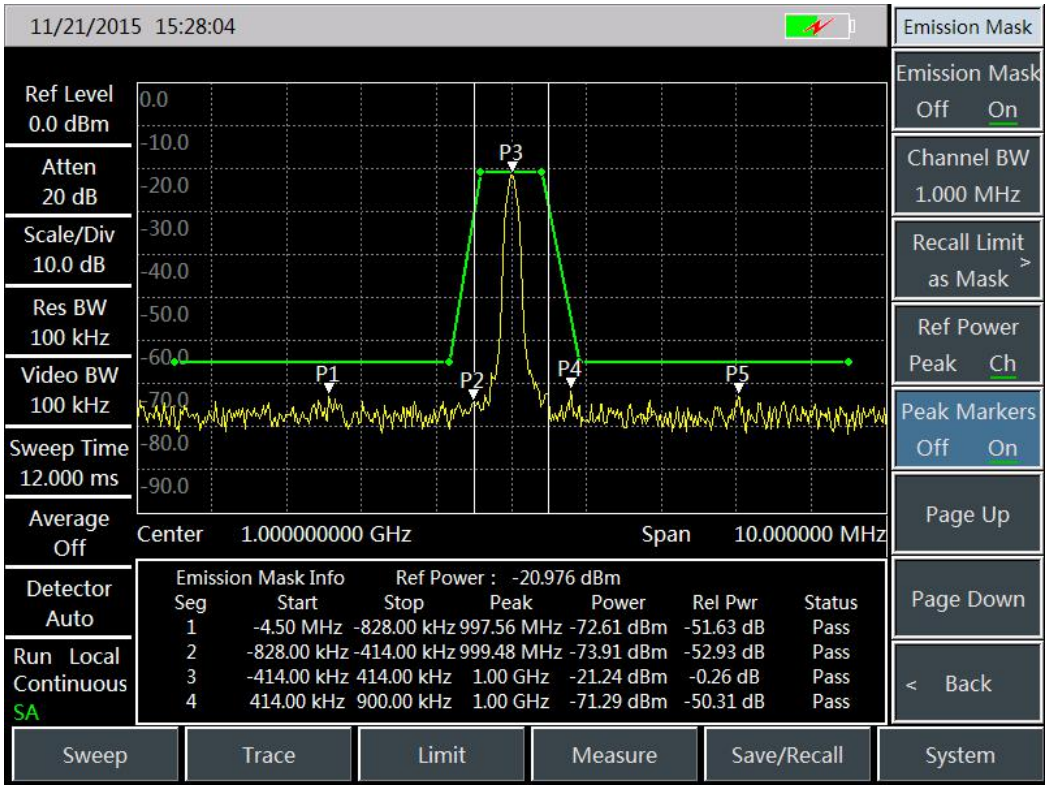
Channel power



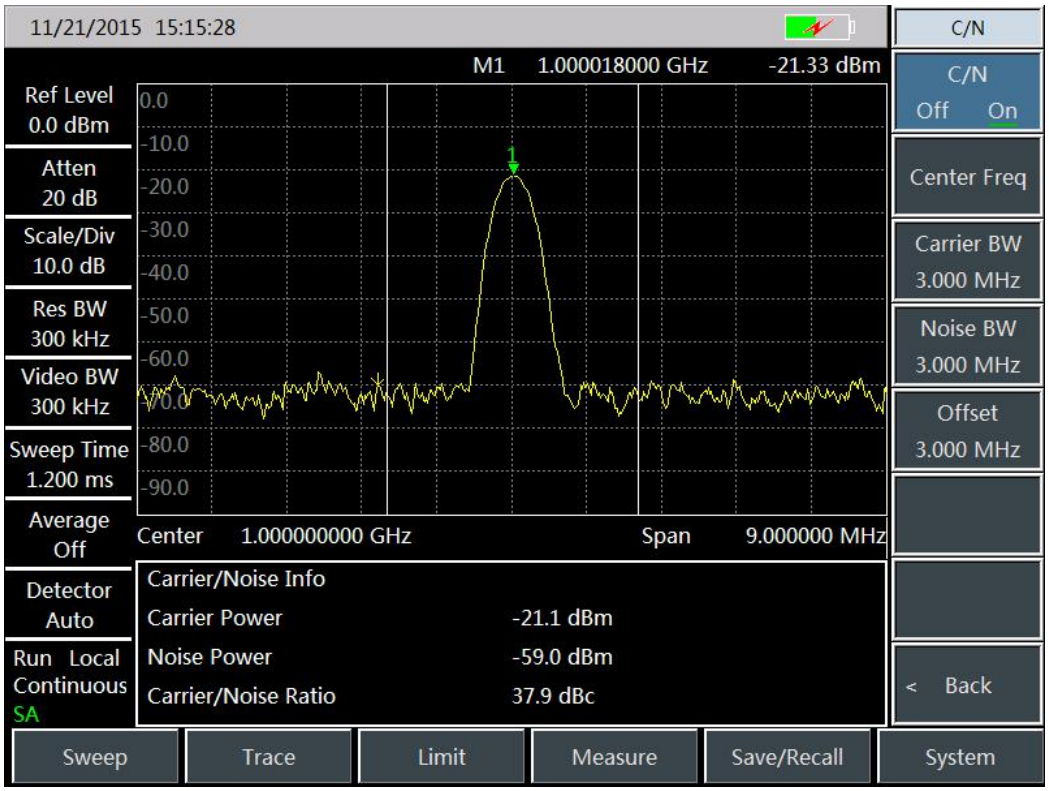
Occupied bandwidth



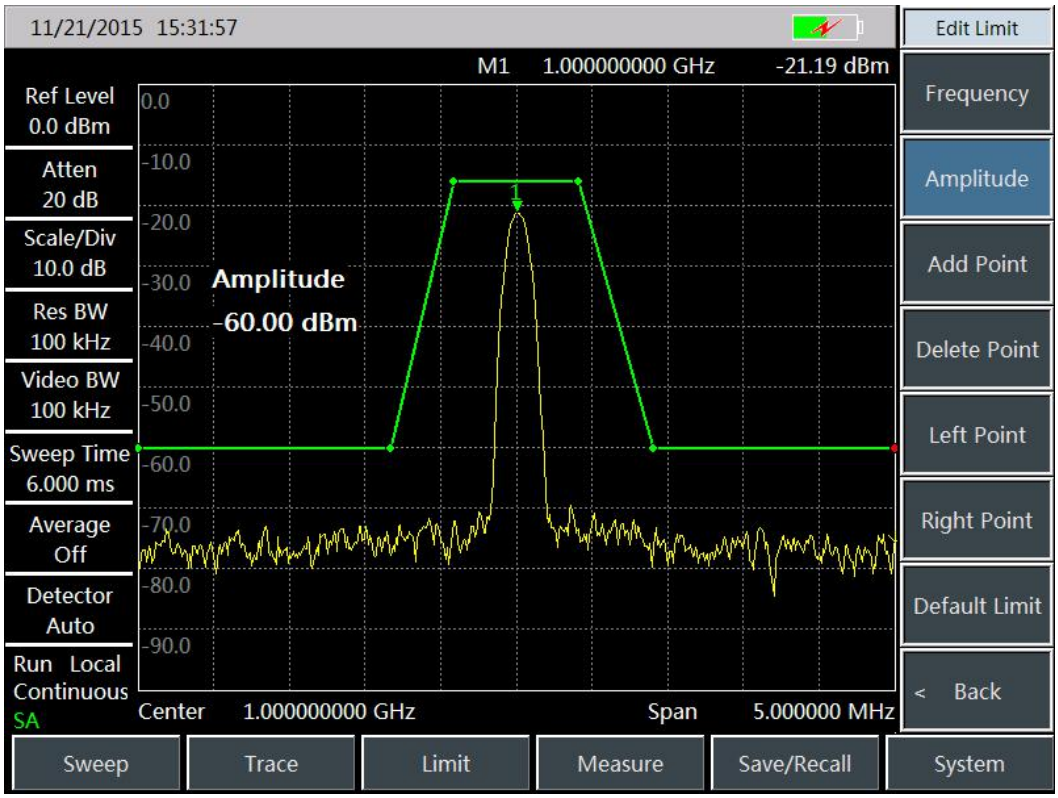
Adjacent-channel power ratio



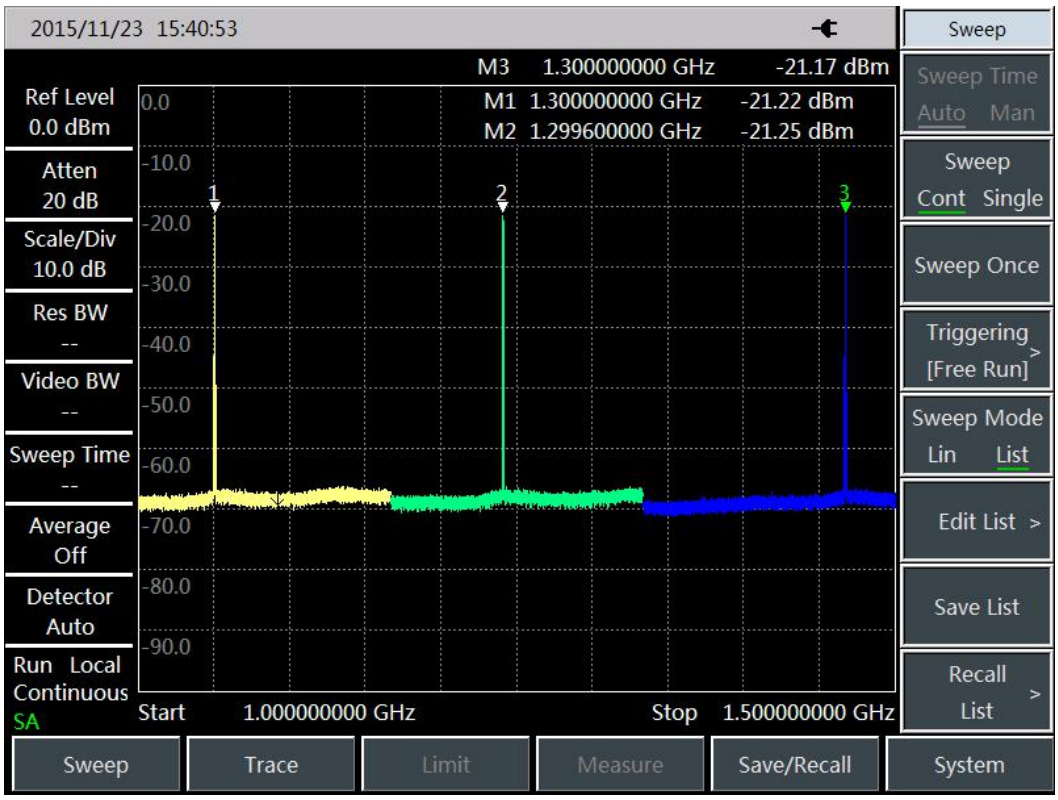
Emission mask



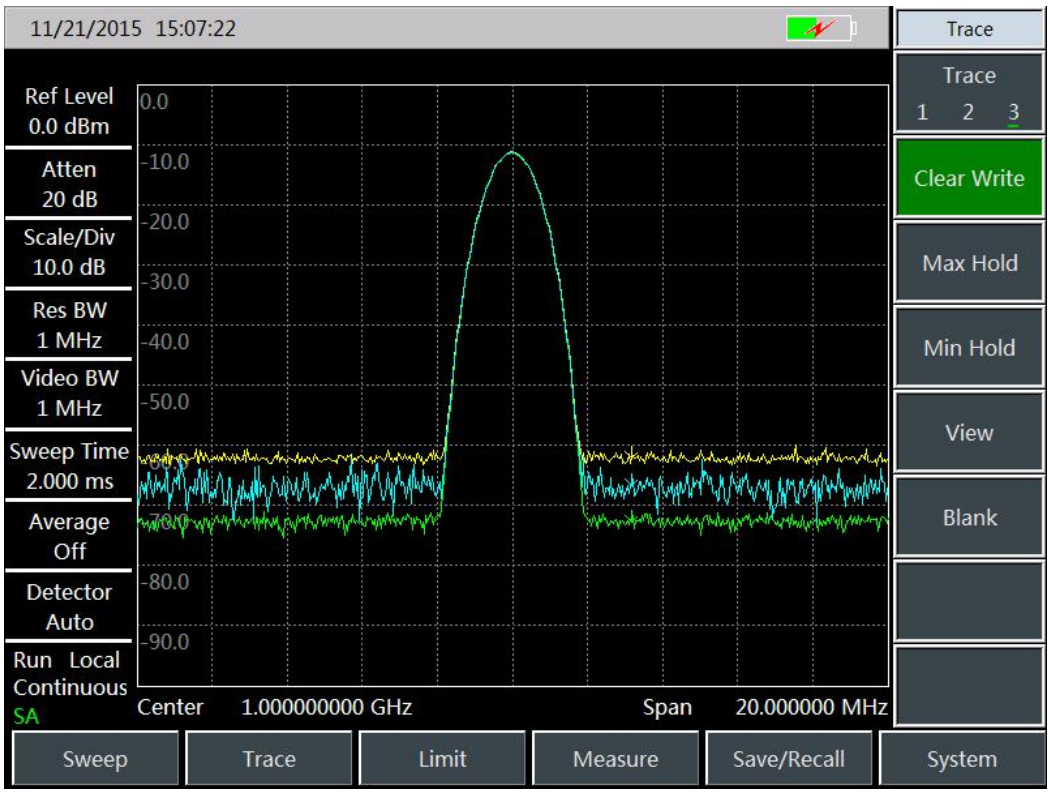
Carrier-to-noise ratio



Limit line

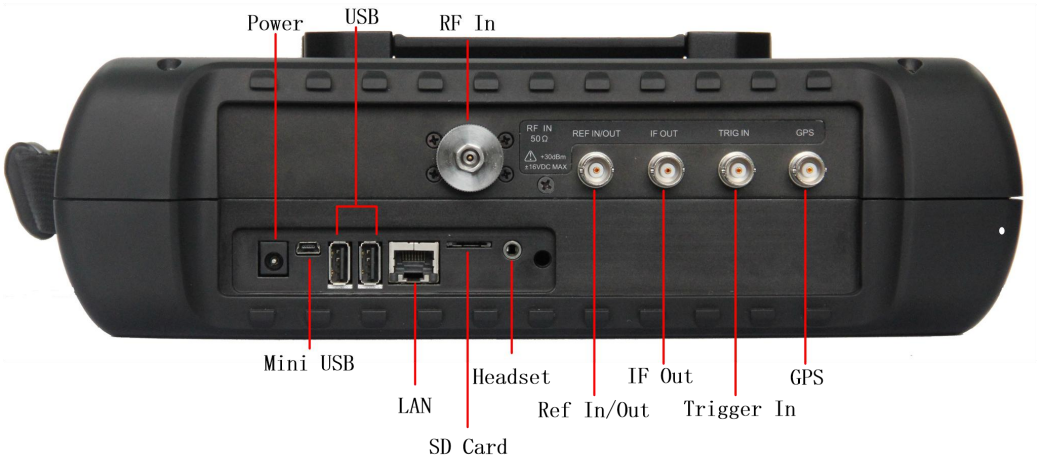


List sweep



Multi-traces

Various auxiliary test interfaces

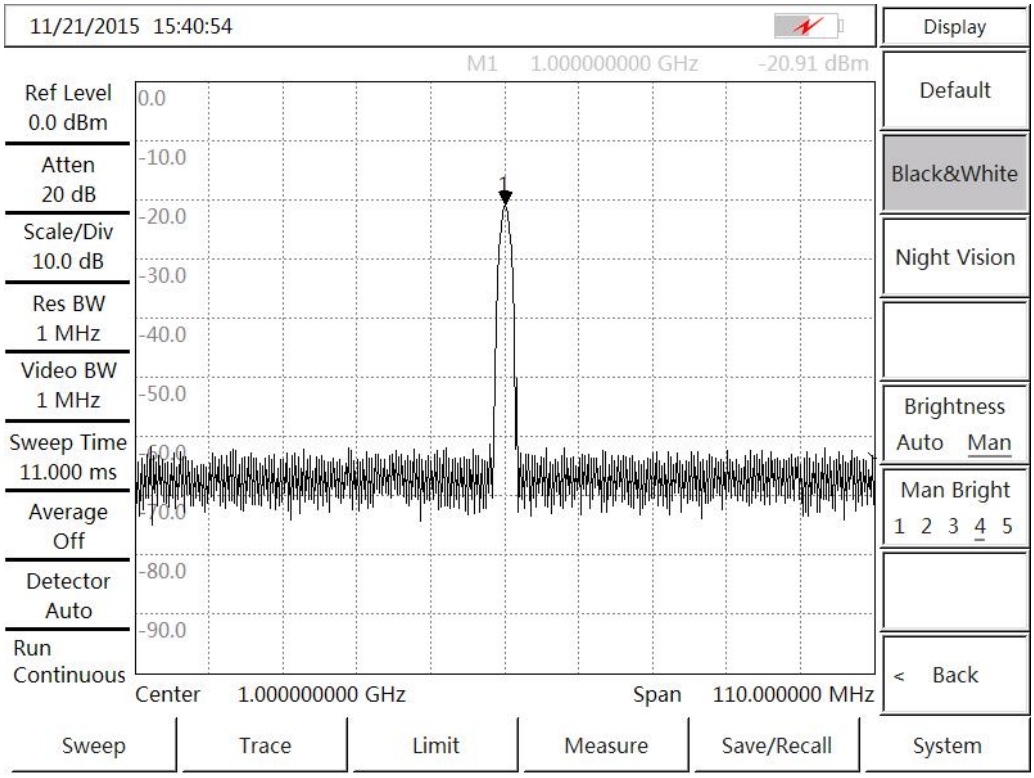


Easy & convenient user operation

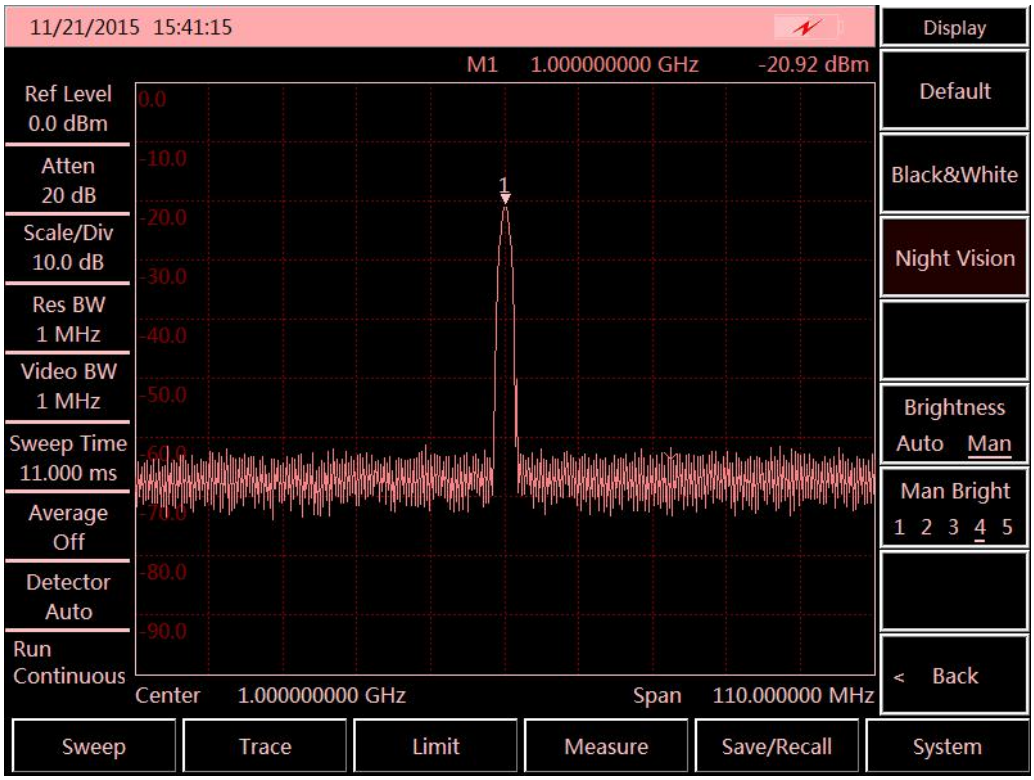
- One-click quick measurement
- Storage and invocation of state and data
- Combination of 8.4 inch LCD and capacitive touch screen; smaller light refraction and clearer display.
- Convenient capacitive touch screen operation.
- Various display modes: better experience under outdoor light and night

vision.

- Automatic adjustment of backlight brightness.



Outdoor mode



Night vision mode

Typical Applications

- **Comprehensive performance evaluation of electronic weapon equipment**

AV4024 series spectrum analyzer has advantages of wide frequency range, high performance index, high sweep speed, multiple test functions, and easy operation. It is handheld, compact and light, which can be power supplied by battery. It can be used for the field installation & calibration, repair & maintenance of electonic weapon equipment in fields of radar, communication, electronic countermeasures & reconnaissance, and precision guidance etc. .

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

AV4024 serious spectrum analyzers have various measurement function modes like spectrum analyzer, interference analyzer, AM/FM/PM analyzer, power meter, channel scanner etc. as well as various intelligent measurement functions such as channel power, occupied bandwidth, adjacent-channel power ratio, carrier-to-noise ratio, field strength measurement, emission mask etc. It can provide comprehensive spectrum analysis and diagnosis service for the field test of transmitter and receiver.

- **Broadband spectrum monitoring, interference recognition**

Connected with external directive antenna, AV4024 series spectrum analyzer can be used for electromagnetic environment detection, radio interference analysis, electromagnetic environment background assessment, spectrum monitoring and illegal channel interference signal recognition.

Technical Specifications

Model	AV4024D/E/F/G
Frequency range	AV4024D：9kHz～20GHz AV4024E：9kHz～26.5GHz AV4024F：9kHz～32GHz AV4024G：9kHz～44GHz Tuning resolution:1Hz
Frequency reference	Frequency: 10MHz Aging: ±0.5ppm/year Initial frequency accuracy: ±0.3ppm Temperature stability:±0.1ppm(-10～50℃, comparative to 25℃)
Sweep time	Range: 10μs～600s (zero span) Accuracy: ±2.00% (zero span)
Frequency readout accuracy	Frequency readout accuracy = ±(frequency readout× frequency reference error +2%× span +10%× resolution bandwidth)
Frequency span	Range: 100Hz～upper frequency limit of corresponding model or 0Hz Accuracy: ±2.0%
Resolution bandwidth	1Hz～10MHz (1-3 times of stepping)
Video bandwidth	1Hz～10MHz (1-3 times of stepping)
SSB phase noise (carrier 1GHz)	≤-102dBc/Hz@ frequency offset 10kHz ≤-106dBc/Hz@ frequency offset 100kHz ≤-111dBc/Hz@ frequency offset 1MHz ≤-123dBc/Hz@ frequency offset 10MHz
Displayed average noise level	Pre-amp off: ≤-138dBm(10MHz～4GHz) ≤-135dBm(4GHz～6GHz) ≤-138dBm(6GHz～20GHz) ≤-135dBm(20GHz～32GHz) ≤-127dBm(32GHz～40GHz) Pre-amp on: ≤-157dBm(10MHz～4GHz) ≤-152dBm(4GHz～6GHz) ≤-157dBm(6GHz～20GHz) ≤-154dBm(20GHz～32GHz) ≤-148dBm(32GHz～40GHz)
Residual response	Pre-amp off: ≤-90dBm (10MHz～13GHz) ≤-85dBm (13GHz～20GHz) ≤-80dBm (20GHz～44GHz) Preamp on: ≤-100dBm (10MHz～32GHz) ≤-95dBm (32GHz～44GHz) (exceptional frequency: 1100MHz, 3200MHz)
Second harmonic distortion	<-60dBc (attenuation 0dB, -30dBm input signal)
Absolute amplitude accuracy (20 ℃ ~30 ℃ , 30 minutes of preheating)	±2.3dB (10MHz～40GHz)

Input attenuator	Attenuation range: 0dB～50dB, 10dB stepping
Maximum Continuous Input	+30dBm Peak typical(≥10dB attenuation) +23dBm Peak typical(<10dB attenuation) +13dBm Peak typical(Pre-amp = ON)
Reference level	Range: -120dBm～+30dBm Conversion uncertainty: ±1.20dB
Battery power supply	About 2.5h
Dimension	314mm (W)×218mm (H)×91mm (D) (excluding handle, stand) 338mm(W)×218mm (H)×100mm (D) (excluding handle, stand)
Weight	About 5kg (excluding battery)
Working temperature	-10℃～+50℃
Storage temperature	-40℃～+70℃
Electromagnetic compatibility	Conforms to GJB3947A-2009 3.9.1 requirements
Power consumption	≤30W (no charging to the battery)
Test interface	AV4024D/E: N type connector AV4024F/G: 2.4mm connector
Other interfaces	10MHz reference input/output: BNC female connector External triggering input: BNC female connector IF output: BNC female connector GPS antenna input: BNC female connector

Order Information

- Main unit: AV4024D spectrum analyzer (9kHz～20GHz)
- Main unit: AV4024E spectrum analyzer (9kHz～26.5GHz)
- Main unit: AV4024F spectrum analyzer (9kHz～32GHz)
- Main unit: AV4024G spectrum analyzer (9kHz～44GHz)
- Standard configuration:

Item	Description
Standard configuration accessories	Standard 3-phase power cord
	Power adapter
	Quick guide
	USB cable
	Built-in rechargeable lithium ion battery
	Certificate of conformity

- Optional accessories:

No.	Description	Function
AV4024-001	Optional accessories of English version	English signs、keys、menu
AV4024-002	User manual (Chinese)	
AV4024-003	User manual (English)	
AV4024-004	Programming manual (Chinese)	
AV4024-005	Programming manual (English)	
AV4024-006	Power adapter	Power adapter
AV4024-007	Rechargeable lithium ion battery	Standby battery
AV4024-008	Purple cat5e cable	Point to point, 2 meters
AV4024-009	MicroSD card	Class4, capacity: 8G
AV4024-010	GPS antenna	GPS exposed antenna
AV4024-011	USB power meter option	Provide USB power measurement function (Requires USB power probe:012/013/014/015)
AV4024-012	AV87230 USB CW power probe	9kHz～6GHz power probe
AV4024-013	AV87231 USB CW power probe	10MHz～18GHz power probe
AV4024-014	AV87232 USB CW power probe	50MHz～26.5GHz power probe
AV4024-015	AV87233 USB CW power probe	50MHz～40GHz power probe

AV4024-016	Interference analyzer option	Provide spectrogram, RSSI measurement etc. functions
AV4024-017	AM/FM/PM analyzer option	To realize modulation characteristics analysis of AM/FM/PM signals
AV4024-018	Channel scanner option	To realize signal power measurement of multiple channels and frequency
AV4024-019	List sweep option	To realize continuous sweep measurement of various frequency bands
AV4024-020	Zero span IF output	Output the third or fourth IF signal (choose one of two)
AV4024-021	AV89101A antenna	Frequency range:10kHz～20MHz (Requires option 025)
AV4024-022	AV89101B antenna	Frequency range:20MHz～200MHz (Requires option 025)
AV4024-023	AV89101C antenna	Frequency range:200MHz～500MHz (Requires option 025)
AV4024-024	AV89101D antenna	Frequency range:500MHz～4GHz (Requires option 025)
AV4024-025	AV89401 antenna amplifier	Frequency range:10kHz～4GHz,N(f) (Requires option 021/022/023/024)
AV4024-026	AV89901 antenna	Frequency range:1GHz～18GHz,N(f)
AV4024-027	AV89902 antenna	Frequency range:18GHz～40GHz,2.4mm(f)
AV4024-028	Functional bag	Protect the instrument
AV4024-029	Backpack	Easy to carry
AV4024-030	Safety instrument carrying case	Used to carry