

# S3302 Handheld Spectrum Analyzer

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



## Key Features

- Wide frequency range cover from **9kHz to 67GHz, 9 models**
- Low displayed average noise level up to  $-163\text{dBm}$  @ 1Hz RBW (typical)
- Excellent phase noise performance:
  - 112dBc/Hz@100kHz frequency offset@1GHz carrier (S3302SA/SB/SC)
  - 106dBc/Hz@100kHz frequency offset@1GHz carrier (S3302A/B/C/D/E/F)
- Fast scanning speed: 1GHz span fastest sweep time <20ms
- Resolution bandwidth: 1Hz - 10MHz
- Full-band pre-amplifier: Standard configuration
- A variety of measurement function modes: spectrum analyzer, interference analyzer (spectrogram, RSSI), AM/FM/PM analyzer, channel scanner, high accuracy power meter, signal analyzer, high-precision USB power measurement etc.
- A variety of smart measurement functions: field strength measurement, channel power, occupied bandwidth, adjacent-channel power ratio, tune&listen, carrier-to-noise ratio, emission mask.
- A variety of Auxiliary Test Interface: 10MHz reference input/output interface, GPS antenna interface, zero span IF output interface, external triggering input interface etc.
- Convenient user experiences: 8.4-inch bright LCD screen and large font display and convenient operation touch screen, Integrated LCD and touch screen design, a variety of display modes and automatically adjusts the back-light brightness, etc.
- Operating temperature range is  $-10\text{ }^{\circ}\text{C}$  -  $50\text{ }^{\circ}\text{C}$
- Powered by battery or AC adapter

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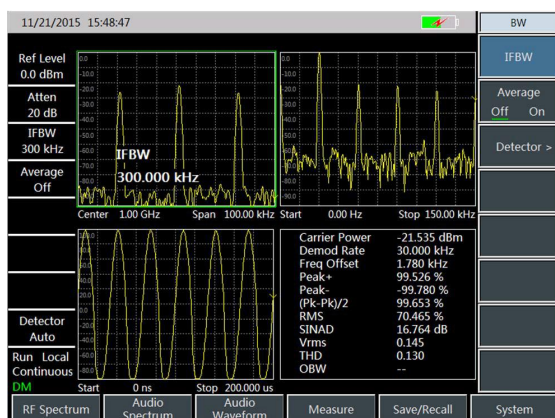
**Saluki S3302 series Spectrum Analyzer** has a wide operating band, high performance, fast scanning speed, multi-function test, easy operation and other advantages. Performance specification is excellent in average noise level, phase noise, and fast scanning speed.

Measurement function has a spectrum analysis, interference analysis, analog demodulation, power measurement, channel scan function mode and channel power, occupied bandwidth, adjacent channel power, audio demodulation, stray template, noise ratio measurement function. 8.4-inch integrated LCD and capacitive touch screen improves display clarity and ease of operation. Its hand-held, small size, light weight, power and flexible, easy to take and extremely suitable for field use.

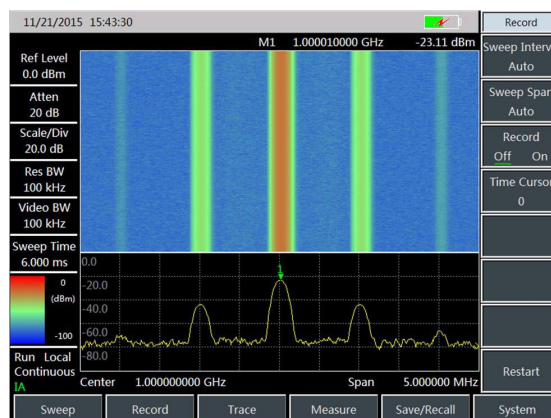
**Saluki S3302 series Spectrum Analyzer** can be applied to the signal and equipment test in aerospace, microwave and satellite communications, wireless communications, radar surveillance, electronic warfare and electronic surveillance, precision-guided and other areas.

## Features To Boost Your Efficiency

A variety of measurement function modes



AM/FM/PM Demodulation



Interference Analysis (Spectrogram)

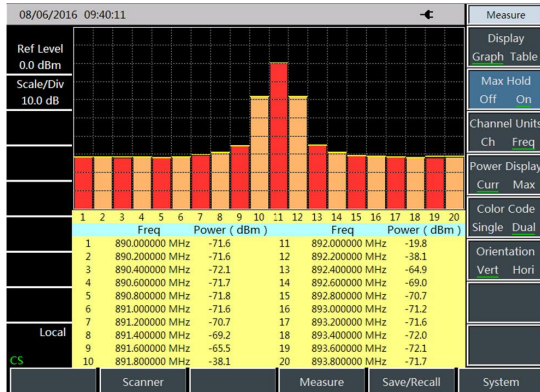
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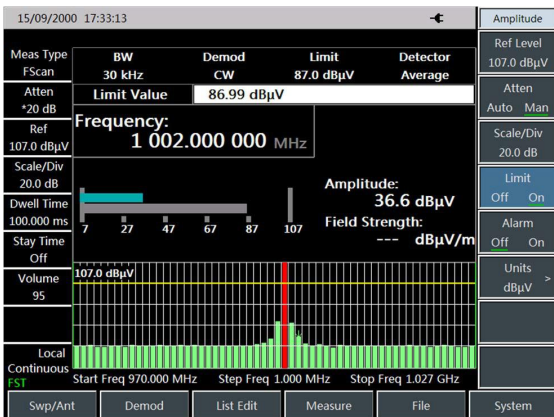


Channel Scan

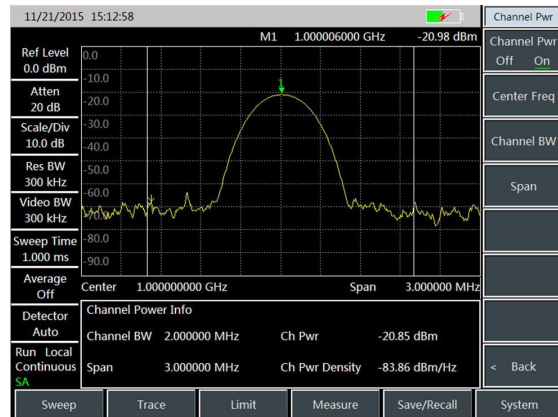


Power Measurement (USB Power Sensor)

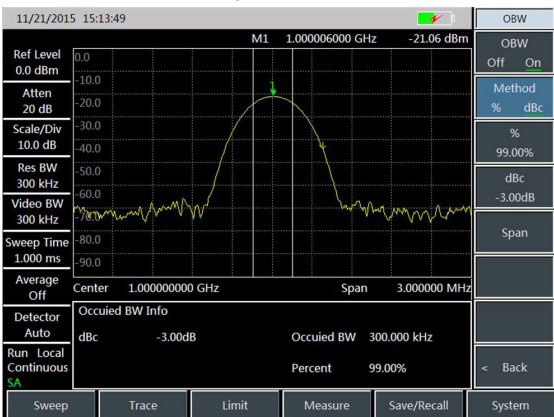
## Intelligent measurement functions



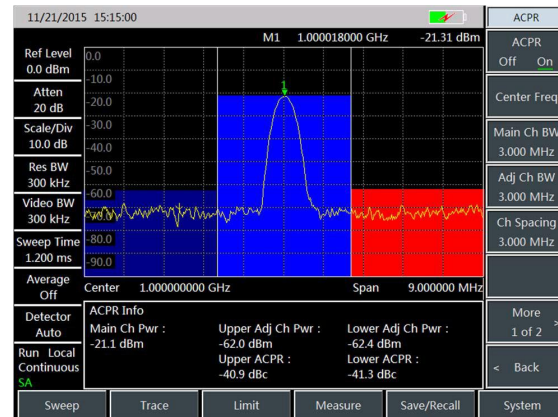
Field Strength Measurements



Channel Power



Occupied Bandwidth



Adjacent Channel Power

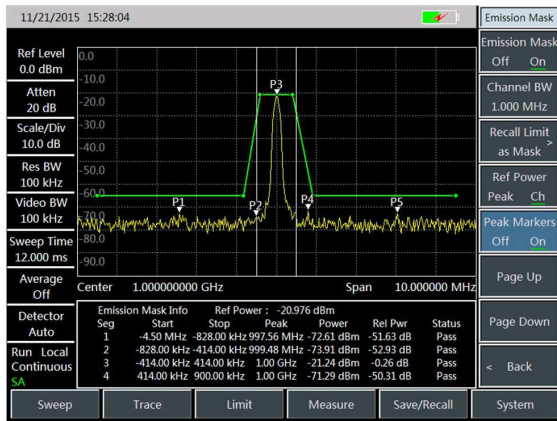
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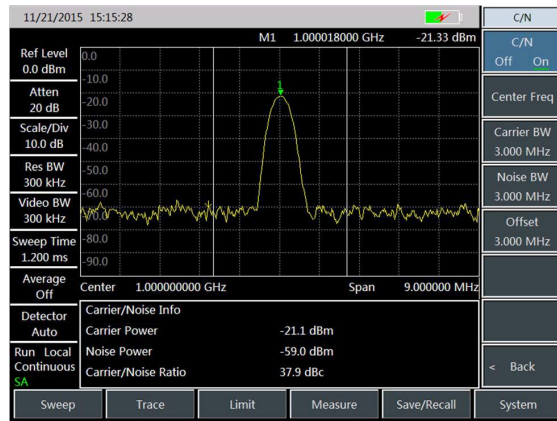


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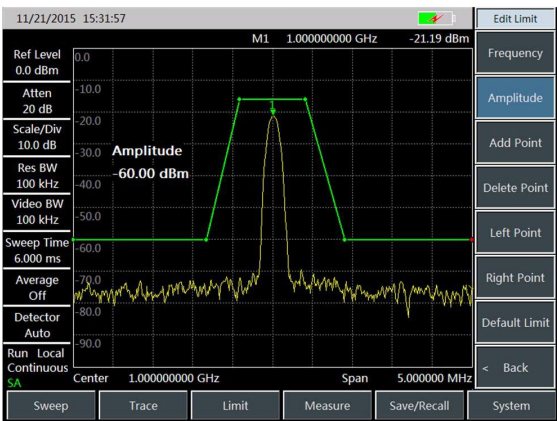
(9kHz - 4GHz/ 6.5GHz/ 9GHz/ 20GHz / 26.5GHz / 32GHz / 44GHz/ 50GHz/ 67GHz)



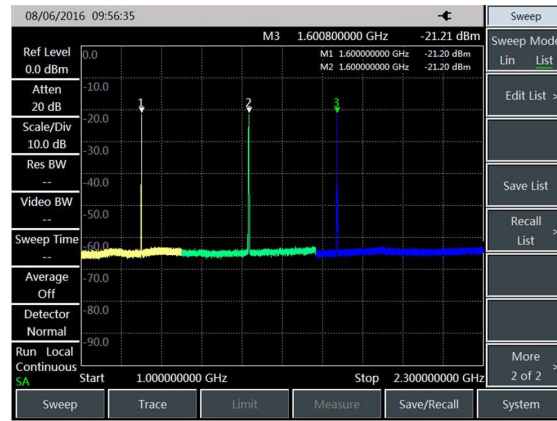
Emission Mask



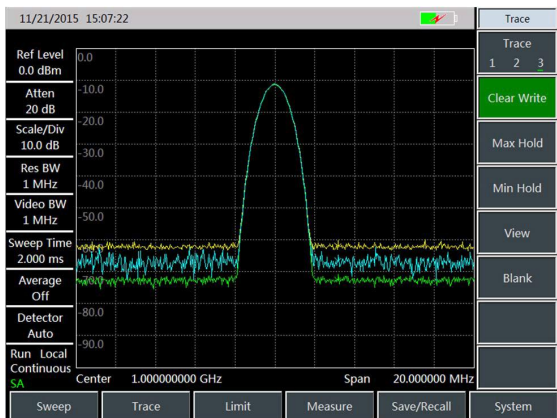
Carrier-to-Noise Ratio



Limit Line



List sweep



Multiple Traces

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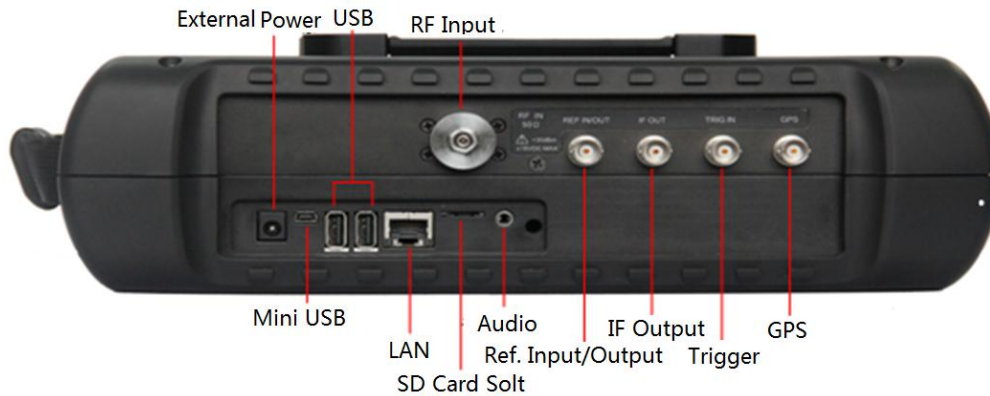
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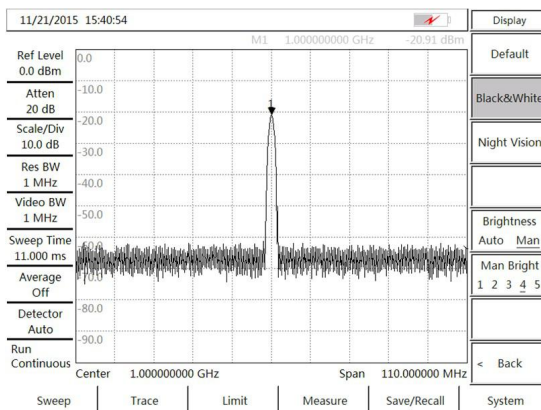
(9kHz - 4GHz/ 6.5GHz/ 9GHz/ 20GHz / 26.5GHz / 32GHz / 44GHz/ 50GHz/ 67GHz)

## A variety of Auxiliary Test Interface

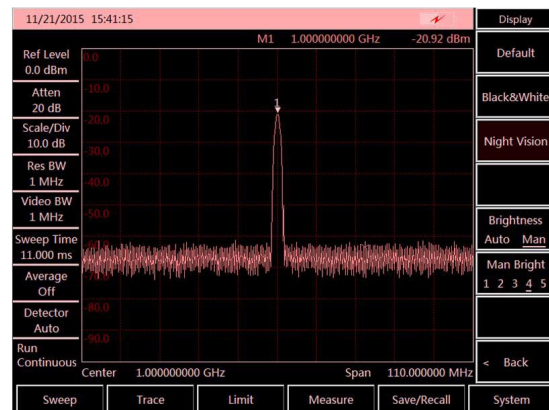


## User Friendly Experience

- One-touch measurement
- Status, data storage and recall functions
- 8.4-inch integrated LCD and capacitive touch screen, smaller refractive translucent, clearer display experience
- Convenient capacitive touch screen
- A variety of display modes, outdoor light, night vision environment for better experience



Outdoor Mode



Night Mode

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## Typical Applications

### ➤ **Comprehensive Performance Evaluation of Electronic Weapon Equipment**

S3302 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**

S3302 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 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, S3302 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 etc..

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## Technical Specifications

Parameter	Specifications			
Frequency Range	<b>S3302SA</b>	<b>S3302SB</b>	<b>S3302SC</b>	
	9kHz - 4GHz	9kHz - 6.5GHz	9kHz - 9GHz	
	<b>S3302A</b>	<b>S3302B</b>	<b>S3302C</b>	<b>S3302D</b>
	9kHz - 20GHz	9kHz - 26.5GHz	9kHz - 32GHz	9kHz - 44GHz
	<b>S3302E</b>	<b>S3302F</b>		
	9kHz - 50GHz	9kHz - 67GHz		
Tuning Resolution: 1Hz				
Frequency Reference	Nominal Frequency		10MHz	
	Aging Rate		± 0.5ppm / Year	
	The Initial Frequency Accuracy		± 0.3ppm	
	Temp. Stability		± 0.1ppm(-10 - 50 °C, with respect to 25 °C)	
Scan 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)			
Sweep Width	Range	100Hz - upper frequency limit corresponding to the type of product or 0Hz		
	Accuracy	± 2.0%		
Resolution Bandwidth	1Hz - 10MHz (step 1-3 times)			
Video Bandwidth	1Hz - 10MHz (step 1-3 times)			
<b>SSB phase noise</b> (Carrier 1GHz, 20°C -30°C)	<b>S3302SA/SB/SC</b>		<b>S3302A/B/C/D/E/F</b>	
	≤-108 dBc / Hz @ 10kHz offset		≤-102 dBc / Hz @ 10kHz offset	
	≤-112 dBc / Hz @ 100kHz offset		≤-106 dBc / Hz @ 100kHz offset	
	≤-118 dBc / Hz @ 1MHz offset		≤-111 dBc / Hz @ 1MHz offset	
	≤-129 dBc / Hz @ 10MHz offset		≤-123 dBc / Hz @ 10MHz offset	
<b>Displayed Average Noise Level</b> (50 Ω load at the input end, 0dB input attenuation, average)	Preamplifier On	<b>S3302SA/SB/SC</b>		
		10MHz - 3GHz	≤-160dBm	
		3GHz - 9GHz	≤-157dBm	
		<b>S3302A/B/C/D</b>		
		10MHz - 20GHz	≤-157dBm	

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<b>detector mode, Logarithmic Video Type, 20°C-30°C, RBW normalization to 1Hz, tracking source off)</b>		20GHz - 32GHz	≤-154dBm
		32GHz - 40GHz	≤-148dBm
		40GHz - 44GHz	≤-140dBm
		<b>S3302E/F</b>	
		10MHz - 32GHz	≤-154dBm
		32GHz - 40GHz	≤-148dBm
		40GHz - 46GHz	≤-143dBm
		46GHz - 60GHz	≤-135dBm
		60GHz - 67GHz	≤-123dBm
	Preamplifier Off	<b>S3302SA/SB/SC</b>	
		10MHz - 3GHz	≤-140dBm
		3GHz - 9GHz	≤-138dBm
		<b>S3302A/B/C/D</b>	
		10MHz - 20GHz	≤-138dBm
		20GHz - 32GHz	≤-135dBm
		32GHz - 40GHz	≤-127dBm
		40GHz - 44GHz	≤-120dBm
		<b>S3302E/F</b>	
		10MHz - 20GHz	≤-136dBm
20GHz - 32GHz	≤-135dBm		
32GHz - 40GHz	≤-130dBm		
40GHz - 46GHz	≤-121dBm		
46GHz - 60GHz	≤-116dBm		
60GHz - 67GHz	≤-102dBm		
<b>Residual Response (RF input matching, 0dB attenuation, tracking source off, exception frequency: 3.2GHz)</b>	Preamplifier On	<b>S3302SA/SB/SC</b>	
		10MHz - 9GHz	≤-95dBm
		<b>S3302A/B/C/D</b>	
	10MHz - 32GHz	≤-100dBm	
	32GHz - 44GHz	≤-95dBm	
Preamplifier Off	<b>S3302SA/SB/SC</b>		
10MHz - 9GHz	≤-82dBm		



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	Preamplifier Off	S3302A/B/C/D	
		10MHz - 13GHz	≤-90dBm
		13GHz - 20GHz	≤-85dBm
		20GHz - 44GHz	≤-80dBm
<b>Second Harmonic Distortion</b> (Attenuation 0dB, -30dBm input signal)	<b>S3302SA/SB/SC/E/F</b>	<b>S3302A/B/C/D</b>	
	<-65dBc	<-60dBc	
<b>Absolute Amplitude Accuracy</b> (20 °C -30 °C , input signal 0 to -50dBm, all settings are auto couple, 30 minutes of preheating)	10MHz - 13GHz: ± 1.8dB 13GHz - 40GHz: ± 2.3dB 40GHz - 50GHz: ± 2.7dB 50GHz - 67GHz: ± 3.0dB		
<b>Input Attenuator</b>	<b>S3302SA/SB/SC/E/F</b>	<b>S3302A/B/C/D</b>	
	Attenuation range 0dB - 30dB, 5dB step	Attenuation range 0dB - 50dB, 10dB step	
<b>Max. Safe Input Level (CW input)</b>	<b>S3302SA/SB/SC/E/F</b>	<b>S3302A/B/C/D</b>	
	+27dBm, typ. (≥10dB attenuation)	+30dBm, typ. (≥10dB attenuation)	
	+20dBm, typ. (<10dB attenuation)	+23dBm, typ. (<10dB attenuation)	
	+10dBm, typ. (preamplifier on)	+13dBm, typ. (preamplifier on)	
<b>Reference Level</b>	Range: -120dBm - + 30dBm Conversion Uncertainty: ± 1.20dB		
<b>VSWR of Input Interface</b>	Under the condition of reference level> 0dBm, attenuator defaults ≤1.5: 1 typical (50MHz - 20GHz) ≤2.0: 1 typical (20GHz - 44GHz)		
<b>Test Port</b>	<b>RF input</b>	<b>S3302SA/SB/SC/A/B</b>	N-type female connector
		<b>S3302C/D</b>	2.4mm male connector
		<b>S3302E/F</b>	1.85mm male connector
	<b>RF output</b>	<b>S3302SA/SB/SC</b>	N-type female connector
<b>Other Interface</b>	10MHz reference input / output		BNC female connector
	External trigger input		
	IF output		
	GPS antenna input		

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## General Information

<b>Battery life (typ.)</b>	S3302SA/SB/SC: 3hrs, S3302A/B/C/D: 2.5hrs, S3302E/F: 2hrs
<b>Power Consumption</b> (no battery charging)	S3302SA/SB/SC: $\leq 25W$ , S3302A/B/C/D: $\leq 30W$ , S3302E/F: $\leq 38W$
<b>Weight</b> (excluding battery)	S3302SA/SB/SC: $\leq 4.5kg$ , S3302A/B/C/D: $\leq 5kg$ , S3302E/F: $\leq 5.3kg$
<b>Dimension</b>	314 (W) × 218 (H) × 91 (D) mm (excluding the handle, brackets) 338 (w) × 218 (H) × 100 (D) mm (including the handle, brackets)
<b>Electromagnetic Compatibility</b>	Comply with 3.9.1 GJB3947A-2009
<b>Power Supply</b>	AC power adapter: input 100V-240V <sub>AC</sub> , 50-60Hz; output 15V <sub>DC</sub> , 4A Li-on battery: 10.8V, 7800mAh
<b>Operating Temp.</b>	-10 °C - + 50 °C
<b>Storage Temp.</b>	-40 °C - + 70 °C

## Ordering Information

### Main Machine

Part No.	Frequency Range
S3302SA	9kHz - 4GHz
S3302SB	9kHz - 6.5GHz
S3302SC	9kHz - 9GHz
S3302A	9kHz - 20GHz
S3302B	9kHz - 26.5GHz
S3302C	9kHz - 32GHz
S3302D	9kHz - 44GHz
S3302E	9kHz - 50GHz
S3302F	9kHz - 67GHz

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## Standard Package

Item	Name	Qty
1	Power Cord (standard three-wire power cord)	1 Set
2	Power Adapter	1 PC
3	User Manual	1 PC
4	USB Cable	1 PC
5	Built-in Rechargeable Lithium-ion Battery	1 PC

## Options

Item	Name	Description
S3302-05	Programming Manual	
S3302-06	Power Adapter	/
S3302-07	Rechargeable lithium-ion battery	/
S3302-08	CAT5 LAN cable	Point to Point, 2m length
S3302-09	Micro SD card	Class4, 8G capacity
S3302-10	GPS Option	GPS Exposed Antenna (BNC), Built-In GPS Module and Software
S3302-11	USB Power Meter Option	Provide USB Power Measurement function (Option 12-15 needed)
S3302-12	S87230 USB Power Continuous Wave Power Probe	9kHz - 6GHz Power Sensors, Need option 11
S3302-13	S87231 USB Power Continuous Wave Power Probe	10MHz - 18GHz Power Sensors, Need option 11
S3302-14	S87232 USB Power Continuous Wave Probe	50MHz - 26.5GHz power sensor, Need option 11
S3302-15	S87233 USB Power Continuous Wave Probe	50MHz - 40GHz Power Sensors, Need option 11
S3302-16	Interference Analyzer Option	Provide waterfall, RSSI measurement functions
S3302-17	AM/FM/PM Analyzer Option	Implement AM / FM / PM signal modulation characteristics analysis
S3302-18	Channel Scanner Option	Implementing multiple channel or frequency signal power measurements

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<b>S3302-19</b>	List Sweep Option	Continuous scanning measurement multi-frequency bands
<b>S3302-20</b>	Zero Span IF Output	IF signal output from the third or fourth intermediate frequency signal (one option available out of two)
<b>S3302-21</b>	ZE9080A Directional Antenna	Frequency range: 9kHz-20MHz, N(f) (Need option 25 )
<b>S3302-22</b>	ZE9080B Directional Antenna	Frequency range: 20MHz-200MHz, N(f) (Need option 25 )
<b>S3302-23</b>	ZE9080C Directional Antenna	Frequency range: 200MHz-500MHz, N(f) (Need option 25)
<b>S3302-24</b>	ZE9080D Directional Antenna	Frequency range: 500MHz-8GHz, N(f) (Need option 25)
<b>S3302-25</b>	ZE9080 Antenna Amplifier	Frequency range: 9kHz-8GHz, N (f) (should work with option 21, 22, 23, or 24)
<b>S3302-26</b>	S89901 Horn Antenna	Frequency Range: 1GHz-18GHz, N (f)
<b>S3302-27</b>	S89902 Horn Antenna	Frequency range: 18GHz-40GHz, 2.92mm (f)
<b>S3302-28</b>	Functional Bag	/
<b>S3302-29</b>	Backpack	/
<b>S3302-30</b>	Carrying Case	For safety carrying
<b>S3302-31</b>	S89901 Antenna Handle	Need option 26
<b>S3302-32</b>	S89902 Antenna Handle	Need option 27
<b>S3302-33</b>	Signal Analyzer	To realize the rapid analysis of interference signal, and provide the audio output and IQ Capture.
<b>S3302-34</b>	Field Strength Option	Provide Pscan, Fscan, MScan etc. Functions
<b>S3302-35</b>	Tracking Generator (100kHz - 4GHz)	For S3302SA only
<b>S3302-36</b>	Tracking Generator (100kHz - 6.5GHz)	For S3302SB only

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<b>S3302-37</b>	Tracking Generator (100kHz - 9GHz)	For S3302SC only
<b>S3302-38</b>	Orientation Analysis Option	Built-In software (need option10, 50 and directional Antenna)
<b>S3302-39</b>	Coverage Map Option	Built-In software (need option10)
<b>S3302-41</b>	Portable Omnidirectional Antenna	Frequency range :700MHz-2.7GHz (for communication bands)
<b>S3302-42</b>	700MHz - 4GHz Directional Antenna	Active log-periodic antenna
<b>S3302-43</b>	700MHz - 6GHz Directional Antenna	Active log-periodic antenna
<b>S3302-44</b>	680MHz - 10GHz Directional Antenna	Active log-periodic antenna
<b>S3302-45</b>	680MHz - 20GHz Directional Antenna	Active log-periodic antenna
<b>S3302-46</b>	400MHz - 4GHz Directional Antenna	Active log-periodic antenna
<b>S3302-47</b>	400MHz - 6GHz Directional Antenna	Active log-periodic antenna
<b>S3302-48</b>	380MHz - 10GHz Directional Antenna	Active log-periodic antenna
<b>S3302-49</b>	380MHz - 20GHz Directional Antenna	Active log-periodic antenna
<b>S3302-50</b>	External Electric Compass	External USB electric compass (need option38)
<b>S3302-51</b>	6GHz Omnidirectional Antenna (680MHz - 6GHz)	Portable omnidirectional antenna
<b>S3302-52</b>	8GHz Omnidirectional Antenna (300MHz - 8GHz)	Portable omnidirectional antenna
<b>S3302-53</b>	VHF/UHF Portable Antenna	Frequency range :140MHz/430MHz
<b>S3302-54</b>	Passive Directional Antenna (700MHz - 4GHz)	Passive log-periodic antenna
<b>S3302-55</b>	Passive Directional Antenna (700MHz - 6GHz)	Passive log-periodic antenna

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<b>S3302-56</b>	Passive Directional Antenna (680MHz - 10GHz)	Passive log-periodic antenna
<b>S3302-57</b>	Passive Directional Antenna (680MHz - 18GHz)	Passive log-periodic antenna
<b>S3302-58</b>	Passive Directional Antenna (680MHz - 25GHz)	Passive log-periodic antenna
<b>S3302-59</b>	Passive Directional Antenna (680MHz - 35GHz)	Passive log-periodic antenna
<b>S3302-60</b>	N/SMA-JJ RF Cable (2m)	N male to SMA male RF coaxial cable, DC-18GHz, Length 2m
<b>S3302-61</b>	N/SMA-JJ RF Cable (1m)	N male to SMA male RF coaxial cable, DC-18GHz, Length 1m
<b>S3302-67</b>	ZE9080 Antenna transport box	Used for antenna and amplifier, including option 21, 22, 23, 24, 25

*Note: Information will conduct the necessary updates , the contents of this document are subject to change without notice.*