owon®

XSA3000-R Series

Real-Time Spectrum Analyzer + Vector Network Analyzer

Features

- **Spectrum analysis (SA) mode:** 9 kHz to 20 GHz frequency range, DANL down to -165 dBm/Hz, 1 Hz minimum RBW, and 0.7 dB amplitude accuracy.
- **Real-time spectrum analysis:** 100 MHz real-time bandwidth and 100% POI of 6.25 µs for fast capture of transient and intermittent interference.
- **Vector Network Analyzer**: 100 kHz to 8 GHz frequency range, with 90 dB dynamic range.
  Measures S11/S21 parameters, including return/insertion loss, phase, group delay, and VSWR. Displays results on Smith charts and polar plots.
- **Cable and antenna measurement mode**: supports DTF, 1-port cable loss, 2-port insertion loss, return loss, and VSWR measurements for cable fault location, tower amplifier debugging, port matching.
- Optional **EMI pre-compliance test**: built-in 200+ standard templates and custom templates for automatic setup, recording, and comparison with regulatory limits.
- **Tracking generator** and standard **preamplifier**.
- Multiple Control & Connectivity: Supports mouse/keyboard, **web control**, and **PC software** via **LAN, USB Device, and USB Host** for seamless local, remote, and automated integration.
- **10.4"** Multi-Touch Display: Supports intuitive gesture operations.

Product Introduction

The XSA3000-R Series integrates real-time spectrum analysis and vector network analysis, covering **9 kHz–20 GHz spectrum analysis** and **100 kHz–8 GHz VNA** measurements. It supports a wide range of applications, from R&D and production testing to RF link maintenance.

With 100% POI as short as **6.25 µs**, up to 60 dB SFDR, DANL below **-165 dBm/Hz, -106 dBc/Hz** phase noise at 10 kHz offset, **1 Hz minimum RBW**, and **0.7 dB** overall amplitude accuracy, the XSA3000-R delivers high sensitivity and dynamic performance for capturing transient and low-level signals.

The instrument comes standard with a **preamplifier** and supports **tracking generator**, **vector network analysis,** and **cable fault location**, making RF testing and troubleshooting more efficient. Multiple display modes, including density spectrum, power vs. time, and 3D display, help users analyze complex transient signals from different perspectives. With **100 MHz** real-time analysis bandwidth and optional **EMI pre-compliance software**, it adapts easily to diverse test scenarios.

A 10.4-inch multi-touch LCD, mouse and keyboard support, **browser-based remote control**, dedicated **PC software**, and LAN, USB Device, and USB Host interfaces provide flexible operation, easy system integration, and convenient data transfer.

Panel Introduction

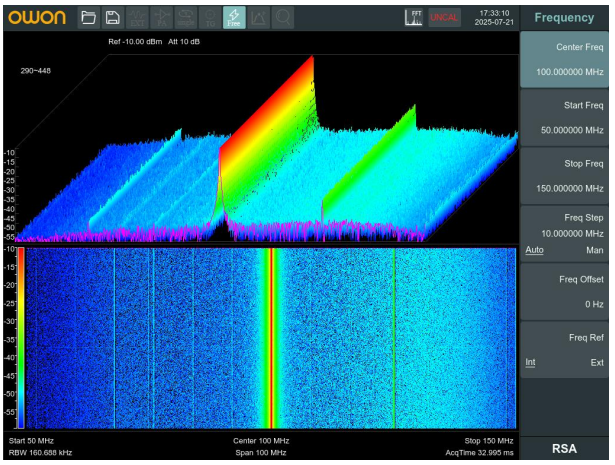
1. 10.4-inch multi-touch screen
2. Spectrum RF input / VNA Port 2
3. Tracking generator output / VNA Port 1
4. Audio output
5. USB Host
6. Adjustable hand strap
7. Adjustable Tilt Stand
8. HDMI
9. LAN
10. USB Device
11. Ref Clock In/Out
12. External trigger
13. Tracking generator output
14. Spectrum RF input

XSA3036-R, XSA3060-R, XSA3080-R

XSA3140-R, XSA3200-R

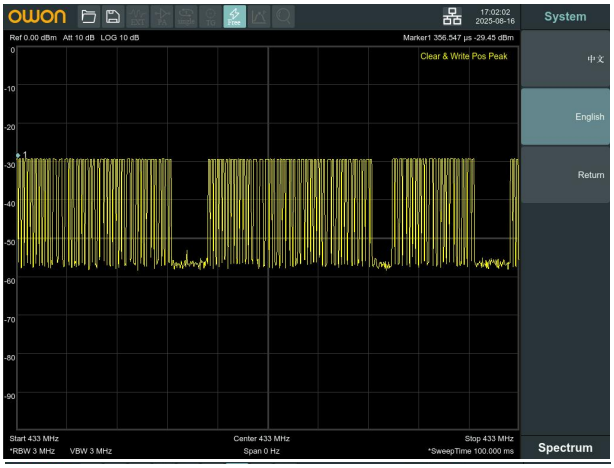
A Real-Time Spectrum Analysis Fast Capture of Transient and Intermittent Interference

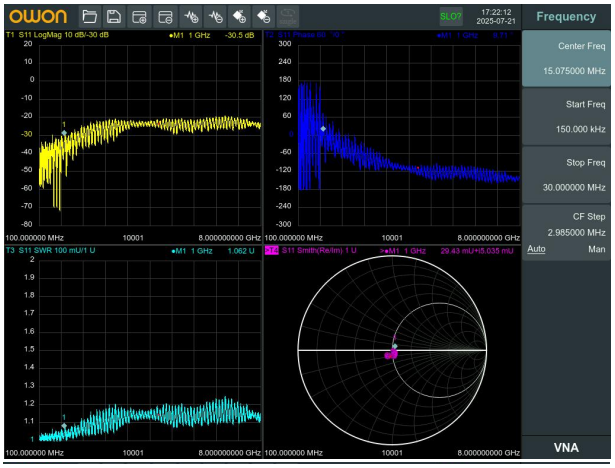
With **100MHz real-time analysis bandwidth** and **6.25µs 100% POI**, the XSA3000-R Series quickly captures transient, frequency-hopping, and intermittent interference that traditional swept spectrum analyzers may miss. **Probability density spectrum, waterfall, power vs. time, and 3D spectrum views** show RF changes across frequency, time, and power, helping engineers locate abnormal signals.



B Spectrum Analysis + Vector Network Analysis

The XSA3000-R Series integrates **swept spectrum analysis (SA)** and **vector network analysis (VNA)**. It supports vector S11/S21 measurements and functions such as return loss, insertion loss, phase, group delay, VSWR, and Smith chart analysis. It covers **9kHz to 20GHz for spectrum analysis** and **100kHz to 8GHz for network analysis**, with up to 90dB dynamic range. It is suitable for antenna matching, filter testing, RF device debugging, cable/connector analysis, and RF link verification.



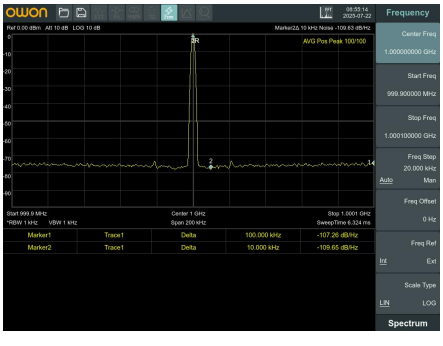


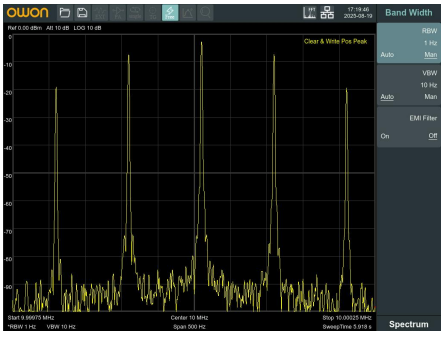
C Superior Performance

a. Phase noise below **-106dBc/Hz@1 GHz, 10 kHz offset**.

b. Minimum RBW down to **1Hz** to clearly separate adjacent signals.

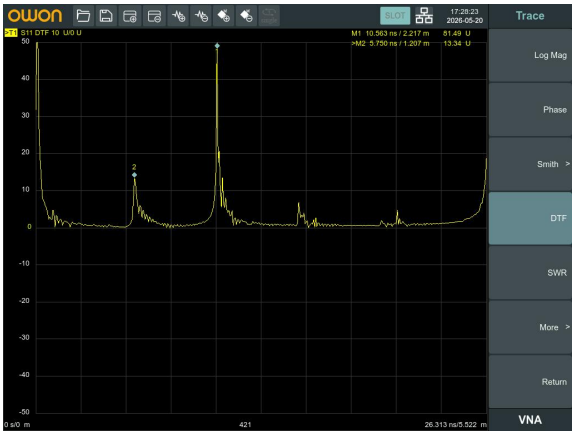
c. DANL down to **-165 dBm/Hz**.





D Cable and Antenna Fault Location More Efficient Field Maintenance

In cable and antenna measurement mode, the frequency range is 100kHz to 8GHz. It supports **DTF, return loss, VSWR, 2-port insertion loss, and 1-port cable loss measurements**. Engineers can quickly locate cable faults, connector aging, abnormal VSWR, and link loss, reducing troubleshooting time and improving maintenance efficiency for base stations, wireless systems, and RF links.



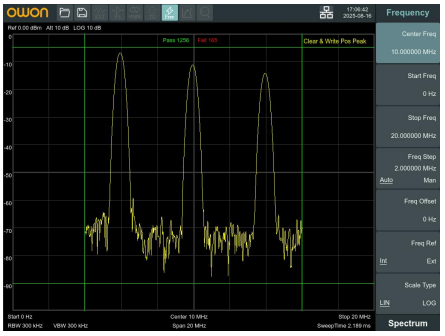
E Rich Functions

a. EMI Measurement Mode(optional)

With over 200 built-in mainstream EMC templates, users can automatically configure test parameters, record data, compare regulatory limits on the same screen, and perform custom standard analysis. This effectively improves the efficiency of EMI pre-testing and troubleshooting.

b. Pass/Fail

Supports automatic PASS/FAIL judgment based on preset limit lines or user-defined standards. It checks results in real time, quickly locates abnormal bands, and helps users complete problem analysis and correction verification.



c. Adjacent Channel Power Ration (ACPR)

Measures adjacent-channel power leakage to evaluate transmitter linearity and interference, helping verify RF device compliance and ensure high-quality transmission with efficient spectrum use.

F Professional Spectrum Analyzer Control Software (Some Functions Optional)

The professional spectrum analyzer control software supports LAN or USB connection for remote setup and real-time waveform monitoring. It includes **basic sweep, AM/FM modulation analysis, and optional EMI pre-compliance test modes**. It provides channel power, occupied bandwidth, third-order intermodulation distortion, phase noise, and other test modules. For EMC troubleshooting, it supports CISPR standard frequency bands and a fully automated "scan-search-measure" workflow, plus one-click EMI report export. It also supports **waveform recording/playback, 3D spectrum display, and image saving** for intelligent RF analysis and testing.

Main Specifications

The specifications apply under the following conditions:

The instrument has been warmed up for at least 30 minutes prior to use.

The instrument is within the calibration cycle and has undergone self-calibration.

Model	XSA3036-R	XSA3060-R	XSA3080-R	XSA3140-R	XSA3200-R
Spectrum analysis range	9 kHz~3.6 GHz	9 kHz~6.0GHz	9 kHz~8.0GHz	9 kHz~14.0 GHz	9 kHz~20.0 GHz
VNA frequency range	100kHz~3.6GHz	100kHz~6.0GHz	100kHz~8.0GHz	-	-
Cable and antenna test frequency range	100kHz~3.6GHz	100kHz~6.0GHz	100kHz~8.0GHz	-	-
Tracking generator	100kHz~3.6GHz	100kHz~6.0GHz	100kHz~8.0GHz	-	-
Resolution bandwidth (RBW)	1Hz ~ 5MHz	1Hz ~ 5MHz	1Hz ~ 5MHz	1Hz ~ 5MHz	1Hz ~ 5MHz
Displayed Average Noise Level	-165 dBm/Hz	-165 dBm/Hz	-165 dBm/Hz	-165 dBm/Hz	-165 dBm/Hz
SSB phase noise	<-106 dBc/Hz	<-106 dBc/Hz	<-106 dBc/Hz	<-100 dBc/Hz	<-100 dBc/Hz
Third-order intercept (TOI)	+14 dbm	+14 dbm	+14 dbm	+14 dbm	+14 dbm
Frequency span range	0 Hz，100 Hz to the maximum frequency of the instrument				
Frequency span accuracy	± span / (number of sweep points - 1)				
Marker frequency resolution	span / (number of display points - 1)				
Marker frequency uncertainty	±[marker reading*reference frequency accuracy+1%*span + 0.5*marker frequency resolution + 1 Hz]				
Marker functions	noise marker, N dB bandwidth, frequency counter				
Amplitude accuracy	< 0.7 dB				
Real-time analysis bandwidth	100MHz				
Dynamic range	60 dB				
Minimum signal duration for 100% response	6.25μs				
Real-time spectrum views	probability density spectrum, waterfall, 3D spectrum, power vs. time				
VNA measurement parameters	vector S11, vector S21				
Network analysis dynamic rang	90 dB				
Display modes	reflection/transmission coefficient, return/insertion loss, phase, group delay, log magnitude, fault location, linear magnitude, real part, imaginary part, VSWR, Smith chart, polar plot				
Advanced measurements	CHP，ACPR，OBW，CNR，Harmonic，Monitor，CCDF，SEM，TOI				
Vector signal modulation analysis	AM，FM，PM				
EMI filters (-6 dB)	200 Hz，9 kHz，120 kHz，1 MHz				
Detectors	positive peak, RMS average, quasi-peak				
EMI measurement	built-in 200+ standard templates and custom templates				
Communication interfaces	LAN，USB Device，USB Host				
Remote Control Interface	SCPI/Labview/IVI based on USB-TMC/VXI-11/Socket				
Compatible Software	NI-MAX，Web Browser，Spectrum Vision software				
Display	10.4-inch multi-touch screen, supports mouse and keyboard				

Specifications are subject to change without notice. Please refer to the official website.

Ordering Information

Order Information	Order Number
Product Information	
Real Time Spectrum Analyzer 9kHz - 3.6GHz, 100 MHz Analysis Bandwidth	XSA3036-R
Real Time Spectrum Analyzer 9kHz - 6.0GHz, 100 MHz Analysis Bandwidth	XSA3060-R
Real Time Spectrum Analyzer 9kHz - 8.0GHz, 100 MHz Analysis Bandwidth	XSA3080-R
Real Time Spectrum Analyzer 9kHz - 14.0GHz, 100 MHz Analysis Bandwidth	XSA3140-R
Real Time Spectrum Analyzer 9kHz - 20.0GHz, 100 MHz Analysis Bandwidth	XSA3200-R
Optional Functions	
Vector Network Analyzer (VNA), Tracking Generator (TG) (For ≤8GHz models only, limited-time free offer)	VNA
EMI Measurement Software (Embedded)	EMI_LC
EMI Measurement Software (PC-based)	EMI_PC
Standard Accessories	
Quick Guide	————
Power Cord	————
USB Device Cable	7ULD10
N-BNC Adaptor	7AN-B-6
Common Optional Accessories	
N - N Cable，1m, 6G	7LN-N-610
N - SMA Cable，1m， 6G	7LN-SAM-610
SMA - SMA Cable, 1m, 6G	7LSAM-S-610
SAM (F) Adaptor	7ASMA-KK-6
N - SMA Adaptor，6G	7AN-SAM-6
N - SMA Adaptor，3G	7AN-SAM-3
433M Line	7SAL433
VNA Optional Accessories	
N type Economic Calibration Kit，DC - 6GHz, 50Ω，Female end	CF5506-F
N type Economic Calibration Kit，DC-6GHz, 50Ω，Male end	CF5506-M
N type Economic Calibration Kit，DC-9GHz, 50Ω，Female end	CF5509-F
N type Economic Calibration Kit，DC-9GHz, 50Ω，Male end	CF5509-M
3.5mm type Economic Calibration Kit，DC-6GHz, 50Ω，Female end	CF6506-F
3.5mm type Economic Calibration Kit，DC-6GHz, 50Ω，Male end	CF6506-M
3.5mm type Economic Calibration Kit，DC-9GHz, 50Ω，Female end	CF6509-F
3.5mm type Economic Calibration Kit，DC-9GHz, 50Ω，Male end	CF6509-M
EMI Measurement Options	
1MHz - 6GHz Near Field Probe Kit: 3 H-probes (45/30/13 mm), 1 E-probe (3 mm)	ORF5060
Warranty Period	
The warranty for the main unit is three years, excluding accessories.	

Note: All main units, accessories and optional parts shall be ordered from local OWON distributors or OWON manufacturer.

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