

HSV-1300



Spectrum Analyzer

(9kHz~4GHz/6.5GHz/9GHz//20GHz/26.5GHz/32GHz/44GHz/50GHz/67GHz)

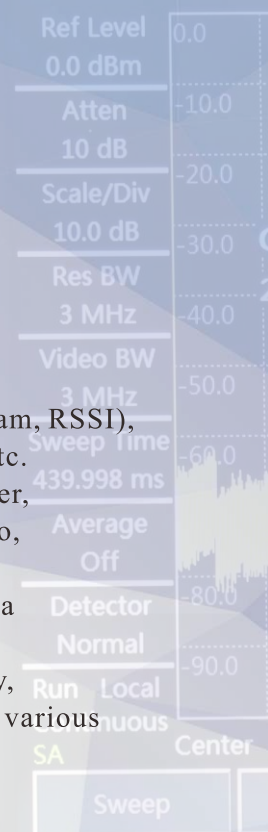
Product Overview

1300 series spectrum analyzer possesses many advantages: wide frequency range, high performance, high sweep speed, various functions, and easy operation. In terms of performance index, it has advantages of 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, tune & listen, emission mask, and carrier-to-noise ratio etc. 1300 adopts the integrated design of 8.4 inch LCD and capacitive 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.

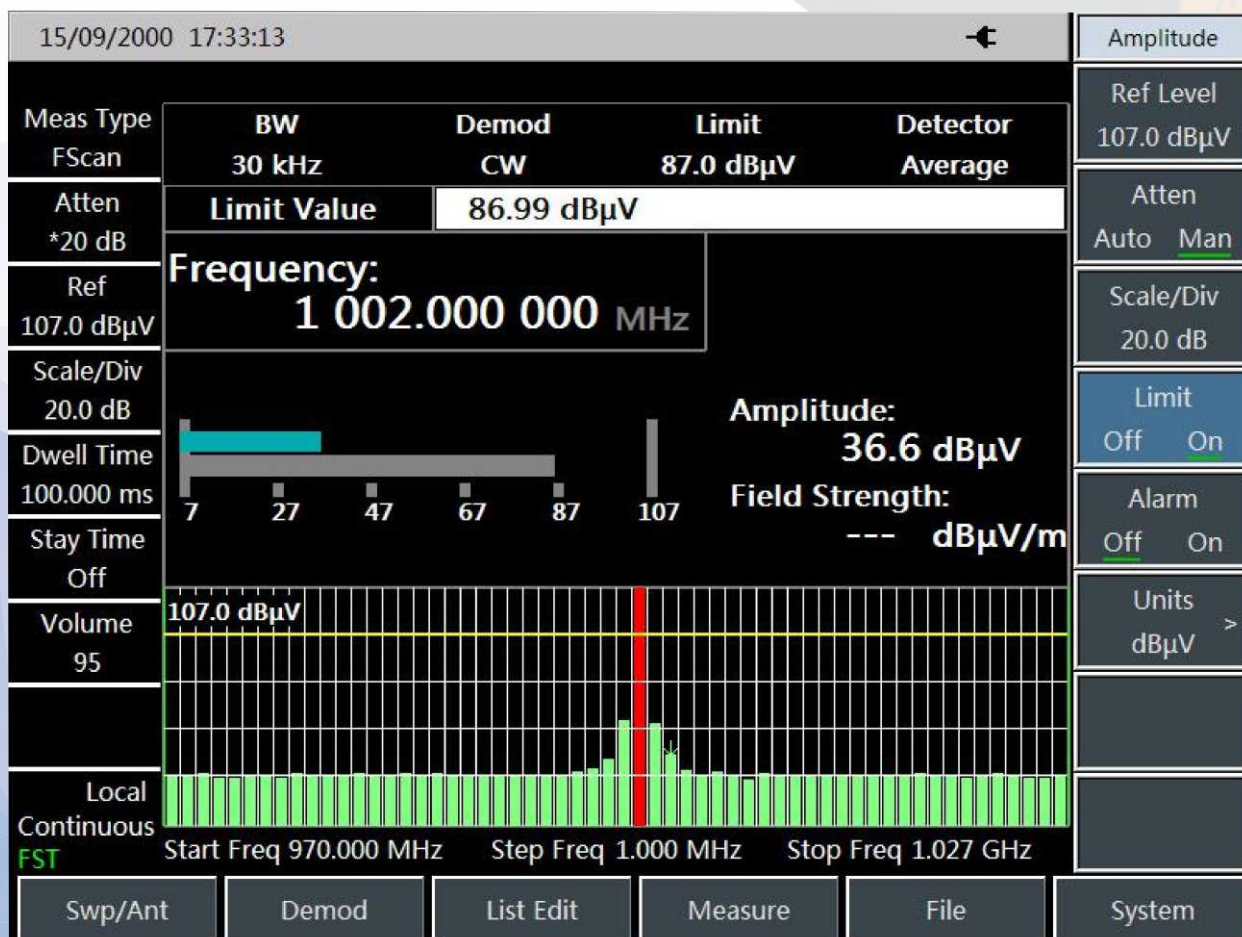
1300 can be used for signal and equipment test in the fields of aerospace, microwave & satellite communication, radio communication, radar monitoring, electronic countermeasures & reconnaissance, and precision guidance.

Main Characteristics

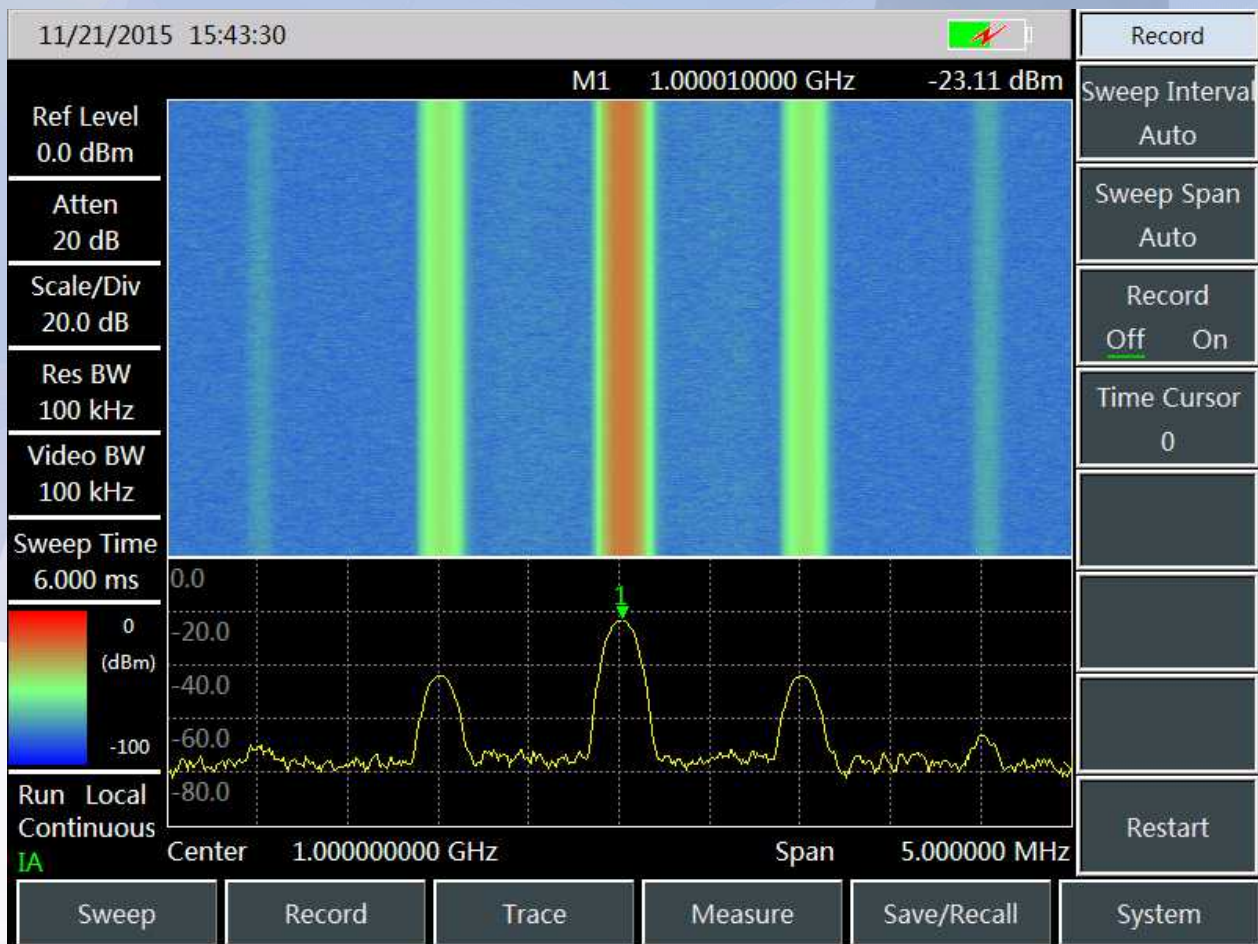
- Wide frequency range: from 9kHz to 44GHz, 7 models
- Low displayed average noise level: -163dBm@1Hz RBW(typical)
- Excellent phase noise performance:
-112dBc/Hz@100kHz frequency offset@1GHz carrier(1300A/B/C)
-106dBc/Hz@100kHz frequency offset@1GHz carrier(1300D/E/F/G)
- High sweep speed: for 1GHz 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, signal analyzer 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 etc.
- Working temperature range: -10°C ~ 50°C, Power supplied by battery or adapter.



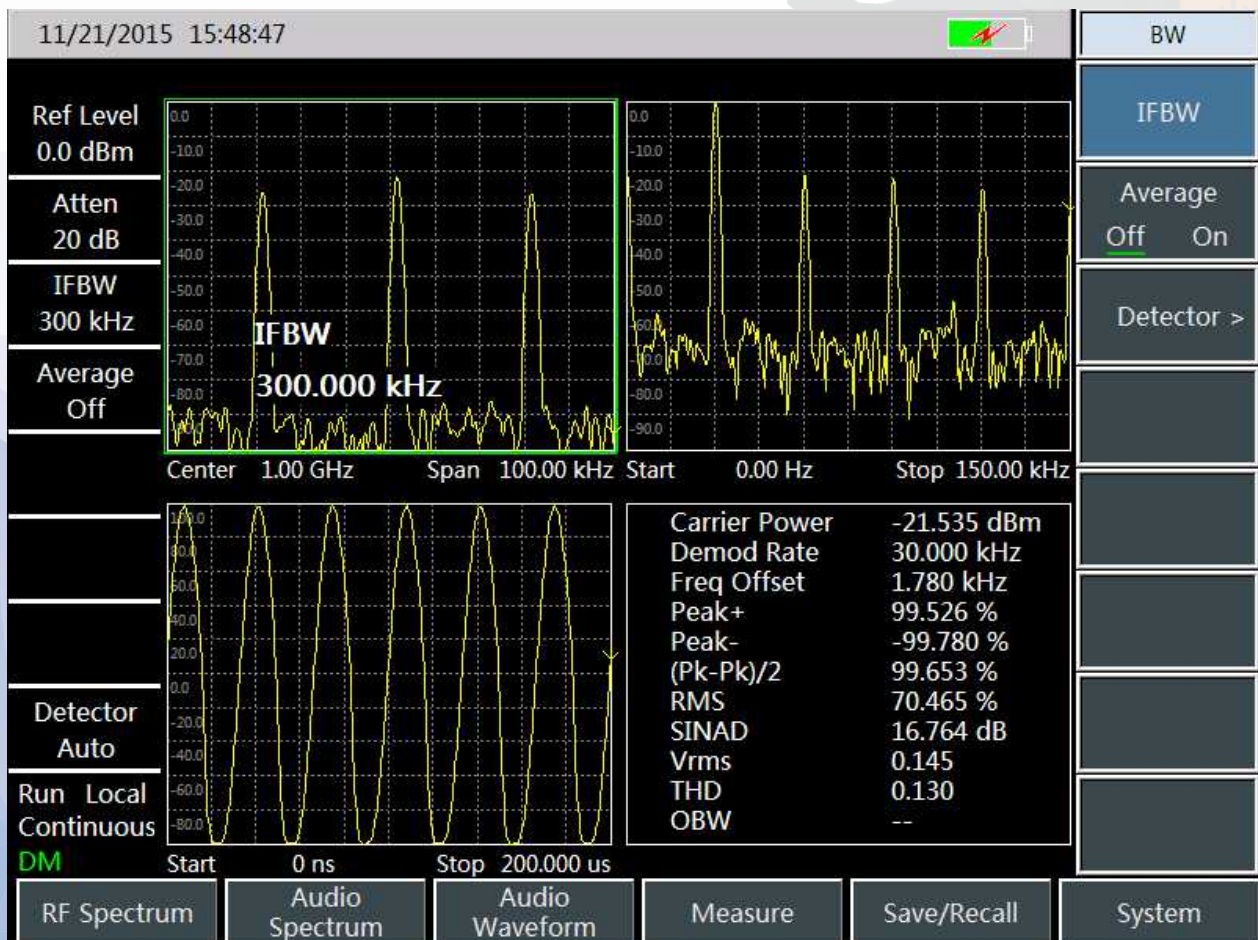
Various Measurement Functions



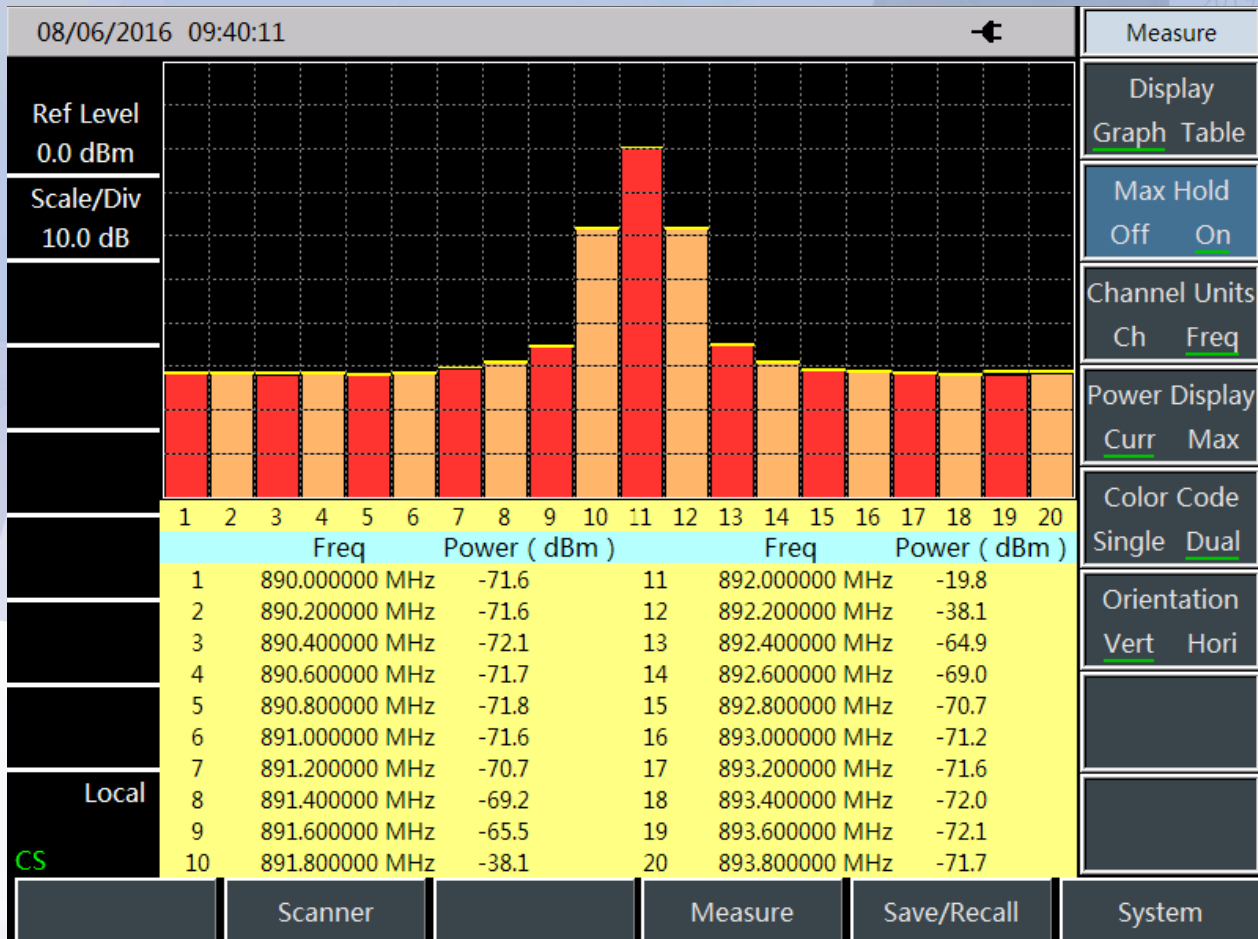
Field Strength



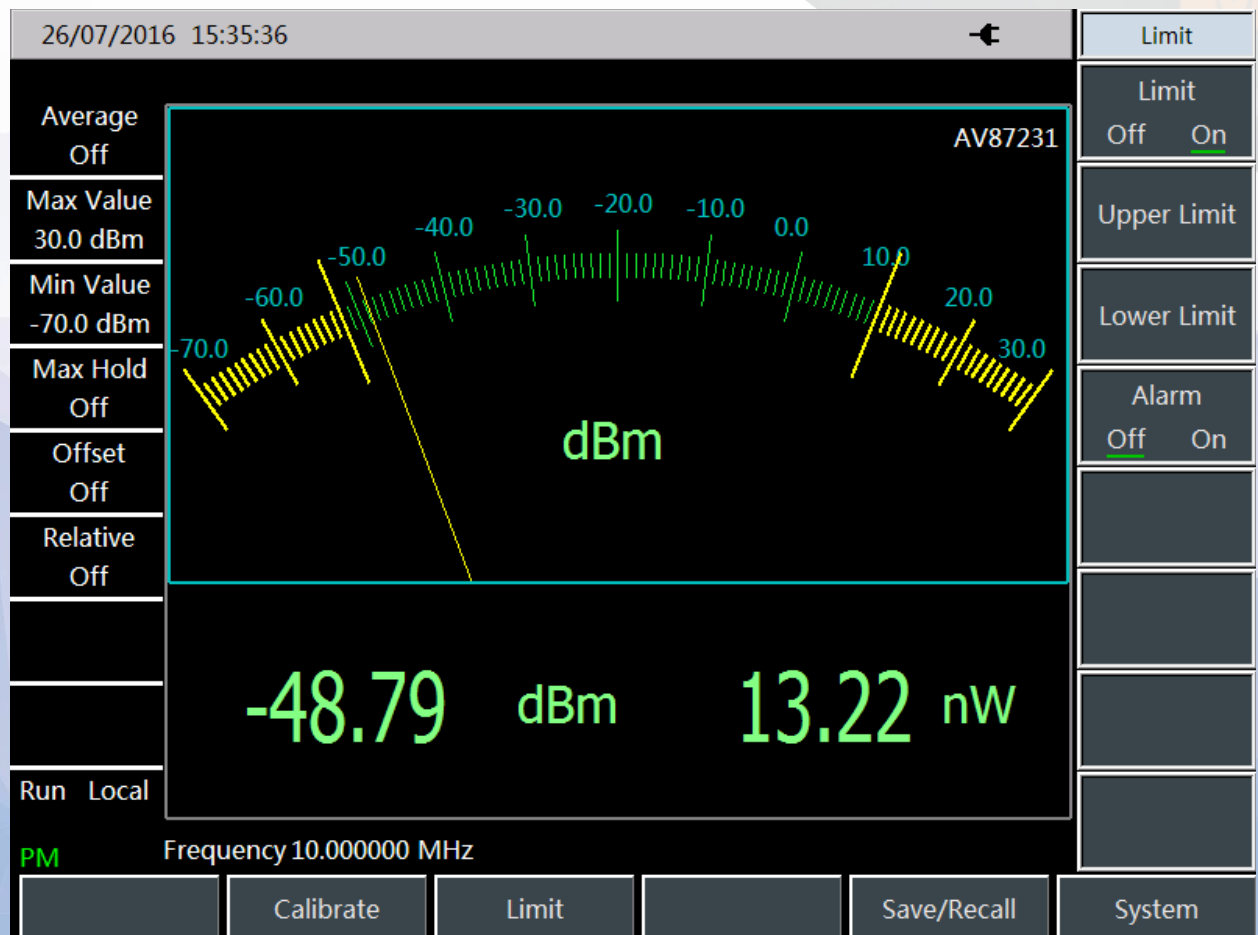
Interference Analyzer (Spectrogram)



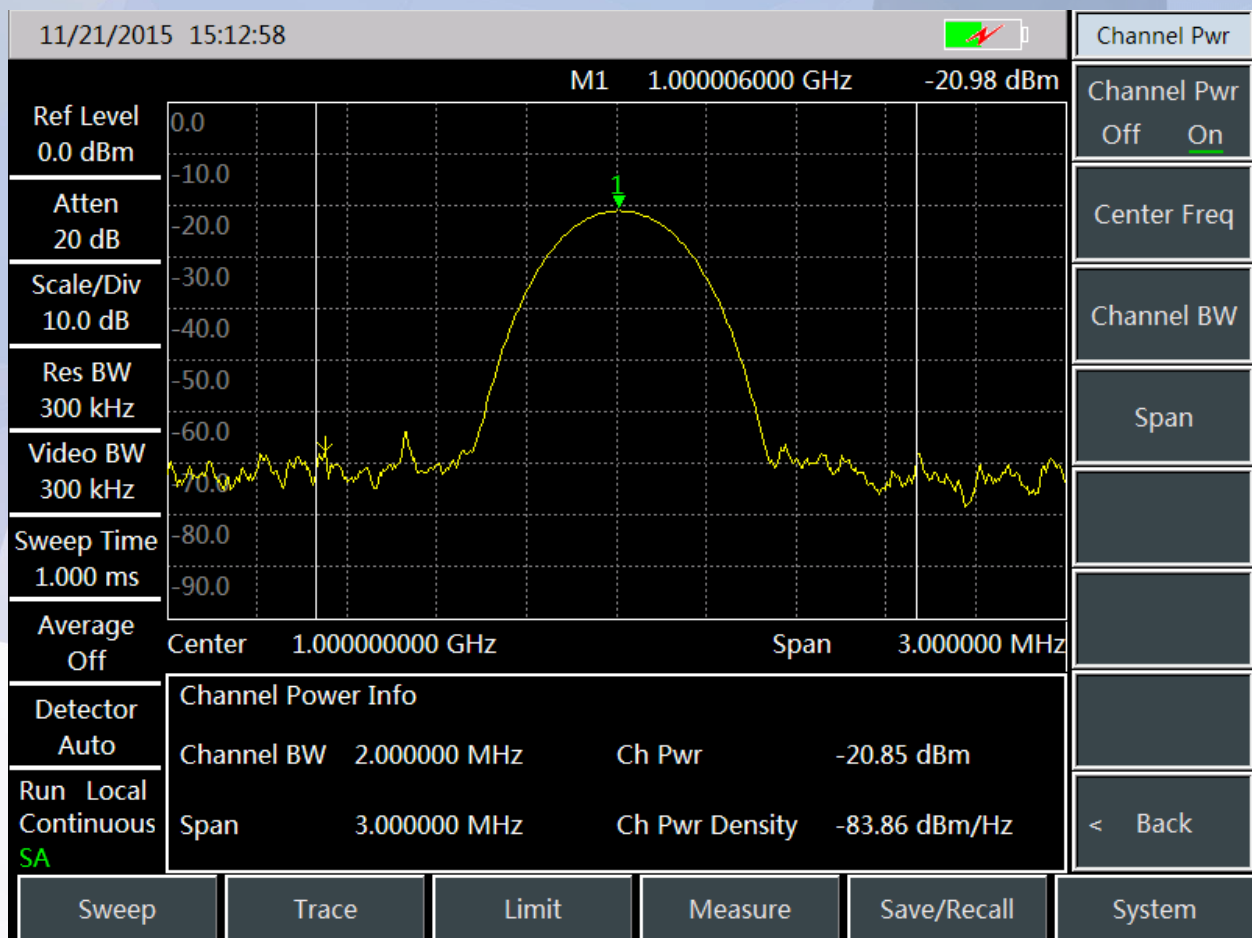
AM/FM/PM Demodulation



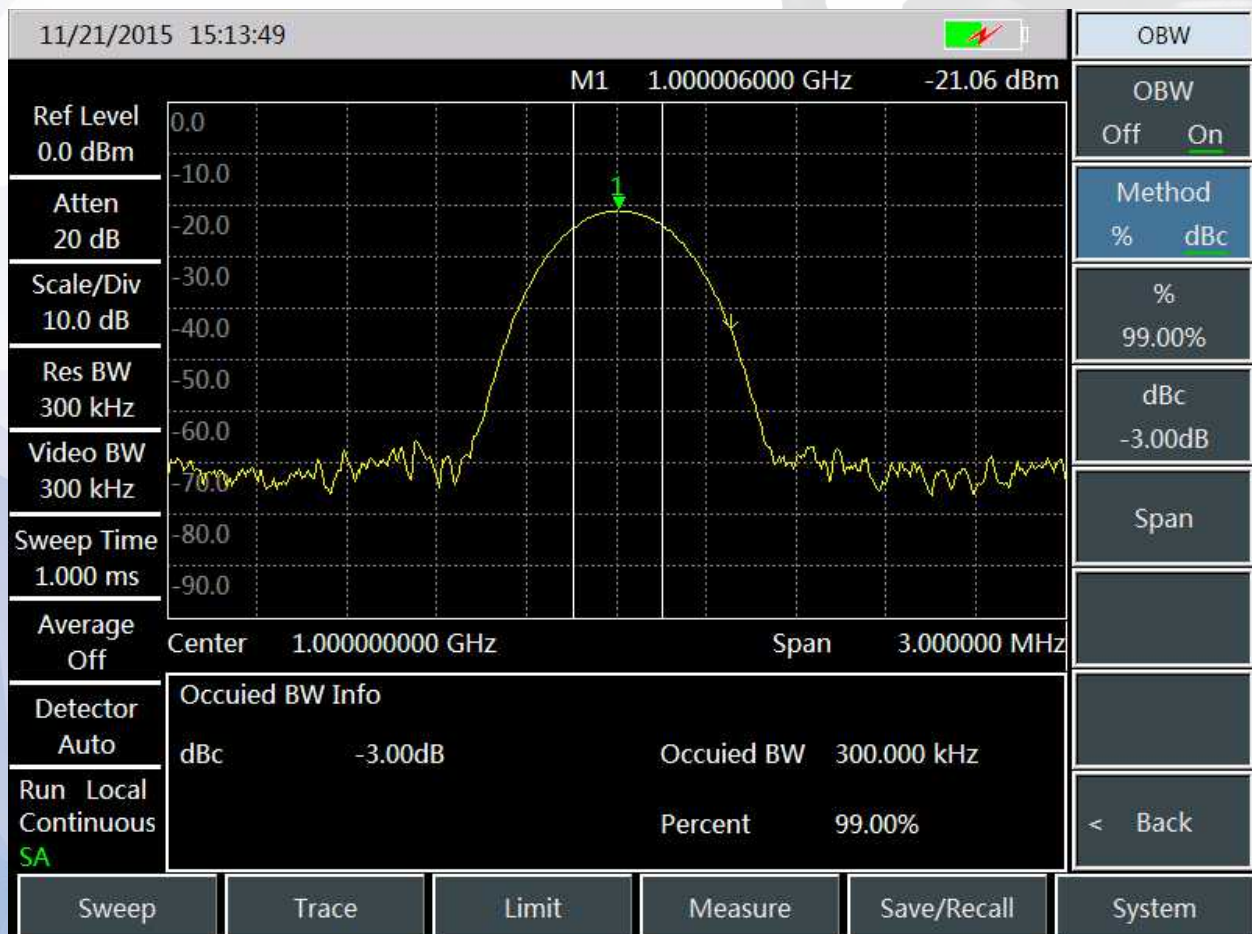
Channel Scanner



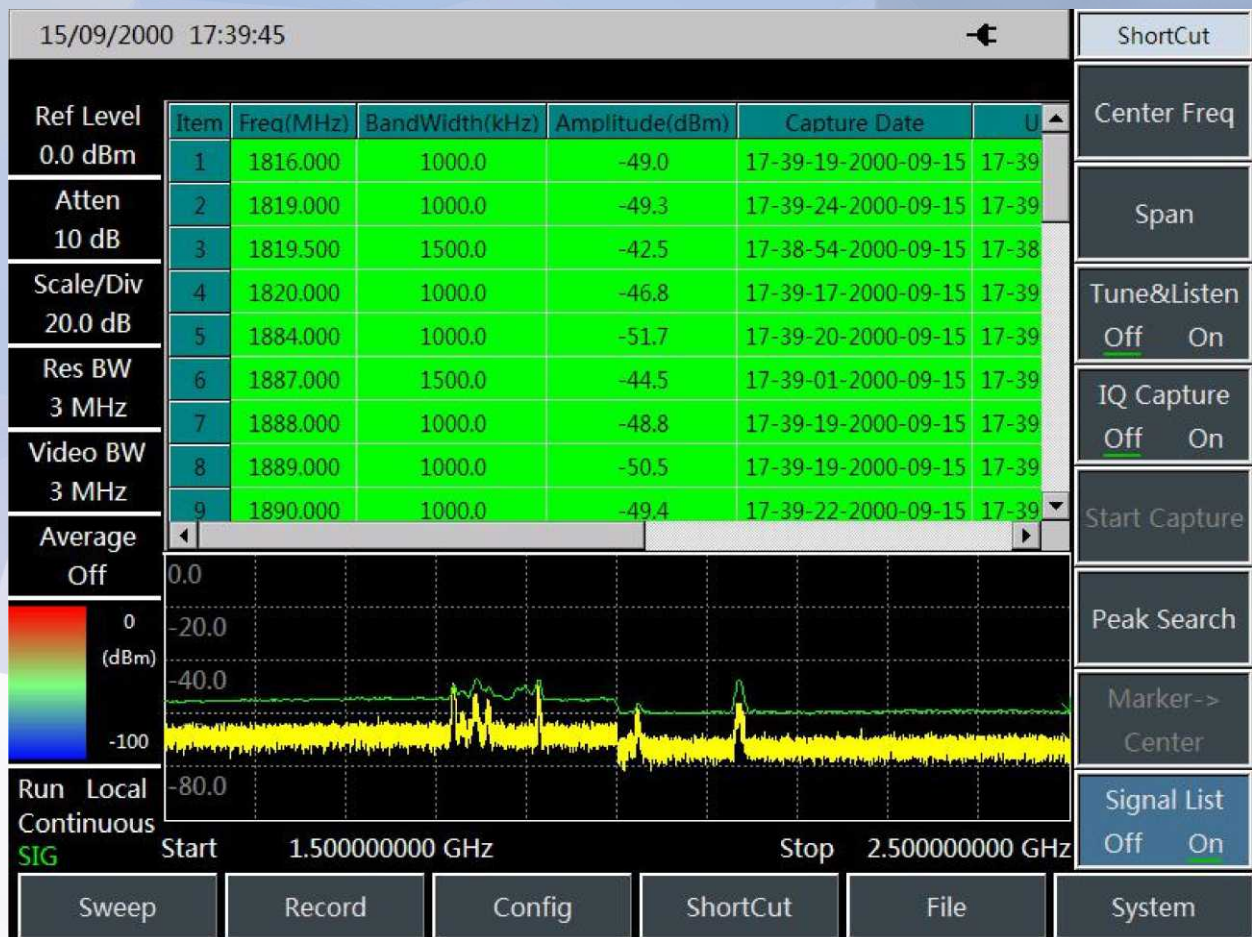
Power Meter (USB Power Probe)



Channel Power

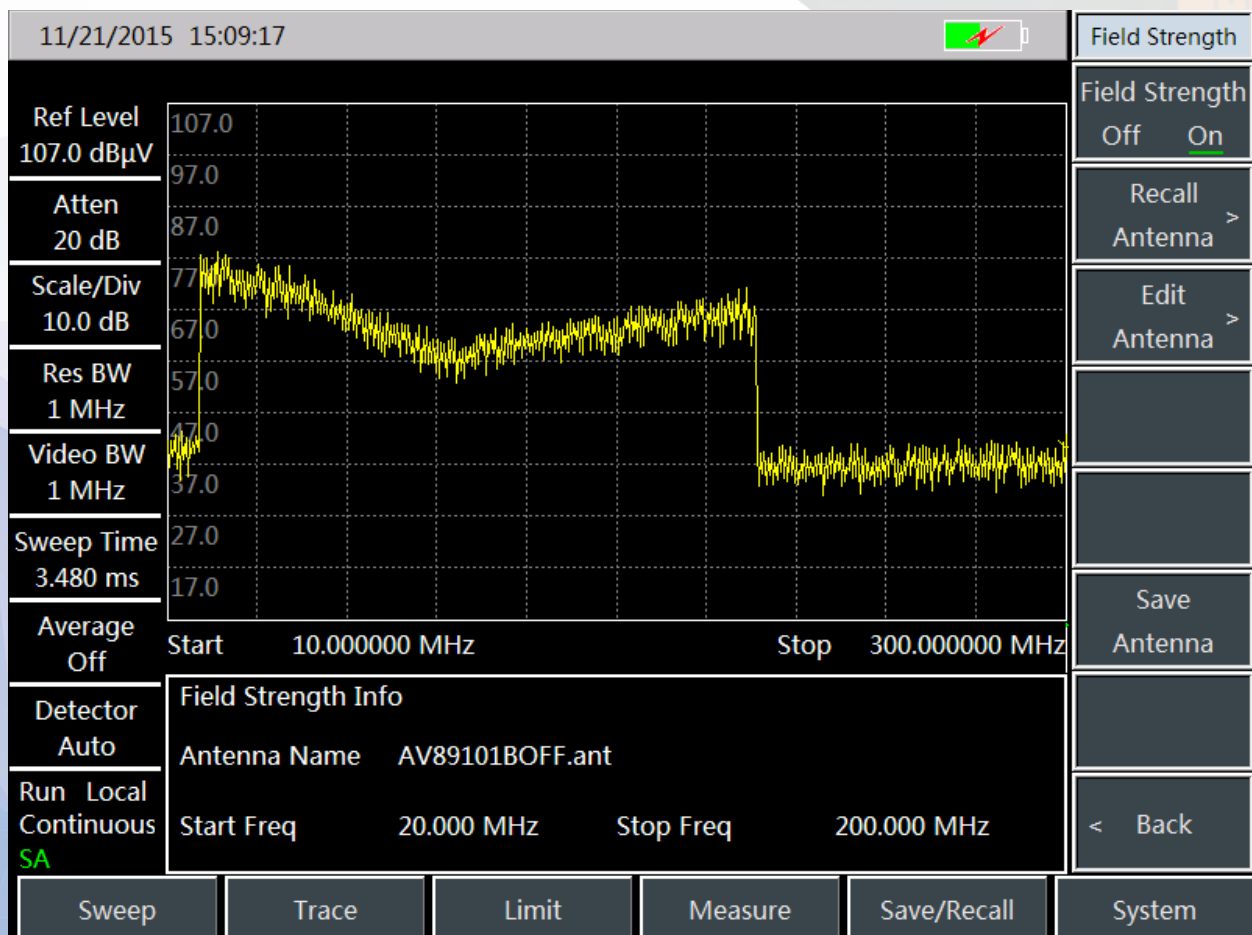


Occupied Bandwidth

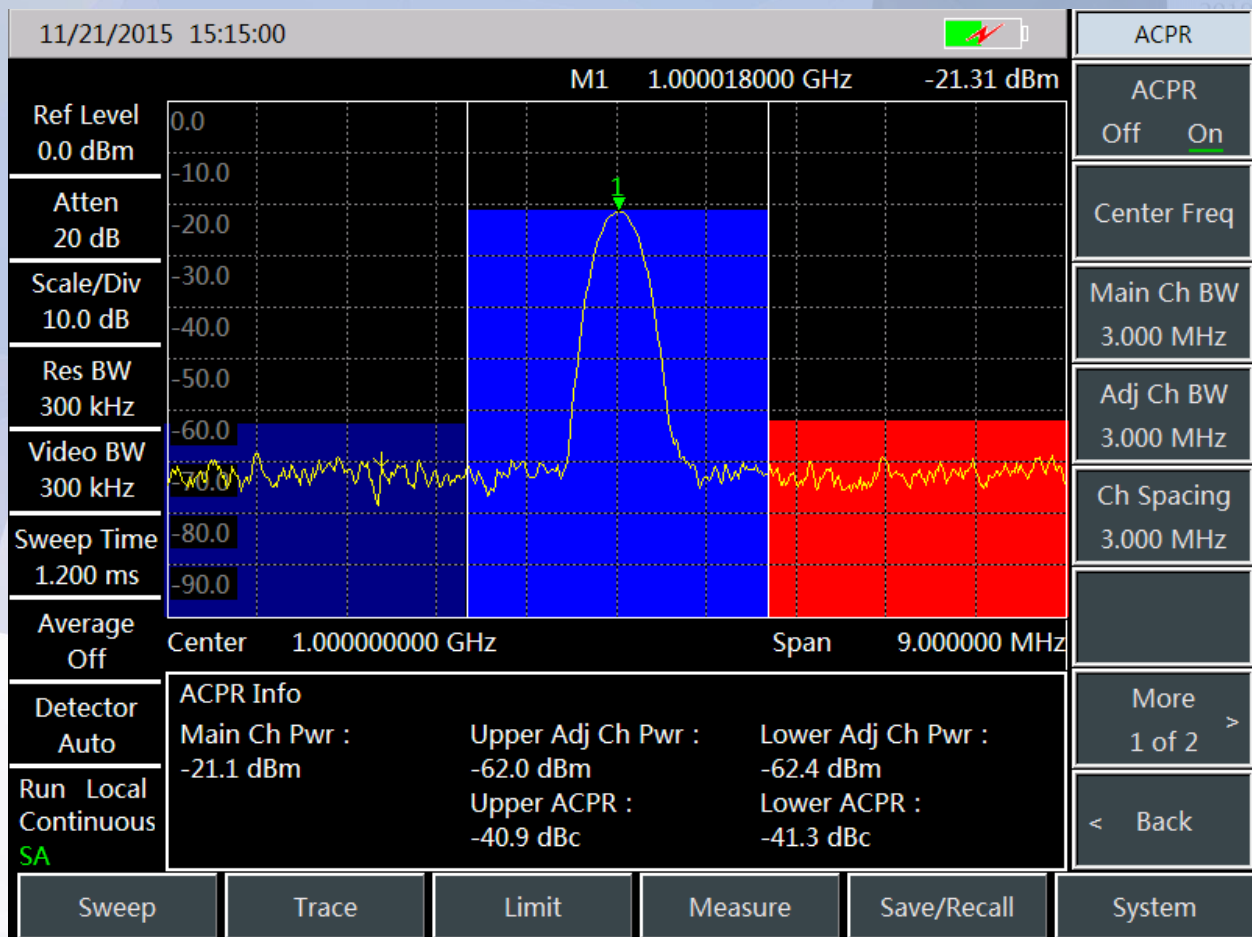


Signal Analyzer

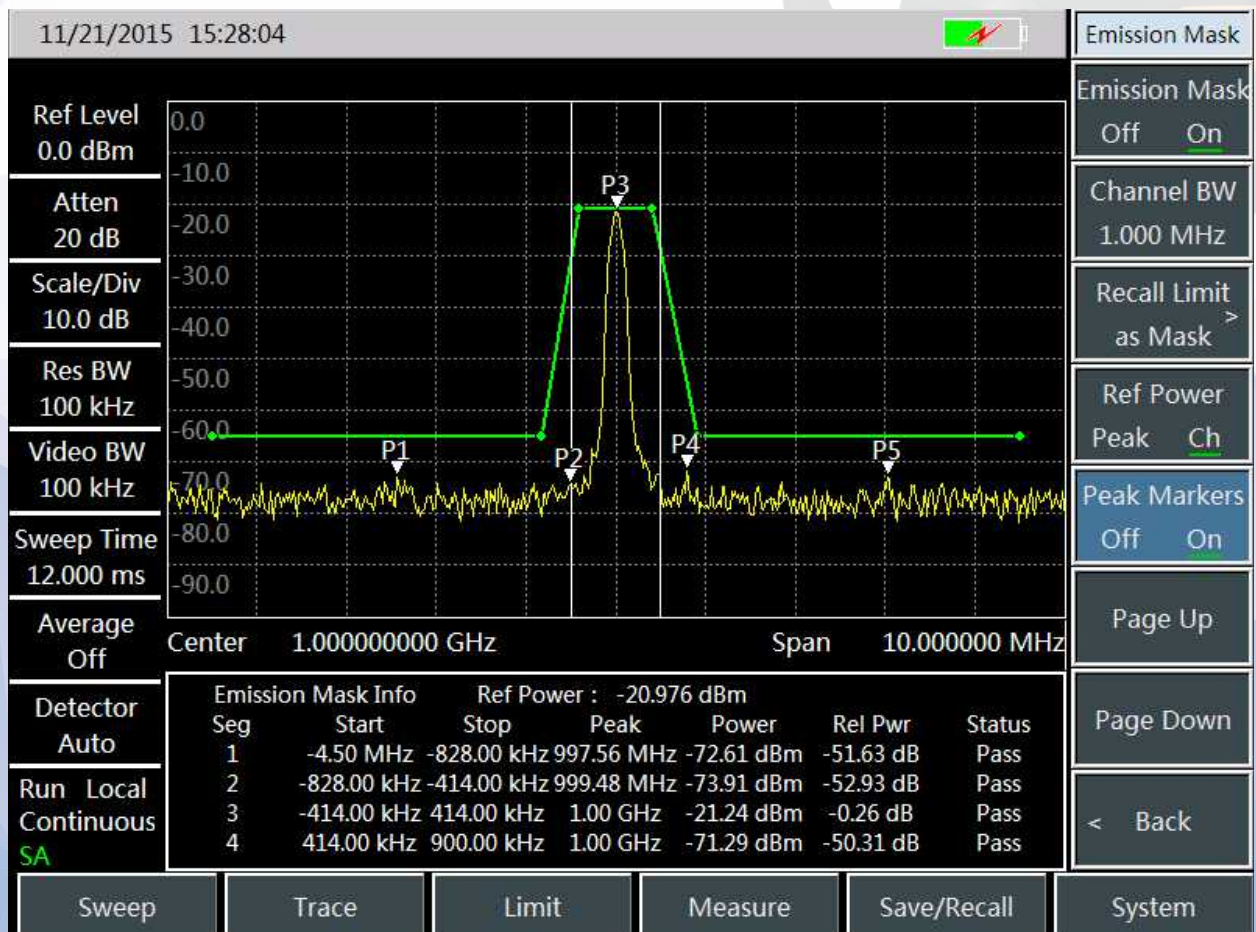
Comprehensive Intelligent Measurement Function



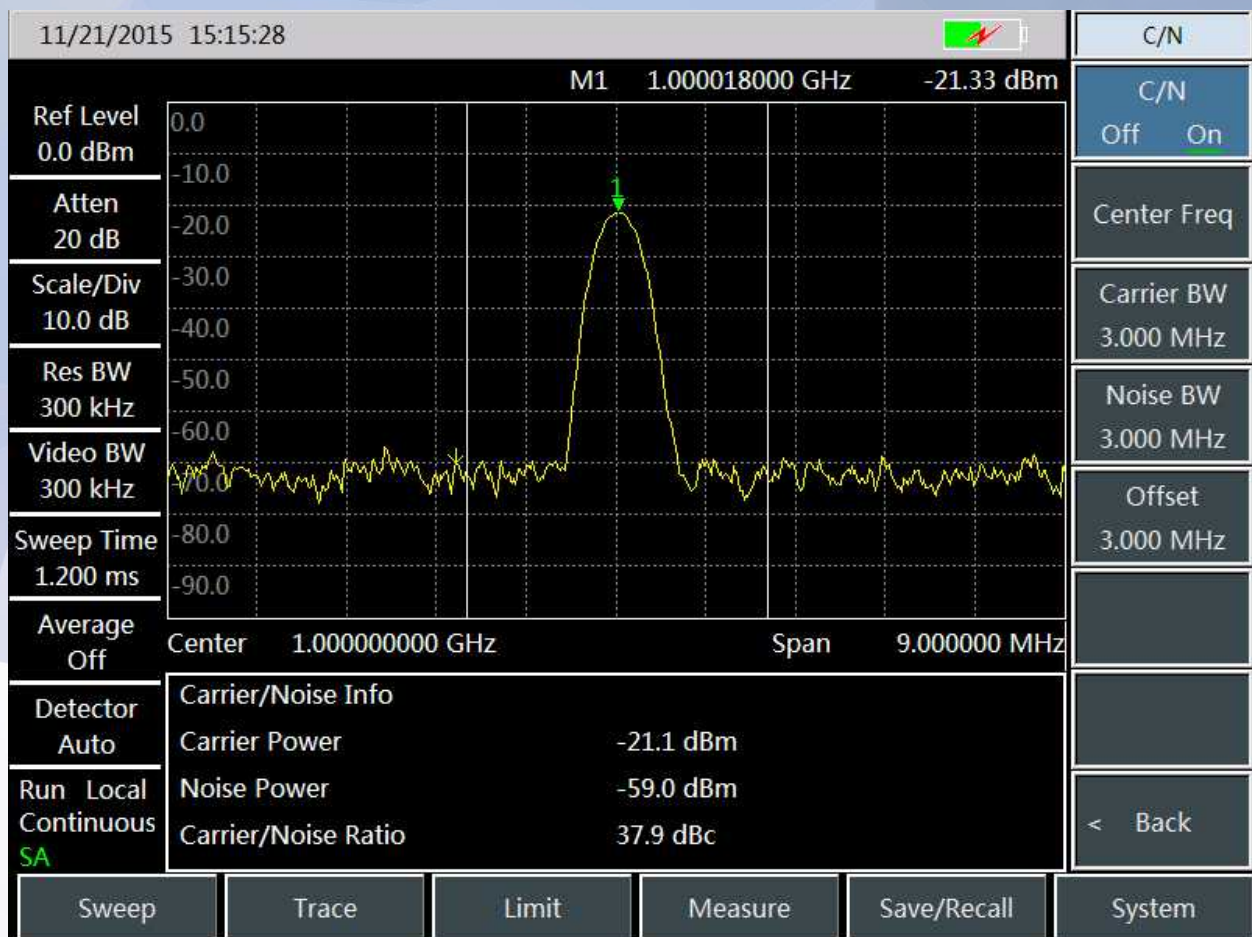
Field Strength Measurement



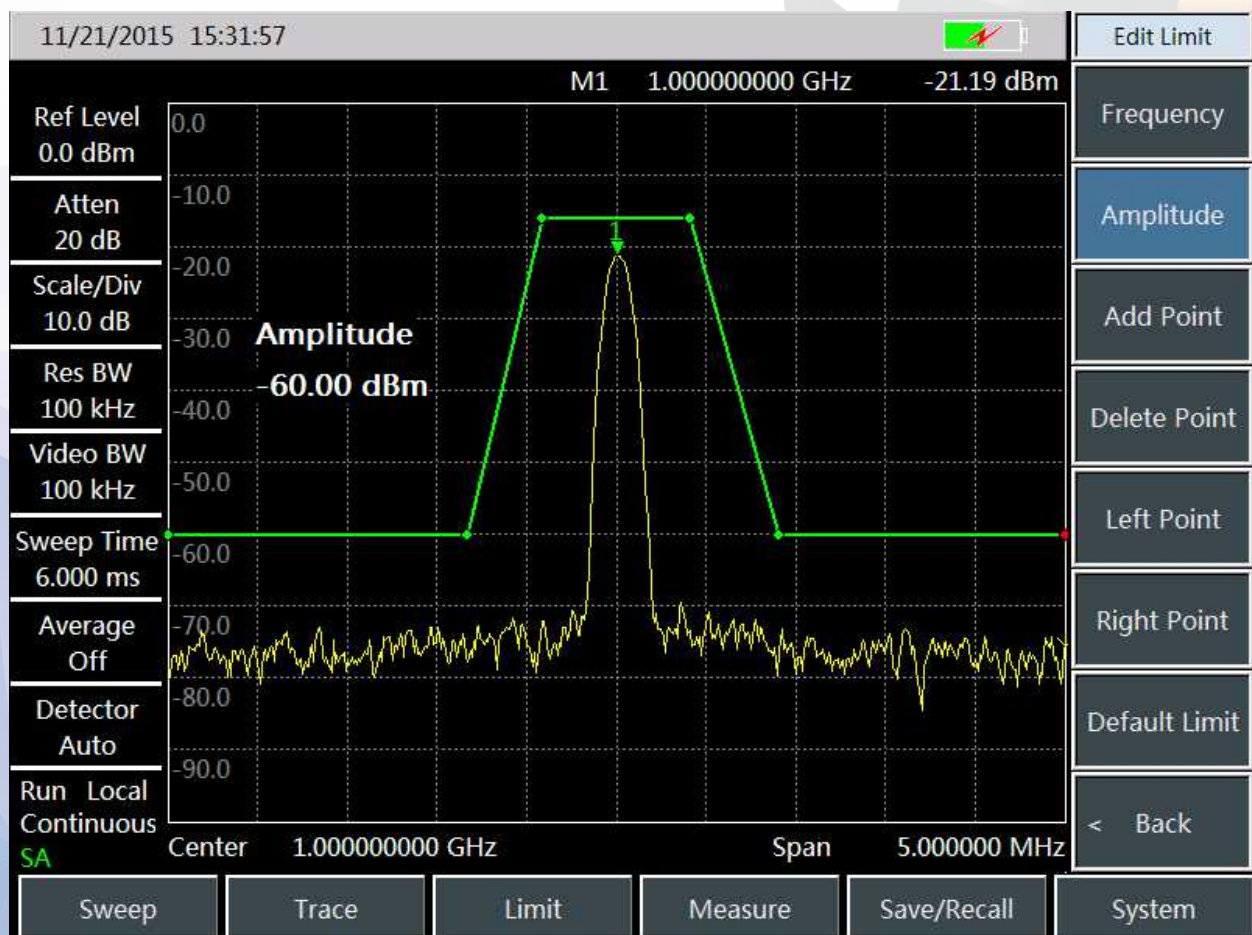
Adjacent-Channel Power Ratio



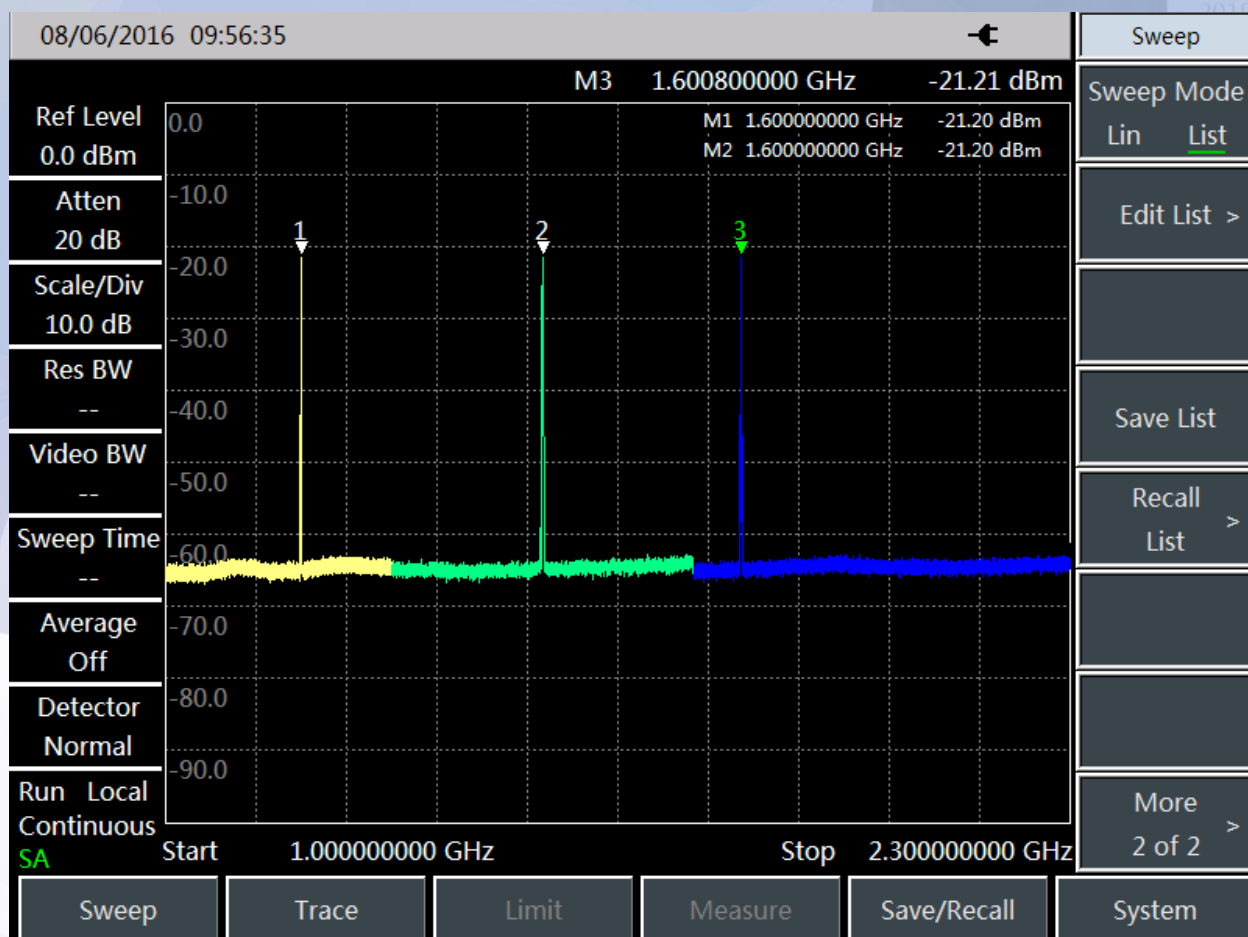
Emission Mask



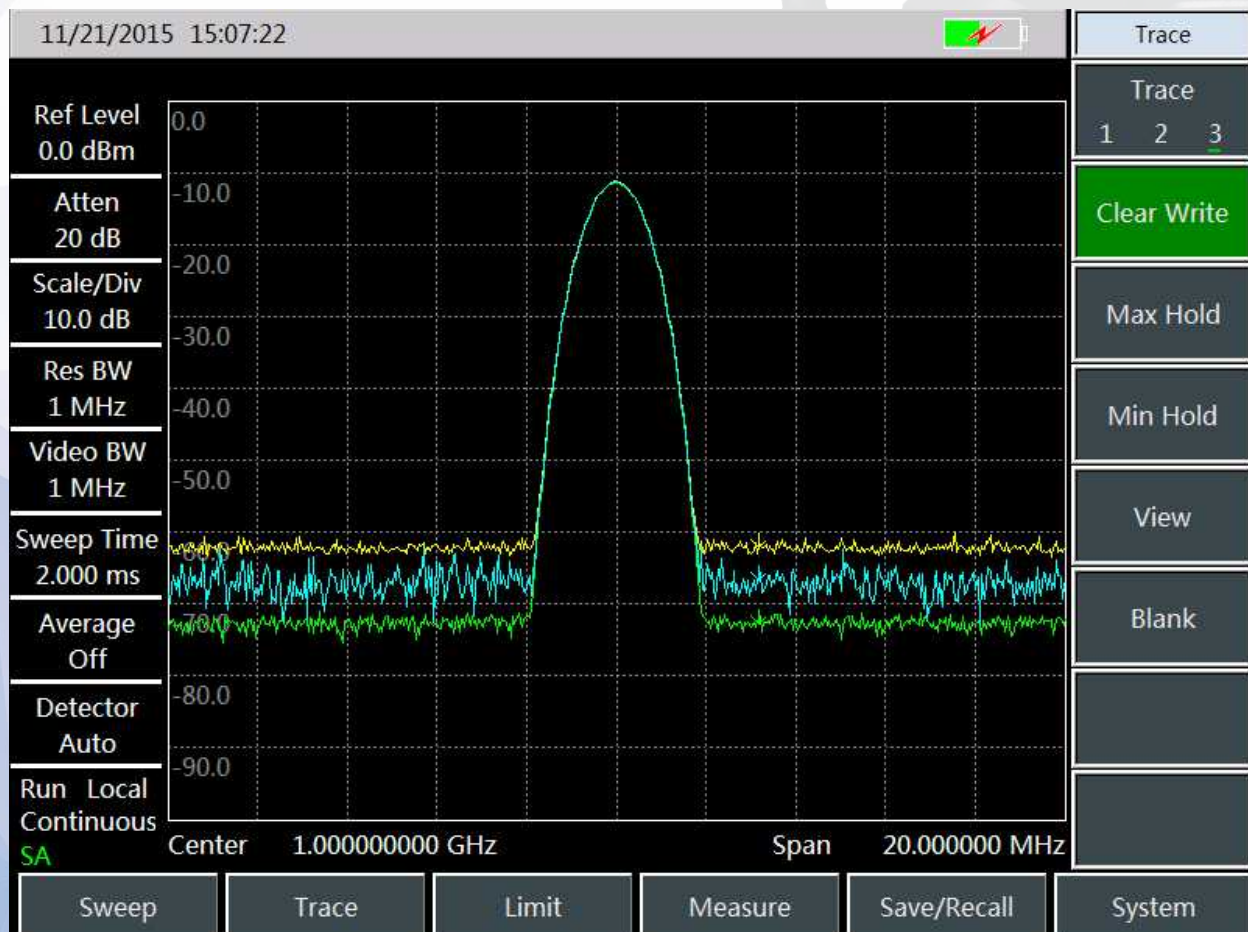
Carrier-to-Noise Ratio



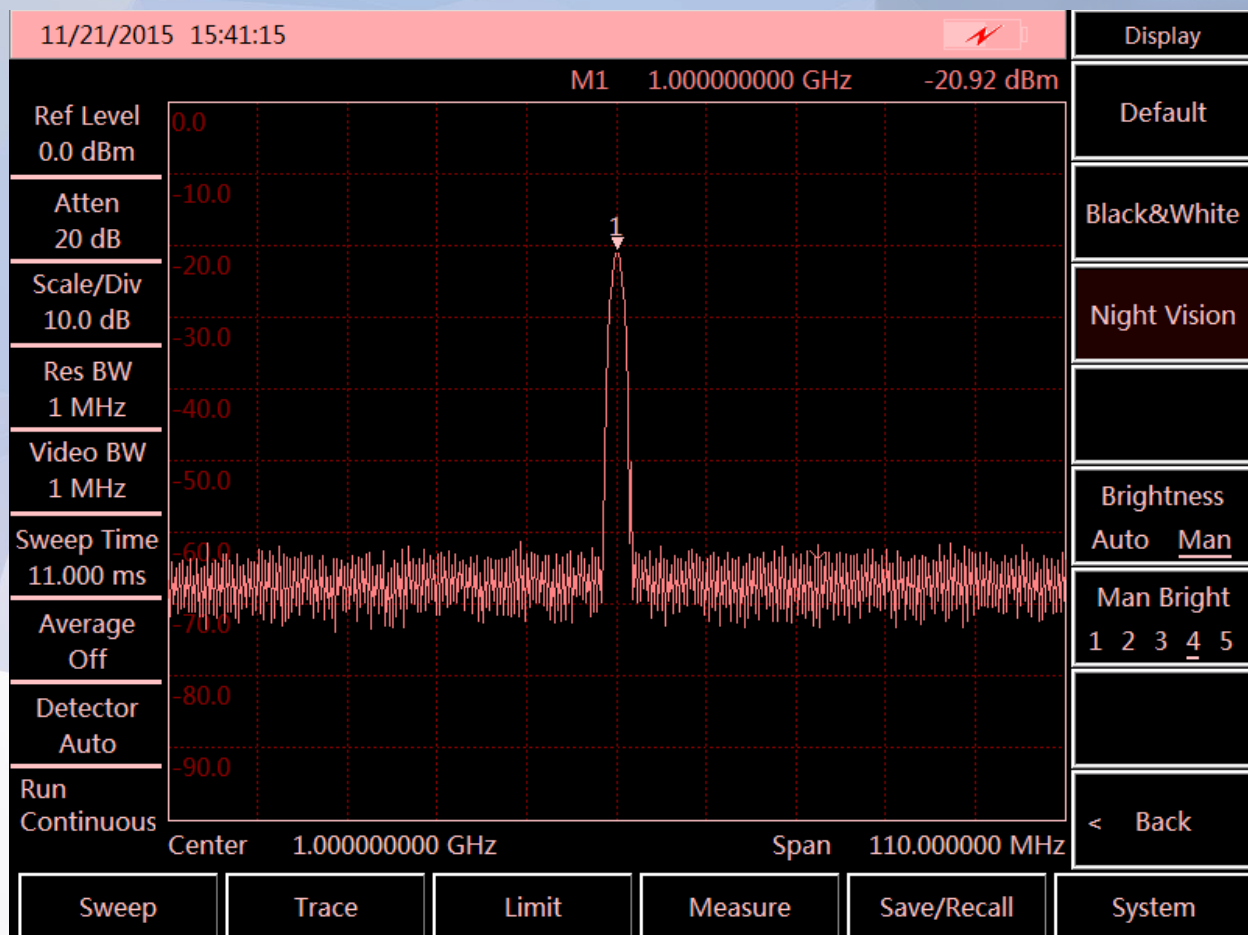
Limit Line



List Sweep



Multi-Traces



Night Vision Mode

Typical Applications

Comprehensive Performance Evaluation of Electronic Weapon Equipment

1300 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 electronic weapon equipment in fields of radar, communication, electronic countermeasures & reconnaissance, and precision guidance etc.

Field Test and Diagnosis of Transmitter and Receiver

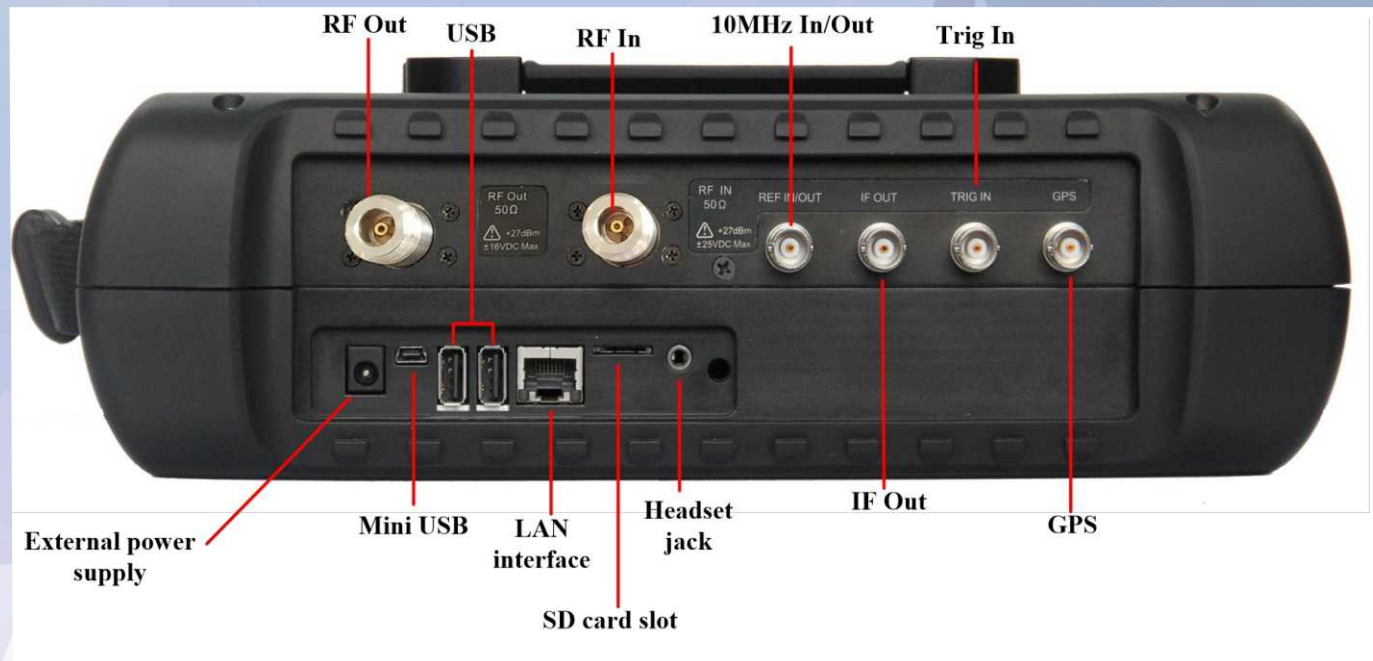
1300 series spectrum analyzers have various measurement function modes like spectrum analyzer, interference analyzer, AM/FM/PM analyzer, power meter, channel scanner etc., as well as various

Technical Specifications

Model	1300A/B/C/D/E/F/G	
Frequency Range	1300A: 9kHz~4GHz	1300B: 9kHz~6.5GHz
	1300C: 9kHz~9GHz	1300D: 9kHz~20GHz
	1300E: 9kHz~26.5GHz	1300F: 9kHz~32GHz
	1300G: 9kHz~44GHz	1300H: 9kHz~32GHz
	1300L: 9kHz~67GHz	
Frequency Reference	Tuning Resolution: 1Hz	
	Frequency: 10MHz	
	Aging: $\pm 0.5\text{ppm/Year}$	
	Initial Frequency Accuracy: $\pm 0.3\text{ppm}$	
Sweep Time	Temperature Stability: $\pm 0.1\text{ppm}(-10\sim 50^{\circ}\text{C}, \text{Comparative to } 25^{\circ}\text{C})$	
	Range: $10\mu\text{s}\sim 600\text{s}$ (Zero Span)	
	Accuracy: $\pm 2.00\%$ (Zero Span)	

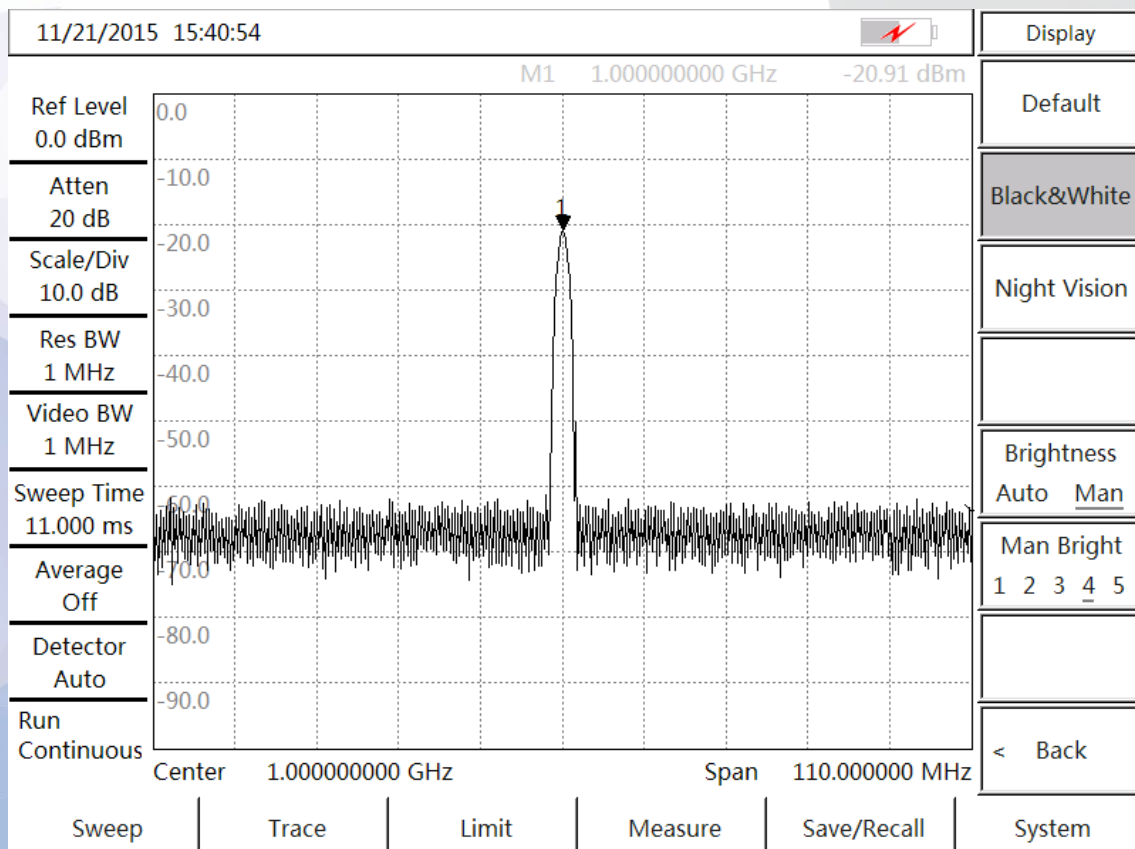
Various Auxiliary Test Interfaces

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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
- Backlight keys enable easy viewing in darkness



Outdoor Mode

Frequency Readout Accuracy	$\pm(\text{Frequency Readout} \times \text{frequency Reference} + 2\% \times \text{Span} + 10\% \times \text{Resolution Bandwidth})$	
Frequency Span	Range: 100Hz ~ Upper Frequency Limit of Corresponding Model or 0Hz Accuracy: $\pm 2.0\%$	
Resolution Bandwidth	1Hz ~ 10MHz (1-3 Times of Stepping)	
Video Bandwidth	1Hz ~ 10MHz (1-3 Times of Stepping)	
SSB Phase Noise (Carrier 1GHz)	1300A/B/C: $\leq -108\text{dBc/Hz@}$ Frequency Offset 10kHz $\leq -112\text{dBc/Hz@}$ Frequency Offset 100kHz $\leq -118\text{dBc/Hz@}$ Frequency Offset 1MHz $\leq -129\text{dBc/Hz@}$ Frequency Offset 10MHz	1300D/E/F/G/H/L: $\leq -102\text{dBc/Hz@}$ Frequency Offset 10kHz $\leq -106\text{dBc/Hz@}$ Frequency Offset 100kHz $\leq -111\text{dBc/Hz@}$ Frequency Offset 1MHz $\leq -123\text{dBc/Hz@}$ Frequency Offset 10MHz
Displayed Average Noise Level (input port is connected with a 50 Ω load, 0dB input attenuation, average detection, logarithm of video type, RBW normalized to 1Hz, tracking source off, 20°C ~ 30°C)	1300A/B/C: Pre-amp Off: $\leq -140\text{dBm}(10\text{MHz} \sim 3\text{GHz})$ $\leq -138\text{dBm}(3\text{GHz} \sim 9\text{GHz})$ Pre-amp On: $\leq -160\text{dBm}(10\text{MHz} \sim 3\text{GHz})$ $\leq -157\text{dBm}(3\text{GHz} \sim 9\text{GHz})$ 1300D/E/F/G Pre-amp Off: $\leq -138\text{dBm}(10\text{MHz} \sim 20\text{GHz})$ $\leq -135\text{dBm}(20\text{GHz} \sim 32\text{GHz})$ $\leq -127\text{dBm}(32\text{GHz} \sim 40\text{GHz})$ Pre-amp On: $\leq -157\text{dBm}(10\text{MHz} \sim 20\text{GHz})$ $\leq -154\text{dBm}(20\text{GHz} \sim 32\text{GHz})$ $\leq -148\text{dBm}(32\text{GHz} \sim 40\text{GHz})$ 1300H/L: Pre-amp Off: $\leq -135\text{dBm}(10\text{MHz} \sim 20\text{GHz})$ $\leq -134\text{dBm}(20\text{GHz} \sim 32\text{GHz})$ $\leq -129\text{dBm}(32\text{GHz} \sim 40\text{GHz})$ $\leq -120\text{dBm}(40\text{GHz} \sim 46\text{GHz})$ $\leq -114\text{dBm}(46\text{GHz} \sim 50\text{GHz})$ $\leq -114\text{dBm}(50\text{GHz} \sim 60\text{GHz})$ $\leq -100\text{dBm}(60\text{GHz} \sim 67\text{GHz})$ Pre-amp On: $\leq -153\text{dBm}(10\text{MHz} \sim 20\text{GHz})$ $\leq -152\text{dBm}(20\text{GHz} \sim 32\text{GHz})$ $\leq -147\text{dBm}(32\text{GHz} \sim 40\text{GHz})$ $\leq -142\text{dBm}(40\text{GHz} \sim 46\text{GHz})$ $\leq -132\text{dBm}(46\text{GHz} \sim 50\text{GHz})$ $\leq -132\text{dBm}(50\text{GHz} \sim 60\text{GHz})$ $\leq -118\text{dBm}(60\text{GHz} \sim 67\text{GHz})$	
Residual Response	1300A/B/C: Pre-amp Off: $\leq -82\text{dBm} (10\text{MHz} \sim 9\text{GHz})$ Pre-amp On:	1300D/E/F/G: Pre-amp Off: $\leq -90\text{dBm}(10\text{MHz} \sim 13\text{GHz})$ $\leq -85\text{dBm} (13\text{GHz} \sim 20\text{GHz})$ Pre-amp On: $\leq -80\text{dBm} (20\text{GHz} \sim 44\text{GHz})$

	$\leq -95\text{dBm}$ (10MHz~9GHz) (Exceptional Frequency: 3200MHz)	Pre-amp On: $\leq -100\text{dBm}$ (10MHz ~ 32GHz) $\leq -95\text{dBm}$ (32GHz~44GHz) (Exceptional Frequency: 3200MHz)
Second Harmonic Distortion	1300A/B/C/H/L: $< -65\text{dBc}$ (Attenuation 0dB, -30dBm Input Signal) 1300D/E/F/G: $< -60\text{dBc}$ (Attenuation 0dB, -30dBm Input Signal)	
Absolute Amplitude Accuracy (20 °C ~30 °C , 30 Minutes of Preheating)	$\pm 1.8\text{dB}$ (10MHz~13GHz) $\pm 2.3\text{dB}$ (13GHz~40GHz) $\pm 2.7\text{dB}$ (40GHz~50GHz) $\pm 3.0\text{dB}$ (50GHz~67GHz)	
Input Attenuator	1300A/B/C/H/L: Attenuation Range: 0dB~30dB, 5dB Stepping	1300D/E/F/G: Attenuation Range: 0dB~50dB, 10dB Stepping
Maximum Continuous Input	1300A/B/C/H/L: $+27\text{dBm}$ Peak Typical($\geq 10\text{dB}$ Attenuation) $+20\text{dBm}$ Peak Typical($< 10\text{dB}$ Attenuation) $+10\text{dBm}$ Peak Typical(Pre-amp ON)	1300D/E/F/G: $+30\text{dBm}$ Peak Typical($\geq 10\text{dB}$ Attenuation) $+23\text{dBm}$ Peak Typical($< 10\text{dB}$ Attenuation) $+13\text{dBm}$ Peak Typical(Pre-amp ON)
Reference Level	Range: $-120\text{dBm} \sim +30\text{dBm}$ Conversion Uncertainty: $\pm 1.20\text{dB}$	
Battery Power Supply	1300A/B/C: 3h(Typ.)	1300D/E/F/G: 2.5h(Typ.) 1300H/L: 2h(Typ.)
Dimension	314mm (W)×218mm (H)×91mm (D) (Excluding Handle, Stand) 338mm(W)×218mm (H)×100mm (D) (Including Handle, Stand)	
Weight	1300A/B/C: $\leq 4.5\text{kg}$	1300D/E/F/G: $\leq 5\text{kg}$ 1300H/L: $\leq 5.3\text{kg}$
Working Temperature	$-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$	
Storage Temperature	$-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$	
Electromagnetic Compatibility	Conforms to GJB3947A-2009 3.9.1 Requirements	
Power Consumption	1300A/B/C: $\leq 25\text{W}$	1300D/E/F/G: $\leq 30\text{W}$ 1300H/L: $\leq 38\text{W}$
Test Interface	RF input: 1300A/B/C/D/E: Type-N Connector (female) 1300F/G: 2.4mm Connector(male) 1300H/L: 1.85mm Connector(male) RF output (1300A/B/C Tracking generator test port): Type-N(female)	

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
Tracking Generator (Options)	Frequency Range	1300A: 100kHz~4GHz 1300B: 100kHz~6.5GHz 1300C: 100kHz~9GHz
	Amplitude Range	0dBm~-40dBm
	Minimum Amplitude Step	0.1dB min
	Amplitude Accuracy	$\pm 2.50\text{dB}$ (Frequency Range 10MHz~9GHz, 20°C~30°C)
	Sideband Noise	1GHz frequency point, 0dBm output: $\leq -90\text{dBc/Hz}@10\text{kHz}$ frequency offset $\leq -95\text{dBc/Hz}@100\text{kHz}$ frequency offset $\leq -110\text{dBc/Hz}@1\text{MHz}$ frequency offset

Ordering Information

Main Unit: 1300A Spectrum Analyzer (9kHz~4GHz)

Main Unit: 1300B Spectrum Analyzer (9kHz~6.5GHz)

Main Unit: 1300C Spectrum Analyzer (9kHz~9GHz)

Main Unit: 1300D Spectrum Analyzer (9kHz~20GHz)

Main Unit: 1300E Spectrum Analyzer (9kHz~26.5GHz)

Main Unit: 1300F Spectrum Analyzer (9kHz~32GHz)

Main Unit: 1300G Spectrum Analyzer (9kHz~44GHz)

Main Unit: 1300H Spectrum Analyzer (9kHz~50GHz)

Main Unit: 1300L Spectrum Analyzer (9kHz~67GHz)

Standard Package

No.	Description
1	Standard 3-Phase Power Cord
2	Power Adapter
3	Quick guide
4	USB Cable
5	Built-In Rechargeable Lithium Ion Battery
6	Certificate of Conformity

Serial No.	Description	Function
1300-001	Optional Accessories of English Version	English Signs、Keys、Menu
1300-002	User Manual (Chinese)	-
1300-003	User Manual (English)	-
1300-004	Programming Manual (Chinese)	-
1300-005	Programming Manual (English)	-
1300-006	Power Adapter	Power Adapter
1300-007	Rechargeable Lithium Ion Battery	Standby Battery
1300-008	Purple Cat5e Cable	Point to Point, 2 Meters
1300-009	Micro SD Card	Class4, Capacity: 8G
1300-010	GPS Antenna	GPS exposed Antenna
1300-011	USB Power Meter Option	Provide USB Power Measurement Function (Requires USB Power Probe:012/013/014/015)
1300-012	USB CW Power Probe	9kHz~6GHz Power Probe
1300-013	USB CW Power Probe	10MHz~18GHz Power Probe
1300-014	USB CW Power Probe	50MHz~26.5GHz Power Probe
1300-015	USB CW Power Probe	50MHz~40GHz Power Probe
1300-016	Interference Analyzer Option	Provide Spectrogram, RSSI Measurement etc. Functions
1300-017	AM/FM/PM Analyzer Option	To Realize Modulation Characteristics Analysis of AM/FM/PM Signals
1300-018	Channel Scanner Option	To Realize Signal Power Measurement of Multiple Channels and Frequency
1300-019	List Sweep Option	To Realize Continuous Sweep Measurement of Various Frequency Bands
1300-020	Zero Span IF Output	Output the Third or Fourth IF Signal (Choose One of Two)
1300-021	Directional Antenna A	Frequency Range:9kHz~20MHz,N(f) (Requires Option 025)
1300-022	Directional Antenna B	Frequency Range:20MHz~200MHz,N(f) (Requires Option 025)
1300-023	Directional Antenna C	Frequency Range:200MHz~500MHz,N(f) (Requires Option 025)

1300-024	Directional Antenna D	Frequency Range:500MHz~8GHz,N(f) (Requires Option 025)
1300-025	Antenna Amplifier	Frequency Range:10kHz~4GHz,N(f) (Requires Option 021/022/023/024)
1300-026	Antenna	Frequency Range:1GHz~18GHz,N(f)
1300-027	Antenna	Frequency Range:18GHz~40GHz,2.92mm(f)
1300-028	Functional Bag	Protect the Instrument
1300-029	Backpack	Easy to Carry
1300-030	Safety Instrument Carrying Case	Used to Carry
1300-031	Antenna Handle	Requires Option 026
1300-032	Antenna Handle	Requires Option 027
1300-033	Signal Analyzer	To Realize the rapid analysis of interference signal, and provide the audio output and IQ Capture
1300-034	Field Strength Option	Provide Pscan, Fscan, MScan etc. Functions
1300-035	4GHz Tracking Generator	Frequency Range 100kHz~4GHz (Only For 1300A)
1300-036	6.5GHz Tracking Generator	Frequency Range 100kHz~6.5GHz (Only For 1300B)
1300-037	9GHz Tracking Generator	Frequency Range 100kHz~9GHz (Only For 1300C)
1300-038	Orientation Analysis	Internal software, Option 010、050 and Directional antenna is needed.
1300-039	Coverage Mapping	Internal software, Option 010 is needed.
1300-041	Whip omnidirectional antenna	Frequency Range 700MHz~2700MHz
1300-042	Active log-periodic antenna	Frequency Range :700MHz~4GHz
1300-043	Active log-periodic antenna	Frequency Range: 700MHz~6GHz
1300-044	Active log-periodic antenna	Frequency Range: 680MHz~10GHz
1300-045	Active log-periodic antenna	Frequency Range: 680MHz~20GHz
1300-046	Active log-periodic antenna	Frequency Range: 400MHz~4GHz
1300-047	Active log-periodic antenna	Frequency Range: 400MHz~6GHz
1300-048	Active log-periodic antenna	Frequency Range: 380MHz~10GHz
1300-049	Active log-periodic antenna	Frequency Range: 380MHz~20GHz
1300-050	USB electronic compass	External USB electronic compass,

		option 1300-038 is needed
1300-051	6GHz Omni Antenna	Portable Omni Antenna, Frequency Range: 680MHz~6GHz
1300-052	8GHz Omni Antenna	Portable Omni Antenna, Frequency Range: 380MHz~8GHz
1300-053	VHF/UHF Scalable Whip Antenna	Frequency Range: 140MHz/430MHz
1300-054	Passive Log-periodic Antenna	Frequency Range: 700MHz~4GHz
1300-055	Passive Log-periodic Antenna	Frequency Range: 700MHz~6GHz
1300-056	Passive Log-periodic Antenna	Frequency Range: 680MHz~10GHz
1300-057	Passive Log-periodic Antenna	Frequency Range: 680MHz~18GHz
1300-058	Passive Log-periodic Antenna	Frequency Range: 680MHz~25GHz
1300-059	Passive Log-periodic Antenna	Frequency Range: 680MHz~35GHz
1300-060	N/SMA-JJ Coaxial Cable(2m)	N/SMA(male-male) DC~18GHz, 2m
1300-061	N/SMA-JJ Coaxial Cable(1m)	N/SMA(male-male) DC~18GHz, 1m
1300-067	Antenna Transport Case	The entire antenna and amplifier can be placed, including options 021, 022, 023, 024, and 025

Typical Accessories



Optional Antenna Sets



• Antenna Amplifier



• 10kHz – 20MHz Antenna



• 20MHz – 200MHz Antenna



• 200MHz – 500MHz



• 500MHz – 4GHz



• 1GHz – 18GHz



• 18GHz – 40GHz



Option
30

HARD CASE

Option
29

SOFT BAG

