

YSA-P200

Handheld Real-Time Spectrum Analyzer | 9 kHz to 20 GHz

At a Glance

The YSA-P200 is a handheld real-time spectrum analyzer covering 9 kHz to 20 GHz with 100 MHz analysis bandwidth. Its 1.5 kg design combines a 10.1-inch multi-touch display with approximately three hours of operation and support for an external power bank. Standard measurement functions include channel power, phase noise and occupied bandwidth, alongside spectrum sweep, IQ streaming, power-versus-time measurement and real-time analysis.

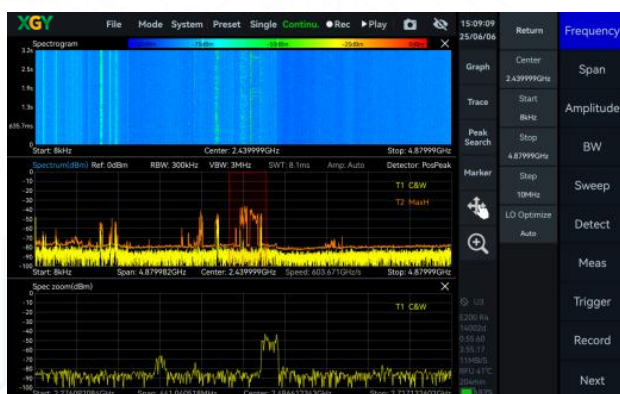


Key Features

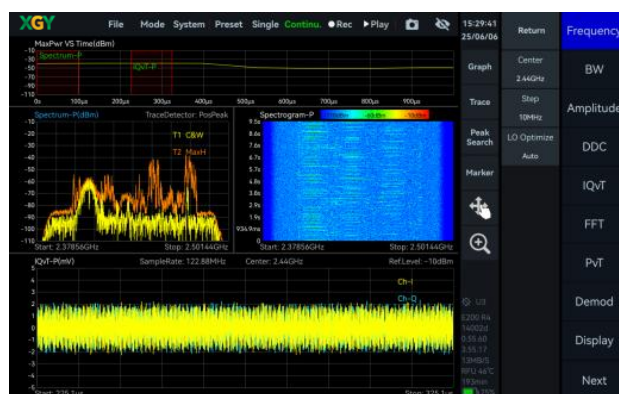
Parameter / condition	YSA-P200
Frequency range	9 kHz to 20 GHz
Analysis bandwidth	100 MHz
1 GHz DANL	-166 dBm/Hz
1 GHz phase noise, 10 kHz offset	-99.7 dBc/Hz
Standard measurements	Channel power, phase noise, occupied bandwidth, etc.
Operating time	3 hours; external power bank supported
Display	10.1-inch multi-touch screen
Weight	1.5 kg

Applications and Measurement Views

Standard Spectrum Sweep



IQ Streaming and Analysis



Power Versus Time Measurement



Real-Time Analysis



Channel Power / ACPR



Phase Noise



Frequency Tracking



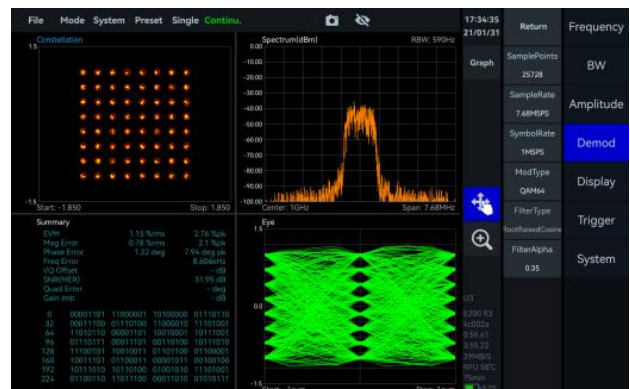
Pulse Signal Measurement (Option 72)



AM / FM Demodulation



Basic Digital Demodulation (Option 71)



Frequency

Parameter / condition	YSA-P200
Frequency range	9 kHz to 20 GHz
Reference clock	Internal or external
Frequency accuracy, TCXO (standard)	< 1 ppm; manual correction available
Frequency accuracy, OCXO (Option 01)	< 1 ppm; manual correction available
Aging stability, TCXO (standard)	< 1 ppm/year
Temperature stability, TCXO (standard)	< 1 ppm
Aging stability, OCXO (Option 01)	< 1 ppm/year
Temperature stability, OCXO (Option 01)	< 0.15 ppm

SSB Phase Noise

Parameter / condition	YSA-P200
Carrier 1 GHz	
1 kHz offset	-91.2 dBc/Hz
10 kHz offset	-99.7 dBc/Hz
100 kHz offset	-101.1 dBc/Hz
1 MHz offset	-121.6 dBc/Hz
Carrier 20 GHz	
1 kHz offset	-80.6 dBc/Hz
10 kHz offset	-90.6 dBc/Hz
100 kHz offset	-96.2 dBc/Hz
1 MHz offset	-111.5 dBc/Hz

Residual Response

Parameter / condition	YSA-P200
Reference level 0 dBm; Spur reject = bypass; RBW = 1 kHz; PosPeak detector	
9 kHz to 1 GHz	-90 dBm
1 GHz to 3 GHz	-80 dBm
3 GHz to 20 GHz	-90 dBm
Reference level -50 dBm; Spur reject = bypass; RBW = 1 kHz; PosPeak detector	
9 kHz to 1 GHz	-120 dBm
1 GHz to 3 GHz	-120 dBm
3 GHz to 20 GHz	-120 dBm

Rejection and Spurious Response

Parameter / condition	YSA-P200
Image rejection, 9 kHz to 3 GHz	> 90 dBc (typ.)
Image rejection, 3 GHz to 9.5 GHz	> 90 dBc (typ.)
Image rejection, 9.5 GHz to 20 GHz; spur reject = enhanced	> 90 dBc (typ.)
Image rejection, 9.5 GHz to 20 GHz; spur reject = bypass	> 60 dBc (typ.)
IF rejection, spur reject = enhanced	> 90 dBc (typ.)
IF rejection, spur reject = bypass	> 80 dBc (typ.)
Local-oscillator-related spurious	< -65 dBc; center frequency $\pm (N/M) \times 125$ MHz, N, M = 1, 2, 3, 4, 5...

IIP3 / IIP2

Parameter / condition	YSA-P200
Reference level 20 dBm; values are IIP3 / IIP2	
Carrier 1 GHz	45.5 / 82.6 dBm
Carrier 20 GHz	35.3 / 93.6 dBm
Reference level 0 dBm; values are IIP3 / IIP2	
Carrier 1 GHz	25.5 / 81.1 dBm
Carrier 20 GHz	21.0 / 89.0 dBm
Reference level -20 dBm; values are IIP3 / IIP2	
Carrier 1 GHz	7.9 / 81.5 dBm
Carrier 20 GHz	-4.5 / 55.3 dBm

Amplitude

Parameter / condition	YSA-P200
Maximum input power (CW), 50 MHz to 20 GHz; preamplifier off	23 dBm
Maximum input power (CW), 9 kHz to 50 MHz or preamplifier on	10 dBm
Maximum DC voltage	± 10 VDC
Display range	DANL to 23 dBm (typ.)
Amplitude accuracy, 9 kHz to 9.5 GHz	± 2.0 dB
Amplitude accuracy, 9.5 GHz to 20 GHz	± 3.0 dB
IF in-band flatness	± 2.0 dB
Reference level	-50 dBm to 23 dBm (typ.)
RF preamplifiers	Automatically turn on or forcibly turn off
VSWR, 90 MHz to maximum frequency	< 2.0:1

Displayed Average Noise Level (DANL)

Parameter / condition	YSA-P200
Reference level -20 dBm; RBW = 1 kHz	
9 kHz to 1 MHz	-143.6 dBm/Hz
1 MHz to 90 MHz	-151.8 dBm/Hz
90 MHz to 3.0 GHz	-149.7 dBm/Hz
3.0 GHz to 9.5 GHz	-151.4 dBm/Hz
9.5 GHz to 20 GHz	-156.1 dBm/Hz
Reference level -50 dBm; RBW = 1 kHz	
9 kHz to 1 MHz	-152.6 dBm/Hz
1 MHz to 90 MHz	-160.0 dBm/Hz
90 MHz to 3.0 GHz	-166.3 dBm/Hz
3.0 GHz to 9.5 GHz	-157.5 dBm/Hz
9.5 GHz to 20 GHz	-160.6 dBm/Hz

Standard Spectrum Analysis

Parameter / condition	YSA-P200
Detectors	PosPeak, NegPeak, Sample, Average, RMS, MaxPower
RBW	1 Hz to 10 MHz
VBW	1 Hz to 10 MHz
Data charts	SASudio4 spectrum, spectrogram and historical trace
Measurements	Channel power, OBW, X dB bandwidth, adjacent channel power ratio, IM3

Sweep Speed

Parameter / condition	YSA-P200
RBW $\geq$ 1 MHz; FPGA; spur reject = bypass	About 1.1 THz/s
RBW = 250 kHz; FPGA; spur reject = standard	About 602.9 GHz/s
RBW = 50 kHz; FPGA; spur reject = bypass	About 213.9 GHz/s
RBW = 1 kHz; CPU; spur reject = bypass	About 2.8 GHz/s

IQ Recording

Parameter / condition	YSA-P200
Burst recording bandwidth	Maximum 100 MHz
Built-in memory depth	128 Mbytes
Continuous recording bandwidth	Maximum 25 MHz; limited by USB-interface and hard-disk bandwidth
Continuous storage depth	Limited by hard-disk capacity
IQ sample rate	Maximum 125 MSPS
Decimation factors	1, 2, 4, 8, 32, 64, 128, 256, 512, 1024, 2048, 4096
External trigger response	Maximum response frequency: 500 times/s

Detection Analysis

Parameter / condition	YSA-P200
Minimum time resolution	8 ns
Maximum analysis bandwidth	100 MHz
Detectors	PosPeak, NegPeak, Sample, Average, RMS, MaxPower

Real-Time Spectrum Analysis

Parameter / condition	YSA-P200
FFT implementation	FPGA FFT engine; frame compression and trace detection supported; no missing samples between FFT frames
FFT frame update-rate formula	$10^9 \text{ ns} / (N \times D \times 8 \text{ ns})$
POI formula	$N \times D \times 8 \text{ ns}$
FFT points, N	2048, 1024, 512, 256, 128, 64, 32
Decimation factor, D	1, 2, 4, 8...
N = 2048, D = 1; typical settings	
FFT refresh rate	61,035 times/s
POI	16.384 μs
N = 32, D = 1; typical settings	
FFT refresh rate	3,906,250 times/s
POI	0.256 μs
Analysis settings	
Maximum analysis bandwidth	100 MHz
Window functions	B-Nuttall, Flat-top, LowSideLobe
RBW, Flat-top window	14.73 MHz to 3.59 kHz
RBW, B-Nuttall window	7.81 MHz to 1.90 kHz
RBW settings per window type	13 grades
Amplitude resolution	0.75 dB

General and Interfaces

Parameter / condition	YSA-P200
Power input	USB PD (65 W)
USB ports	USB 3.0 Type-C × 1; USB 2.0 Type-C × 1; USB 2.0 Type-A × 1
Video / audio	Micro HDMI × 1 (extended-display support); 3.5 mm headphone port × 1
RF input	N (F); input impedance 50 Ω
External reference-clock input	MMCX (F); amplitude ≥ 1.5 V _{pp} ; input impedance about 330 Ω
Reference-clock output	Integrated in MUXIO; 3.3 V CMOS; programmable on/off
External trigger input	MMCX (F); 3.3 V CMOS; high input impedance
Trigger output	MMCX (F); 3.3 V CMOS
Analog IF output	MMCX (F); maximum output power –25 dBm; 50 Ω output impedance supported; 307.2 MHz ± 50 MHz
External antenna input	MMXC (F)
Display	IPS LCD, 1280 × 800; 10.1-inch multi-touch screen
RAM / EMMC storage	4 GB / 32 GB
Power consumption	25 W (typ.)
Size (D × W × H)	260 × 179 × 46 mm
Weight	1.5 kg
GNSS synchronization	Internal GNSS, external antenna only; ± 100 ns
Operating temperature (ambient)	0 to 50 °C
Storage temperature (ambient)	–20 to 70 °C
Operating relative humidity, ambient 0 to 40 °C	5 to 75%
Operating relative humidity, ambient > 40 °C	5 to 45%
Packaging and accessories	YSA-P200 spectrum analyzer × 1; power adapter × 1; power cable × 1; lanyard × 1

Specification Conditions

Parameter / condition	YSA-P200
Warm-up	Start up and warm up for 10 minutes
Temperature	Ambient 25 °C; core temperature 50 °C
Spectrum-analysis mode	Standard spectrum analysis; spurious rejection enhance on
Heat dissipation	Provide necessary heat dissipation so ambient and core temperatures remain within their rated ranges simultaneously
Sweep-speed and DANL test versions	MCU: 0.55.57; FPGA: 0.55.22; API: 0.55.61

Options and Accessory

Parameter / condition	YSA-P200
Option 01	Built-in OCXO reference clock; built-in hardware
Option 34	External omnidirectional antenna, 400–8000 MHz, gain < 2 dBi; accessory
Option 71	Basic digital demodulation; software
Option 72	Pulse detection; software
MUXIO	IO extended board; accessory

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