Quality&**Precise**

MAXWELLON MSA080/200

5kHz~8GHz/9kHz~20GHz

Spectrum Analyzer Module

2023

Maxwellon

Maxwellon MSA080/200 series spectrum analyzer module is a wide-band, high-performance spectrum analyzer. The frequency measurement range covers up to 20GHz. The main technical indicators are comparable to the desktop spectrum analyzer. The integrated design of highly integrated RF front-end and digital processing enables it to have ultra-small size and independent signal processing capabilities, especially suitable for microwave test system integration and signal monitoring sensor applications. The product adopts fully digital IF processing technology to ensure higher measurement accuracy and excellent repeatability, and has independent signal processing capability, which is especially suitable for system integration and signal monitoring applications. The maximum real-time bandwidth of 40MHz meets the test of common radio signals such as mobile communication, TV and WiFi, and the 145MHz analog IF output provides users with a variety of test options.

Key Feature

- Frequency range: 5kHz - 8GHz / 9kHz - 20GHz
- Resolution bandwidth: 1Hz -5MHz
- Sensitive, DANL < -160dBm
- Maximum real-time bandwidth: 40MHz
- 145MHz analog IF output
- Independent source modules provide wider choices for system integration

Specification

Model		MSA080	MSA200
Frequency Range		5kHz~8GHz	9kHz~20GHz
Frequency Reading Accuracy		± (Frequency standard reading × Frequency reference accuracy+1% × Sweep width+10% × RBW+0.5 × [Sweep width/(Sweep point -1)]+1Hz)	
Internal Reference (10MHz)		Aging rate:<1ppm/year	Aging rate:<0.5ppm/year
		Temperature drift:<0.5ppm (15℃ to 35℃)	Temperature drift:<0.2ppm (15℃ to 35℃)
Resolution Bandwidth(RBW)			
Range		1Hz to 5MHz in steps of 1, 3, and 5	
Selectivity (60db/3db)	RBW≤1MHz	<5:1 typical value (digital implementation, close to Gaussian shape)	
Accuracy	RBW≤1MHz	<10% (<5% typical value)	
Video Bandwidth (VBW)		1Hz ~ 5MHz	
DANL (1Hz resolution bandwidth, RF attenuator 0dB)			
Pre Amplifier Off		5kHz~1MHz <-120dBm (Typ. -130dBm) 1MHz~10MHz <-130dBm (Typ. -140dBm) 10MHz~2GHz <-138dBm (Typ. -142dBm) 2GHz~3.1GHz <-136dBm (Typ. -140dBm) 3.1GHz~5GHz <-136dBm (Typ. -140dBm) 5GHz~8GHz <-135dBm (Typ. -138dBm)	9kHz~1MHz <-100dBm 1MHz~20MHz <-105dBm-3×(f/2MHz)dB 20MHz~4GHz <-138dBm 4GHz~7GHz <-135dBm 7GHz~8GHz <-133dBm 8GHz~15GHz <-135dBm 15GHz~18GHz <-133dBm 18GHz~20GHz <-128dBm
Pre Amplifier On		1kHz~10MHz <-140dBm (Typ. -145dBm) 10MHz~2GHz <-158dBm (Typ. -162dBm) 2GHz~3.1GHz <-156dBm (Typ. -160dBm) 3.1GHz~5GHz <-155dBm (Typ. -159dBm) 5GHz~8GHz <-153dBm (Typ. -155dBm)	1MHz~10MHz <-135dBm 10MHz~2GHz <-156dBm 2GHz~5GHz <-154dBm 5GHz~7GHz <-152dBm 7GHz~8GHz <-150dBm 8GHz~15GHz <-154dBm 15GHz~18GHz <-152dBm 18GHz~20GHz <-147dBm
Phase Noise			
fc=1GHz (sampling detection, average number of traces ≥ 10)		-98dBc/Hz at 10kHz frequency offset	-90dBc/Hz at 10kHz frequency offset
		-112dBc/Hz at 1MHz frequency offset	-105dBc/Hz at 1MHz frequency offset

Model			SA2080	SA2200
Sweep Time				
Non Zero Sweep Width			5ms to 3000s	
Zero Sweep Width			20us to 3000s	
Sweep Mode			Continuous, Single	
Trigger				
Trigger Source			Freedom, Video, External	
External trigger level			5V TTL level, Nominal Value	
Frequency Counter				
Counting Resolution			1Hz, 10Hz, 100Hz, 1kHz	
Counter Uncertainty			Frequency Reading × Frequency Reference Accuracy+Counting Resolution	
Amplitude Accuracy (20℃ to 30℃)				
Comprehensive Amplitude Accuracy			±1.5dB	1MHz~13.5GHz:±1.5dB
				13.5 GHz~20GHz:±2.0dB
Amplitude				
Measurement Range (fc≥10MHz)			DANL to +20dBm	
Max. Safe Input Level(Average continuous power)			+27dBm	
Max. DC Input Voltage			50Vdc	
Input Attenuator Range			0 - 30dB, Steps of 1 dB	
Stray and Residual Response				
TOI (third order distortion)		>30MHz	+7dBm	
SHI (second-order distortion)		>10MHz	+40dBm	
Input related spurious signal			<-60dBc	
Remaining Response			<-95dBm, Tpy -100dBm	<-85dBm
Input/Output				
RF Input			SMA female (50 Ω)	
USB			USB 2.0 B connector	
LAN			10/100 Base-T, RJ-45 connector	
FM/AM Audio Demodulation			Speaker and Headphone Jack	
Reference Input/Output			10MHz, SMA female; Input power: 0dBm to+10dBm; Output power: 0dBm ± 2dB	
IF Output			145MHz, SMA female	
External Trigger Input			5V TTL level (± 10V, 100mA maximum)	
General				
Max. Weight			900g	
Core module Dimensions (width×high×deep)			165mm×120mm×32mm	
Standard Dimensions (width×high×deep)			245mm×190mm×44mm	
Working Temperature			0 ℃ to 50 ℃	
Storage Temperature			-30℃ to+70℃	
Power	Input Voltage		+9VDC~+13VDC	
	Current		1.2 A	1.5 A

Ordering Information

Model

Model	Name	Description
MSA080	Spectrum Analyzer Module	5kHz - 8GHz
MSA200	Spectrum Analyzer Module	9kHz - 20GHz

Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	+12V power adapter, LAN connection cable

Options

Option Model	Name
MSA01-OCXO	10MHz high stability time base
MSA01-WK	Standard Housing

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