Spectrum Analyzer Catalog

2025-2026

Maxwellon: Precision Instruments for Metallurgy & Electronics

At Maxwellon, We Engineer Solutions That Power Modern Industries—Precision Instruments That Set New Standards and Meet the Demands of Today's Fast-Paced World.

Maxwellon

About Maxwellon

Maxwellon is a young and energetic company, headquartered in Tsing Tao, foucused on researching, developing and manufacturing Optical Fiber, RF and Microwave Wireless test and measurement instruments.

With the rapid development of communication market, in order to meet the needs of market development and market competition, Maxwellon Integrated communication resources to provide Network Maintenance Solution, Wireless Test Solution to worldwide customers.

Maxwellon, taking offer the best quality of products, best quality of service and most innovative technology to customers as our goal.

Spectrum Analyzer

SERIES / PRODUCTS	Model	FREQUENCY RANGE	DANL	Phase Noise	Page
	**SA1000** Spectrum Analyzer	9 KHz to 1.8/ 3/ 3.6 GHz	-155dBm(preamp ON)	-90 dBc/Hz (30 kHz offset)	05
	**SA2000** Spectrum Analyzer	9 KHz to 3.6/ 7.5 GHz	-155dBm(preamp ON)	-90 dBc/Hz (30 kHz offset)	09
	**HSA800** Handheld Spectrum Analyzer	9 KHz to 1.8 / 2.5/ 3.6 /7.5 GHz	-155dBm(preamp ON)	-90 dBc/Hz (30 kHz offset)	13
	**RSA080** Handheld Real-time Spectrum Analyzer	5 KHz to 8 GHz	-165dBm	-98 dBc/Hz (10 kHz offset)	17
	**TW4202SCA** Signal and Spectrum Analyzer(5G)	9 KHz to 9 GHz	-163dBm(preamp ON)	-115 dBc/Hz (100 kHz offset)	21
	**PSA080/200** Handheld Spectrum Analyzer	5 KHz to 8 GHz 9 KHz to 20 GHz	-162dBm(preamp ON)	-98 dBc/Hz (10 kHz offset)	31
	**SA2080/2200** Spectrum Analyzer	5 KHz to 8 GHz 9 KHz to 20 GHz	-160dBm(preamp ON)	-90 dBc/Hz (10 kHz offset)	35
	**4025** Handheld Spectrum Analyzer	9 KHz to 20 GHz	-165dBm(preamp ON)	-113 dBc/Hz (100 kHz offset)	39
	**4042** Signal/Spectrum Analyzer	9 KHz to 9 GHz 9 KHz to 20 GHz	-163dBm(preamp ON)	-113 dBc/Hz (100 kHz offset)	50
	**TW4206** Handheld Real-Time Spectrum Analyzer	9 KHz to 9.5 GHz 9 KHz to 20 GHz 9 KHz to 40 GHz	-167.5 dBm	-101.6 dBc/Hz (10 kHz offset)	60
	**4052** Signal/ Spectrum Analyzer	2 Hz to 4 / 8/ 13.6/ 18/ 26.5/ 40/ 45/ 50 GHz	-154dBm(preamp ON, option)	-122 dBc/Hz (10 kHz offset)	62
	**TW4202** Handheld Spectrum Analyzer	9 KHz to 4 / 6.5/ 9/ 20/ 26.5/ 32/ 44/ 50/ 67 GHz	-163dBm(preamp ON)	-106 dBc/Hz (100 kHz offset)	75

SERIES / PRODUCTS	Model	FREQUENCY RANGE	DANL	Phase Noise	Page
	**4051** Signal/ Spectrum Analyzer	3 Hz to 4/ 9/ 13.2/ 18/ 26.5/ 40/ 45/ 50/ 67/ 85 GHz	-162dBm(preamp ON, option)	-125 dBc/Hz (10 kHz offset)	86
	**4082** Signal/ Spectrum Analyzer	2 Hz to 8.4/ 18/ 26.5/ 45/ 50/ 67/ 90/ 110 GHz	-164dBm(preamp ON, option)	-134 dBc/Hz (10 kHz offset)	100
	**MSA800** Spectrum Analyzer Module	9 KHz to 1.8 GHz 9 KHz to 3.6 GHz 9 KHz to 7.5 GHz	-158dBm(preamp ON)	-80 dBc/Hz (30 kHz offset)	115
	**MSA080/200** Spectrum Analyzer Module	5 KHz to 8 GHz 9 KHz to 20 GHz	-160dBm(preamp ON)	-90 dBc/Hz (10 kHz offset)	119
	**82407** Spectrum Analyzer Frequency Extension	50 GHz to 75 GHz 60GHz to 90GHz 75GHz to 110GHz 90GHz to 140GHz 110GHz to 170GHz 220GHz to 325GHz 260GHz to 400GHz 325GHz to 500GHz 500GHz to 750GHz	-140dBm/Hz(min.)	/	123

Quality&**Precise**

MAXWELLON SA1000

9kHz~1.8GHz/3.0GHz/3.6GHz

Spectrum Analyzer

2023

MAXWELLON

The SA1000 series portable spectrum analyzer adopts an ABS mold and is portable and lightweight. The full digital intermediate frequency and embedded integrated control system ensure its excellent performance and stable performance, surpassing expectations for high cost-effectiveness, making it easy for users in various fields such as research and development, production, teaching and training to have it. Rich and friendly human-machine interface, bilingual menus in both Chinese and English, easy to operate, easy to learn and use, making the testing world more convenient and enjoyable.

Key Feature

- Frequency range: 9kHz~1.8GHz/3.0GHz/3.6GHz
- Resolution bandwidth of 1Hz-3MHz, noise level better than -158dBm
- Patented dual source function, tracking source/independent source arbitrary switching
- Dedicated transient detection for fast capture of transient signals
- Waterfall plot, frequency counting, audio demodulation, and other conventional and extended functions
- More professional options such as field strength measurement, frequency discrimination testing, S11 and S21, channel measurement, etc. Pass Fail and other on-site detection and alarm capabilities
- 8-inch highlight color display, multi trace operation measurement

Specification

Model		SA1010B	SA1030B	SA1030C
Frequency Range		9kHz~1.8GHz	9kHz~3.0GHz	9kHz~3.6GHz
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		
		Temperature drift:<0.5ppm (15℃ to 35℃)		
Resolution Bandwidth(RBW)				
Range		1Hz to 500kHz (in continuous steps of 1 to 10), 1MHz, 3MHz		
Selectivity (60db/3db)	RBW≤500kHz	<5:1 typical value (digital implementation, close to Gaussian shape)		
Accuracy	RBW≤500kHz	<10% (<5% typical value)		
Video Bandwidth (VBW)		10Hz ~ 3MHz		
DANL (1Hz resolution bandwidth, RF attenuator 0dB)				
Pre Amplifier Off		100kHz~1MHz <-100dBm- 3×(f/100kHz)dB 1MHz ~ 10MHz <-130dBm 10MHz ~ 1GHz <-135dBm 1GHz ~ 1.8GHz<-134dBm	100kHz~1MHz <-100dBm-3×(f/100kHz)dB 1MHz~10MHz <-130dBm 10MHz~1GHz <-135dBm 1GHz~3.6GHz <-130dBm <-130dBm	
Pre Amplifier On		100kHz~1MHz <-100dBm- 3×(f/100kHz)dB 1MHz ~ 10MHz <-150dBm 10MHz ~ 1GHz <-155dBm 1GHz ~ 1.8GHz<-153dBm	100kHz~1MHz <-120dBm-3×(f/100kHz)dB 1MHz~10MHz <-150dBm 10MHz~1GHz <-155dBm 1GHz~3.6GHz <-150dBm <-130dBm	
Phase Noise				
fc=500MHz		-90dBc/Hz at 30kHz frequency offset		
		-100dBc/Hz at 100kHz frequency offset		
		-115dBc/Hz at 1MHz frequency offset		
Sweep Time				
Non Zero Sweep Width		3ms to 3000s		
Zero Sweep Width		1ms to 3000s		
Sweep Mode		Continuous, Single		

Model		SA1010B	SA1030B	SA1030C
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		
Amplitude				
Measurement Range (fc≥10MHz)		DANL to +20dBm	DANL to +23dBm	
Max. Safe Input Level(Average continuous power)		+27dBm		
Max. DC Input Voltage		50Vdc		
Input Attenuator Range		0 - 30dB, Steps of 1 dB	0 - 39dB, 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		< -90dBm	< -85dBm	
Tracking Signal Source (option)				
Frequency Range		100kHz to 1.8GHz	100kHz to 3.0GHz	100kHz to 3.6GHz
Output Power		-30dBm to 0dBm in 1dB steps		
Flatness Output		tracking signal source (100kHz to 1.6GHz) ± 3dB	tracking signal source (100kHz to 3GHz) ± 3dB	tracking signal source (100kHz to 3.6GHz) ± 3dB
		Independent signal source (150MHz to 1.6GHz) ± 3dB	Independent signal source (150MHz to 3GHz) ± 3dB	Independent signal source (150MHz to 3.6GHz) ± 3dB
Input/Output				
RF Input		N-type female (50 Ω)		
USB		USB 2.0		
LAN		10/100 Base-T, RJ-45 connector		
RS232		9-pin D-SUB (male)		
FM/AM Audio Demodulation		Speaker and Headphone Jack		
Reference Input/Output		10MHz, BNC female; Input power: 0dBm to+10dBm; Output power: 0dBm ± 2dB		
VGA		800 × 480, 60Hz, 15 pin D-SUB (female)		
External Trigger Input		5V TTL level (± 10V, 100mA maximum)		
General				
Display		TFT-LCD, 8 inches		
Max. Weight		4kg		
Dimensions (width × high × deep)		335mm × 162mm × 116mm		
Working Temperature		0 ℃ to 40 ℃		
Storage Temperature		-20℃ to+70℃		
Power		Input Voltage:100V to 240V		
		AC Frequency: 40Hz to 60Hz		
		Max. Power Consumption: 20W		

Ordering Information

Model

Model	Name	Description
SA1010B	Spectrum Analyzer	9kHz - 1.8GHz
SA1030B	Spectrum Analyzer	9kHz - 3.0GHz
SA1030C	Spectrum Analyzer	9kHz - 3.6GHz

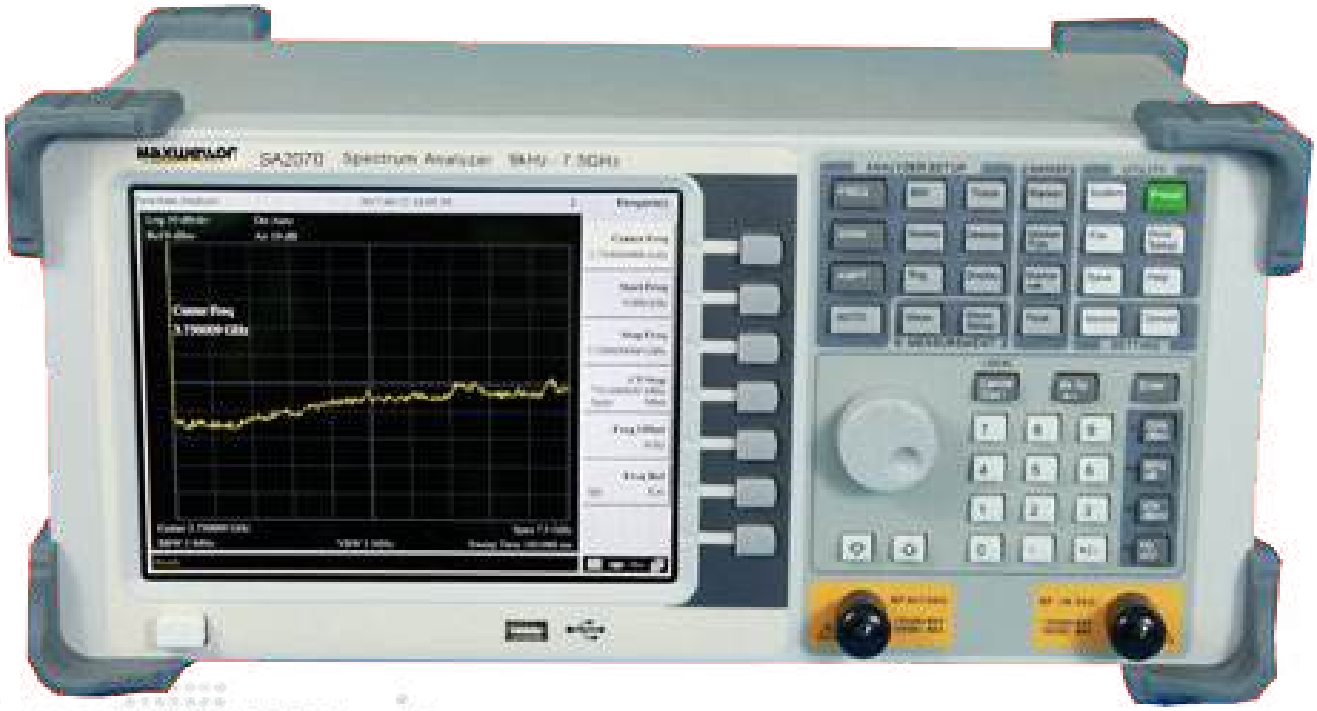
Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	AC/DC adapter

Options

Option Model	Name
SA1030B-TG15	100kHz to 1.5GHz tracking source
SA1010B-TG18	100kHz to 1.8GHz tracking source
SA1030B-TG30	100kHz to 3.0GHz tracking source
SA1030C-TG36	100kHz to 3.6GHz tracking source
SA1000-FS	Field strength measurement
ANT01	Near field probe kit
FD100	Frequency discrimination characteristic testing module
OA750/DA800	Omnidirectional antenna/directional antenna
VB30	Standing wave ratio bridge
UP60	USB power sensor
TR1000	RF demonstration kit

Quality&**Precise**



MAXWELLON SA2000

9kHz~/3.6GHz/7.5GHz

Spectrum Analyzer

2023

Maxwellon

Maxwellon SA2000 series spectrum analyzer reaches max. 7.5GHz with excellent performance. Pre-amplifier, AM/FM demodulation, Interference analysis, limit line, OBW, ACPR etc, all these useful functions are provided as standard. SA2000 series spectrum analyzer is equipped with an optional tracking source. Meanwhile user can also choose a build-in CW source which can extend the ability of SA2000 spectrum analyzer.

Key Feature

- Frequency range from 9kHz to 3.6GHz/ 7.5GHz
- DANL <-150dBm, <-161dBm (typ.)
- Audio analysis
- SCPI supported
- Max. 3GHz tracking source and CW source
- Standard preamplifier/ waterfall function/ limit line function

Specification

Model		SA2031	SA2070
Frequency Range		9kHz~3.6GHz	9kHz~7.5GHz
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	
		Temperature drift:<0.5ppm (15℃ to 35℃)	
Resolution Bandwidth(RBW)			
Range		1Hz to 500kHz (in continuous steps of 1 to 10), 1MHz, 3MHz	
Selectivity (60db/3db)	RBW≤500kHz	<5:1 typical value (digital implementation, close to Gaussian shape)	
Accuracy	RBW≤500kHz	<10% (<5% typical value)	
Video Bandwidth (VBW)		10Hz ~ 3MHz	
DANL (1Hz resolution bandwidth, RF attenuator 0dB)			
Pre Amplifier Off		100kHz~1MHz <-100dBm- 3×(f/100kHz)dB 1MHz ~ 10MHz <-130dBm 10MHz ~ 1GHz <-135dBm 1GHz ~ 3.6GHz<-130dBm	100kHz~1MHz <-95dBm-3×(f/100kHz)dB 1MHz~10MHz <-125dBm 10MHz~2GHz <-133dBm 2GHz~3.4GHz <-130dBm 3.4GHz~5GHz <-133dBm 5GHz~7.5GHz <-127dBm
Pre Amplifier On		100kHz~1MHz <-120dBm- 3×(f/100kHz)dB 1MHz ~ 10MHz <-150dBm 10MHz ~ 1GHz <-155dBm 1GHz ~ 3.6GHz<-150dBm	100kHz~1MHz <-110dBm-3×(f/100kHz)dB 1MHz~10MHz <-140dBm 10MHz~2GHz <-148dBm 2GHz~3.4GHz <-143dBm 3.4GHz~5GHz <-145dBm 5GHz~7.5GHz <-140dBm
Phase Noise			
fc=500MHz (RBW ≤ 1kHz, sampling detection, average number of traces ≥ 10)		-90dBc/Hz at 30kHz frequency offset	-80dBc/Hz at 30kHz frequency offset
		-100dBc/Hz at 100kHz frequency offset	-90dBc/Hz at 100kHz frequency offset
		-115dBc/Hz at 1MHz frequency offset	-110dBc/Hz at 1MHz frequency offset
Sweep Time			
Non Zero Sweep Width		3ms to 3000s	
Zero Sweep Width		1ms to 3000s	
Sweep Mode		Continuous, Single	

Model		SA2031	SA2070
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	
Amplitude			
Measurement Range (fc≥10MHz)		DANL to +27dBm	DANL to +20dBm
Max. Safe Input Level(Average continuous power)		+27dBm	+23dBm
Max. DC Input Voltage		50Vdc	
Input Attenuator Range		0 - 39dB, Steps of 3 dB	0 - 30dB, Steps of 1 dB
Stray and Residual Response			
TOI (third order distortion)	>30MHz	+7dBm	+10dBm
SHI (second-order distortion)	>10MHz	+40dBm	
Input related spurious signal		<-60dBc	
Remaining Response		< -85dBm	
Tracking Signal Source (option)			
Frequency Range		100kHz to 3.6GHz	100kHz to 3.2GHz
Output Power		-30dBm to 0dBm in 1dB steps	
Flatness Output		Tracking source (100kHz to 3.6GHz) ± 3dB	Tracking source (100kHz to 3.2GHz) ± 3dB
		Independent source (150MHz to 3.6GHz) ± 3dB	
Input/Output			
RF Input		N-type female (50 Ω)	
USB		USB 2.0	
LAN		10/100 Base-T, RJ-45 connector	
RS232		9-pin D-SUB (male)	
FM/AM Audio Demodulation		Speaker and Headphone Jack	
Reference Input/Output		10MHz, BNC female; Input power: 0dBm to+10dBm; Output power: 0dBm ± 2dB	
VGA		800 × 600, 60Hz, 15 pin D-SUB (female)	
External Trigger Input		5V TTL level (± 10V, 100mA maximum)	
General			
Display		TFT-LCD, 8.4 inches, 800×600	
Max. Weight		6.5kg	
Dimensions (width × high × deep)		390mm×182mm×230mm	
Working Temperature		0 ℃ to 40 ℃	
Storage Temperature		-30℃ to+70℃	
Power		Input Voltage:100V to 240V	
		AC Frequency: 40Hz to 60Hz	
		Max. Power Consumption: 30W	

Ordering Information

Model

Model	Name	Description
SA2031	Spectrum Analyzer	9kHz - 3.6GHz
SA2070	Spectrum Analyzer	9kHz - 7.5GHz

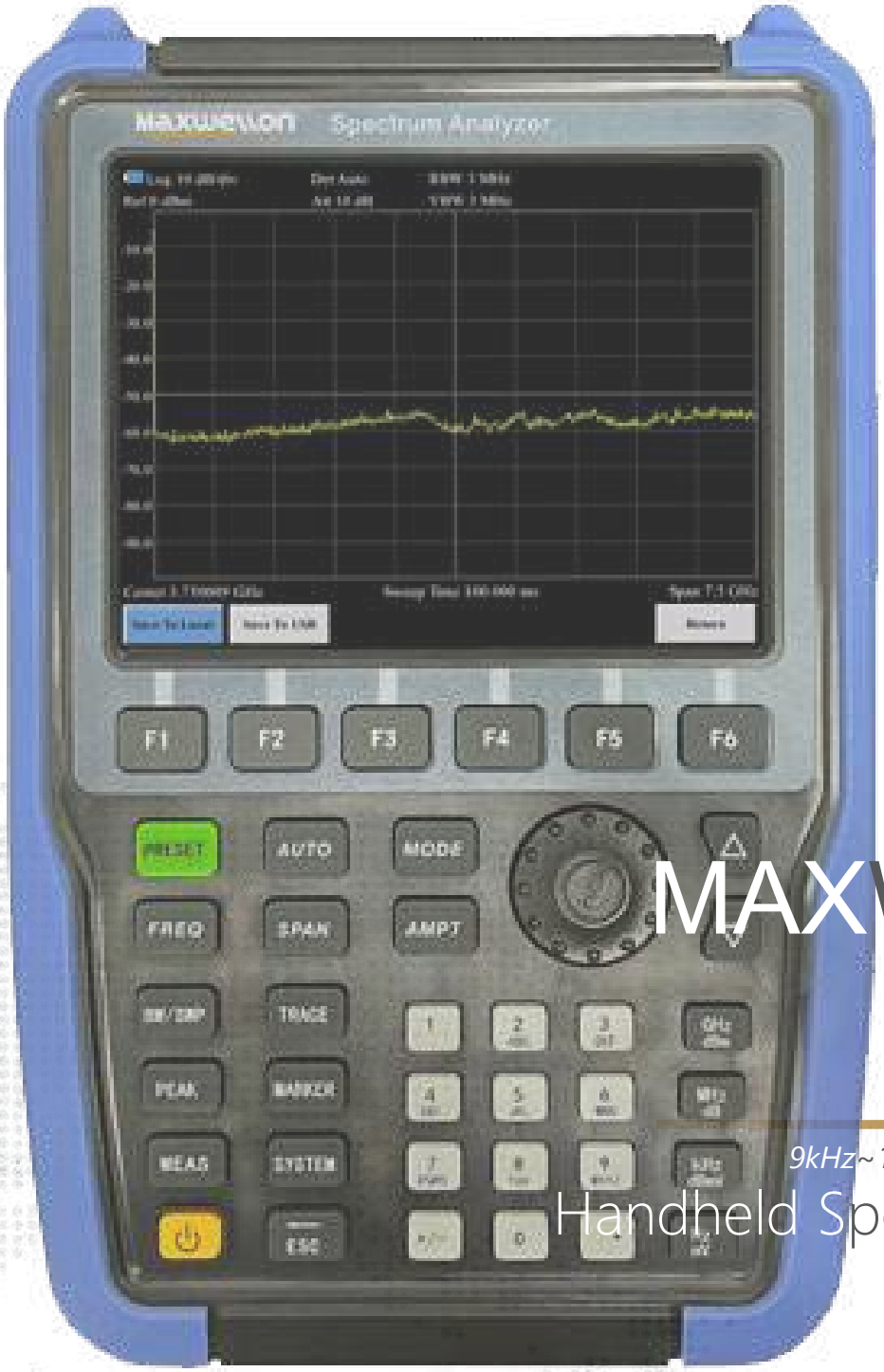
Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	AC/DC adapter

Options

Option Model	Name
SA2031-TG15	100kHz to 1.5GHz tracking source
SA2070-TG32	100kHz to 3.2GHz tracking source
SA2031-TG36	100kHz to 3.6GHz tracking signal source
SA2000-FS	Field strength measurement
ANT01	Near field probe kit
FD100	Frequency discrimination characteristic testing module
OA750/DA800	Omnidirectional antenna/directional antenna
VB30	Standing wave ratio bridge
UP60	USB power sensor
TR1000	RF demonstration kit

Quality&**Precise**



MAXWELLON HSA800

9kHz~1.8GHz/2.5GHz/3.6GHz/7.5GHz

Handheld Spectrum Analyzer

2023

Maxwellon

The HSA800 series spectrum analyzer is designed specifically for on-site operations. It is lightweight, portable, fast and precise, sturdy and durable, with rich measurement functions, making it the perfect choice for pursuing excellent performance and outstanding value.

The product adopts a high brightness 6.5-inch large screen, with a dynamic appearance and clear graphics. Large capacity rechargeable battery, with a continuous working time of up to 4 hours. The push cover battery compartment is easy to replace at any time and has unlimited extension of operating time. Equipped with options such as built-in tracking source, preamplifier, field strength measurement, GPS/BD navigation measurement, and antenna feeder testing, it can quickly and reliably solve various conventional measurement tasks and adapt to harsh and complex environmental requirements. Universal USB and LAN communication interfaces enable remote control. By using the standard and complete SCPI command set, it is possible to quickly build and upgrade an integrated testing system, making it convenient for users to measure and use.

Key Feature

- Frequency range: 9kHz~1.8GHz/2.5GHz/3.6GHz/7.5GHz
- Noise level: better than -160dBm
- Resolution bandwidth: 1Hz-3MHz
- Dedicated transient detection for fast capture of transient signals
- Waterfall plot, channel measurement, frequency counting, audio decoding, Pass Fail detection alarm, and other conventional and extended functions
- More professional options such as field strength measurement, S11 and S21, GPS/BD navigation measurement, antenna and feeder line testing, etc
- Fully charged for up to 4 hours, ready for backup power connection at any time

Specification

Model		HSA818	HSA820	HSA830	HSA870
Frequency Range		9kHz~1.8GHz	9kHz~2.5GHz	9kHz~3.6GHz	9kHz~7.5GHz
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			
	Temperature Drift	<0.5ppm (15℃ to 35℃)			
Resolution Bandwidth(RBW)					
Range		10Hz to 500kHz(in steps of 1 to 10), 1MHz, 3MHz	1Hz to 500kHz(in steps of 1 to 10), 1MHz, 3MHz		
Selectivity (60db/3db)	RBW≤500kHz	<5:1 typical value (digital implementation, close to Gaussian shape)			
Accuracy		<10% (<5% typical value)			
Video Bandwidth (VBW)		10Hz to 3MHz			
DANL (1Hz resolution bandwidth, RF attenuator 0dB)					
Pre Amplifier Off		100kHz~1MHz: <-100dBm-3×(f/100kHz)dB 1MHz~10MHz:<-130dBm 10MHz~1GHz:<-135dBm 1GHz~1.8GHz:<-132dBm	100kHz~1MHz: <-100dBm-3×(f/100kHz)dB 1MHz~10MHz:<-130dBm 10MHz~1GHz:<-135dBm 1GHz~2.5GHz:<-131dBm	100kHz~1MHz: <-100dBm-3×(f/100kHz)dB 1MHz~10MHz:<-130dBm 10MHz~1GHz:<-135dBm 1GHz~3.6GHz:<-130dBm	1MHz~10MHz:<-125dBm 10MHz~2GHz:<-133dBm 2GHz~3.4GHz:<-130dBm 3.4GHz~5GHz:<-133dBm 5GHz~7.5GHz:<-127dBm
Pre Amplifier On		100kHz~1MHz: <-120dBm-3×(f/100kHz)dB 1MHz~10MHz:<-150dBm 10MHz~1GHz:<-155dBm 1GHz~1.8GHz:<-152dBm	100kHz~1MHz: <-120dBm-3×(f/100kHz)dB 1MHz~10MHz:<-150dBm 10MHz~1GHz:<-155dBm 1GHz~2.5GHz:<-150dBm	100kHz~1MHz: <-120dBm-3×(f/100kHz)dB 1MHz~10MHz:<-150dBm 10MHz~1GHz:<-155dBm 1GHz~3.6GHz:<-148dBm	1MHz~10MHz:<-140dBm 10MHz~2GHz:<-148dBm 2GHz~3.4GHz:<-143dBm 3.4GHz~5GHz:<-145dBm 5GHz~7.5GHz:<-138dBm

Model		HSA818	HSA820	HSA830	HSA870
Phase Noise					
FC=500MHz		-90dBc/Hz at 30kHz frequency offset			-80dBc/Hz at 30kHz frequency offset
		-100dBc/Hz at 100kHz frequency offset			-90dBc/Hz at 100kHz frequency offset
		-115dBc/Hz at 1MHz frequency offset			-110dBc/Hz at 1MHz frequency offset
Sweep Time					
Non Zero Sweep Width		3ms to 3000s			
Zero Sweep Width		1ms 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			
Amplitude					
Measurement Range (fc≥10MHz)		DANL to+27dBm			DANL to+20dBm
Max. Safe Input Level (Average Continuous Power)		+27dBm			+23dBm
Max. DC Input Voltage		50Vdc			
Input Attenuator Range		0 to 39dB in steps of 3dB			0 to 30dB in steps of 1dB
Stray and Residual Response					
TOI (third order distortion)	>30MHz	+7dBm			+10dBm
SHI (second-order distortion)	>10MHz	+40dBm			+40dBm
Input related spurious signal		<-60dBc			
Remaining Response		<-85dBm			
Tracking Source (option)					
Frequency Range		100kHz ~ 1.5GHz			100kHz ~ 3.2GHz
Output Power		-30dBm to 0dBm in 1dB steps			
Flatness Output		±3dB			
Input/Output					
RF Input/Output		N-type female (50 Ω)			
USB		USB 2.0			
LAN		10/100 Base-T, RJ-45 connector			
FM/AM Audio Demodulation		Speaker and Headphone Jack			
Reference Input/Output		10MHz, BNC female. Input power from 0dBm to+10dBm; Output power 0dBm ± 2dB			
External Trigger Input		5V TTL level (Max. ± 10V, 100mA)			
Common Parameters					
Display		TFT-LCD, 6.5 inches			
Weight		2.8kg			
Size (Length × Wide × High)		290mm×186mm×66mm			
Working Temperature		0 ℃ to 50℃			
Storage Temperature		-20℃ to+70℃			
Battery		7.4 V 6600mAh			
AC Adapter		Input: 100V~240VAC 50/60Hz 1.5A			
		Output: +9V 4000mA			
Overall Power Consumption		13W			15W

Ordering Information

Model

Model	Name	Description
HSA818	Handheld Spectrum Analyzer	9kHz ~ 1.8GHz
HSA820	Handheld Spectrum Analyzer	9kHz ~ 2.5GHz
HSA830	Handheld Spectrum Analyzer	9kHz ~ 3.6GHz
HSA870	Handheld Spectrum Analyzer	9kHz ~ 7.5GHz

Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	AC/DC adapter (AC input, +20V output)

Options

Option Model	Name
HSA820-TG15 HSA830-TG15	100kHz to 1.5GHz tracking source
HSA870-TG32	100kHz to 3.2GHz tracking source
HSA800-FS	Field strength measurement
HSA800-BAT	Backup battery pack
OA750/DA800	Omnidirectional antenna/directional antenna
ANT01	Near field probe kit
VB30	Standing wave ratio bridge
UP60	USB power sensor
HSA800-BD	GPS/BD navigation

Quality&**Precise**

MAXWELLON RSA080

5kHz~8GHz

Handheld Real-time Spectrum Analyzer

2023

Maxwellon

RSA080 is a broadband, high-performance portable real-time spectrum analyzer that measures frequencies ranging from 5 kHz to 8 GHz, making it suitable for both indoor and outdoor environments. The product adopts 10.1 inch LED backlight high brightness display screen, supporting multi touch operation. Equipped with real-time spectrum, swept frequency spectrum, vector network analysis, antenna feeder measurement, field strength measurement, USB power measurement, interference localization and demodulation analysis measurement modes, it is convenient for users to diagnose and solve various RF measurement problems on site. The medium mirror frequency suppression of up to 80 dB and minimal residual response indicators enable it to meet the higher requirements of wireless monitoring. The product has comprehensive testing functions, can be powered by batteries, and is easy to carry. It is a powerful tool for on-site testing parameters, engineering installation and debugging, and daily maintenance and repair of various electronic devices. It can be widely used in various fields such as communication, broadcasting and television, radio management, electronic detection and countermeasures, precision guidance, and is also the best choice for university teaching.

Key Feature

- Frequency range: 5kHz~8GHz
- Maximum real-time bandwidth: 40MHz
- Minimum signal duration at 100% POI of 7us
- Support multiple measurement modes such as Real-Time Spectrum, Sweep Spectrum, Vector Network Analysis, Antenna And Feeder Line Measurement, Field Strength Measurement, Interference Localization, Power Measurement, Signal Modulation Analysis, etc
- Up to 80dB medium mirror frequency suppression
- 10.1-inch high brightness display screen and support for touch operation
- Detachable lithium-ion battery for easy field testing

Specification

Real-time Spectrum Analysis

Frequency Range	5kHz~8GHz
Real-Time Analysis Bandwidth	40MHz
Min. Signal Duration at 100% POI	7us
Phase Noise	-98dBc/Hz@10kHz
Window Function Types	Hanning, Blackman-Harris, rectangular, flat-top, Caesar, Gaussian
Max. Sampling Rate	51.2MHz
Display Modes	Density Spectrum, Waterfall, Power vs Time
Real Time Storage Depth	512MB
Trigger Mode	External Trigger, IF Power, PPS Second Pulse, Gated Scanning, Frequency Template

Sweep Frequency Spectrum Analysis

Resolution Bandwidth	1Hz~5MHz
Noise Level	-165dBm
Sweep Time	20us~3000s (non-zero span), 5ms~3000s (zero span)
Comprehensive Amplitude Accuracy	±1.5dB

Vector Network Analysis

Frequency Range	100kHz~8GHz
Measurement Parameters	S11, S21
RF Output Power	0dBm, 30dB adjustable
IF Bandwidth	1kH~200kHz
Display Modes	Echo/SWR, Insertion Loss, Smith Chart, Phase, Group Delay
Effective Directionality	≥38dB(1MHz~8GHz)
Dynamic Range	80dB(S21, 10kHz RBW, Log mag, Average=50, >10MHz)

Antenna Test

Frequency Range	100kHz~8GHz
Measurement Points	101~2048
Effective Directionality	≥38dB

Analog Demodulation Analysis

AM Demodulation	Modulation Rate	20Hz -100kHz
	Modulation Rate Accuracy	1Hz, nominal value (modulation rate<1kHz)<0.1% modulation rate, nominal value (modulation rate ≥ 1kHz)
	Modulation Depth	10%-95%
	Modulation Depth Accuracy	±4%, nominal value
FM Demodulation	Modulation Rate	20Hz -100kHz
	Modulation Rate Accuracy	1Hz, nominal value (modulation rate<1kHz)<0.1% modulation rate, nominal value (modulation rate ≥ 1kHz)
	Frequency Deviation	100Hz -400kHz
	Frequency Deviation Accuracy	±4%, nominal value

Digital Demodulation Analysis

Modulation type	2ASK, 2FSK, GMSK, BPSK, QPSK, 8PSK, 16QAM, 64QAM
Single analysis length	Up to 80000 sample points
Symbol rate	1 ksps - 32Msps
Filter type	Root Raised Cosine, Raised Cosine, Gaussian, Rectangular
Test display	Error Vector Amplitude, Modulation Error Ratio, Error Vector Amplitude, Phase Error; FSK Only: Frequency Deviation, Symbol Timing Error.
Display format	IQ Diagram, Constellation Diagram, I Eye Diagram, Q Eye Diagram, Phase Diagram
QPSK residual EVM	≤2.0% (100 kHz, 1MHz, 10MHz symbol rate, typical average)

General Specifications

Input/Output Interface	
RF IN/OUT	RF signal input/output, N-type negative (50Ω)
USB	Host: USB 2.0 A connector, dual USB ports
LAN	10/100 Base-T, RJ-45 connector
Headphone jack	FM/AM audio demodulation output
REF IN	10MHz reference input, SMA female, input power 0dBm to +10dBm
IF OUT	145MHz IF output, SMA female
Trig In	External trigger input, 3.3V/5V TTL level
GPS	GPS/BD antenna input port, SMA female
AUX	8-core aviation connector, directional antenna electronic compass connector
DC 20V	20VDC power adapter interface

Common Parameters		
Monitor	LED backlight, 10.1 inch TFT-LCD, 1208×800	
Machine Weight (Including Battery)	About3.9kg(Does not include VNA option)	
Dimensions (Length X Width X Height)	334mm×242mm×68mm	
Operating Temperature	0℃ - 50℃	
Storage Temperature	-20℃ - +70℃	
Battery	14.8V 6400mAh	
Power Adapter	Input	100V~240VAC 50/60Hz 1.4A
	Output	+20V 6A
Overall Power Consumption	About 30W	

Ordering Information

Model

Model	Name	Description
SRA080	Handheld Real-time Spectrum Analyzer	5kHz - 8GHz

Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	AC/DC adapter (AC input, +20V output)

Options

Option Model	Name
SRA-AMK	Advanced Measurement Suite
SRA-OCXO	High stability time base
SRA080-VNA	Vector Network Analysis
SRA080-DTF	Antenna and feeder measurement
SRA-FS	field strength measurement
SRA-IL	interference location
UP60	USB power sensor
SRA-AMA	Analog Modulation Analysis
SRA-DMA	Digital Modulation Analysis
OA750/DA800	Omnidirectional Antenna/Directional Antenna
SDA800	Ultrashort Wave Handheld DF Antenna (9kHz~8000MHz)

Quality&**Precise**

MAXWELLON TW4202SCA

9kHz~9GHz

Handheld Spectrum Analyzer

2023

Maxwellon

Maxwellon TW4202SCA is a handheld broadband real-time spectrum analyzer designed for field test.The maximun real-time analysis bandwidth reaches 120MHz. It has real-time spectrum analysis, 5GNR demodulation analysis, LTD FDD/TDD demodulation analysis, GSM/EDGE demodulation analysisi, directional analysis and other measurement functions modes, as well as field strength measurement, channel power, occupied bandwidth, adjacent channel power, audio demodulation, harmonic distortion, spectral emission mask/spurious emission mas, indoor/outdoor map measurement. It adpots 8.4inch large screen LCD and capacitivie touch screen integrated design to facilitate user operation. The structure adopts a handheld chassis, which is samll in size, light weight, flexible in power supply, easy to maneuver, and is extremely suitable for on-site use.

TW4202SCA can be used for on-site debugging and installation and maintenance of mobile communications, wirelesss communication, radar, satelite communication and other equipment, wireless communication signal demodulation analysis, interference source direction finding and map positioning, broadband modulation or transisent signal test analysis in other fields, it can provide a relatively complete solution for the user's external field spectrum test.

Key Feature

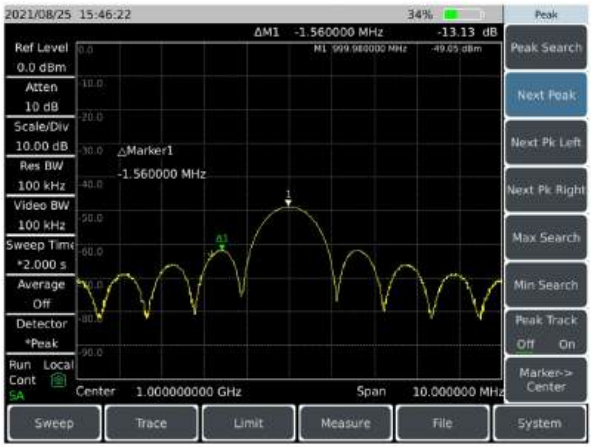
- Wide frequency range: from 9kHz to 9GHz
- Full-band preamplifiers configuration
- Low displayed average noise level: -163dBm@1Hz RBW(typical)
- Excellent RF specification performance:

Phase noise performance: -115dBc/Hz@100kHz frequency offset@1GHz carrier

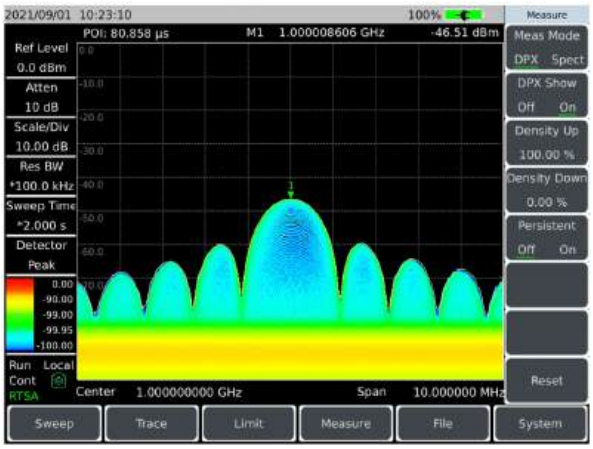
- Input TOI point: +13dBm (Typical)
- Amplitude accuracy: 1.3dB
- Real-time spectrum analysis function
- Support persistence spectrum and waterfall display mode
- Maximum real-time analysis bandwidth: 120MHz
- RTSA with 5.8us POI
- Resolution bandwidth: 1Hz~10MHz(1/3 step), 20MHz
- 512MHz IQ waveform capture
- Various measurement functions: spectrum analyzer, interference analyzer (spectrogram, RSSI), RTSA, 5G NR demodulation, LTE FDD/TDD demodulation, GSM/EDGE demodulation function etc.
- Various intelligent measurement functions: field strength measurement, channel power, occupied bandwidth, adjacent-channel power ratio, tune & listen, carrier-to-noise ratio, emission mask, indoor/outdoor map measurement, Support GPS/BEIDOU positioning and frequency taming calibration function of the crystal oscillator in the machine
- 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 to +50°C
- Power supplied by battery or 100VAC to 240VAC

Various Measurement Functions

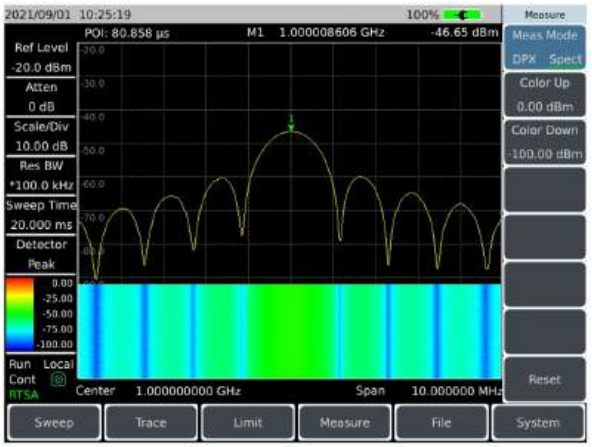
Spectrum Analysis Mode



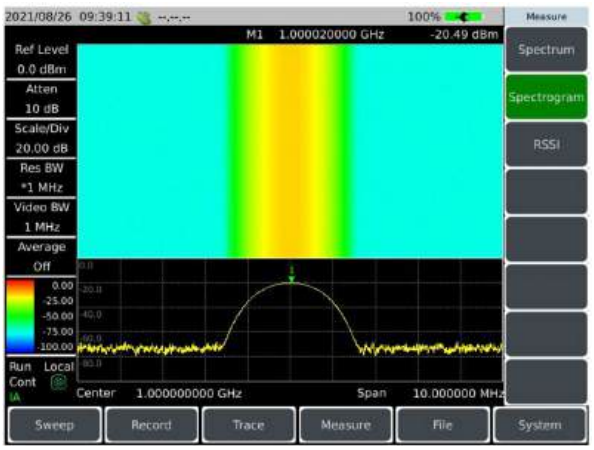
RTSA Persistence Mode



RTSA Waterfall Mode



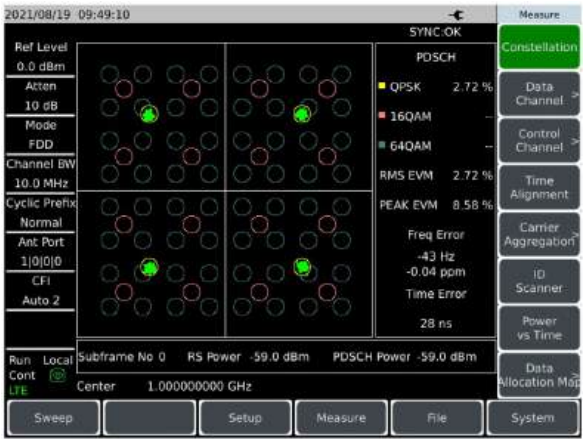
Interference Analysis Mode



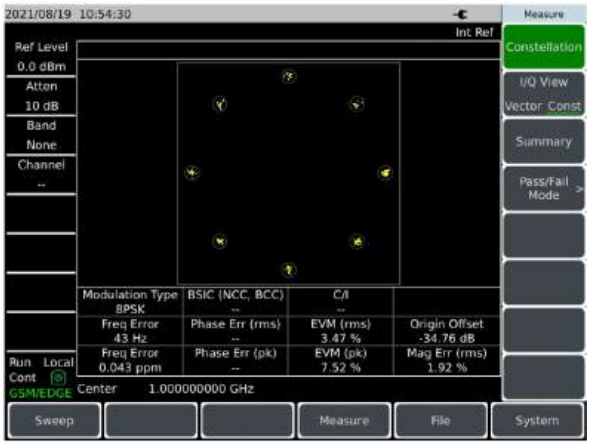
Directional Analysis Mode

5G NR Measurement

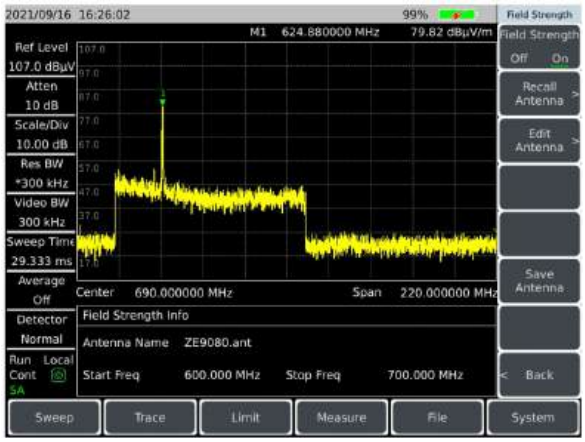
4G LTE Measurement



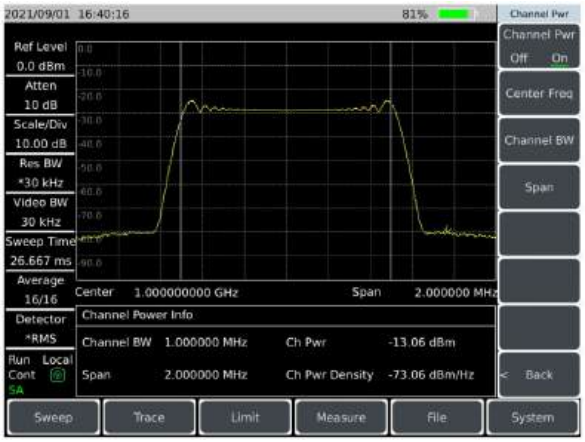
GSM/EDGE Measurement



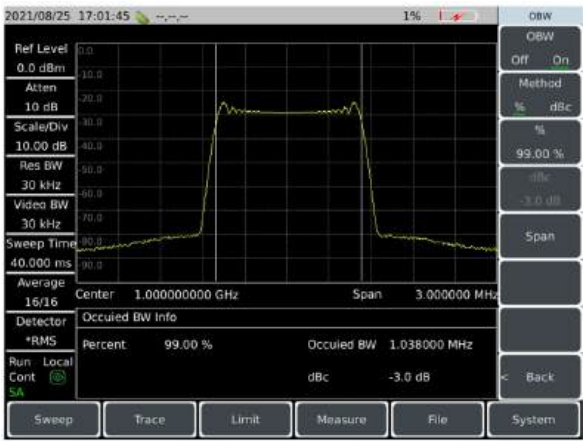
Field Strength Measurement



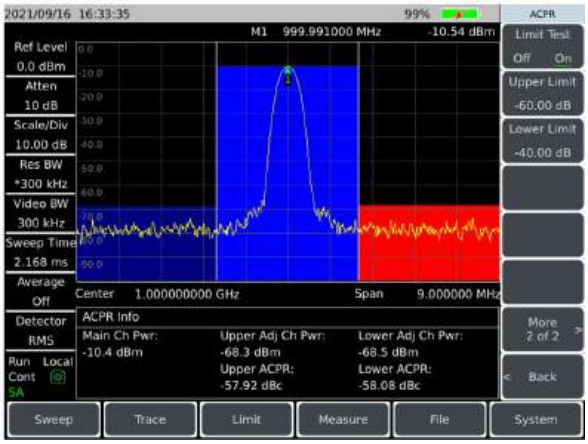
Channel Power



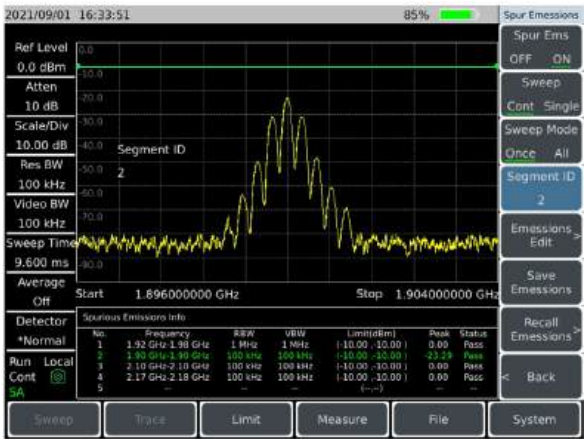
Occupied Bandwidth



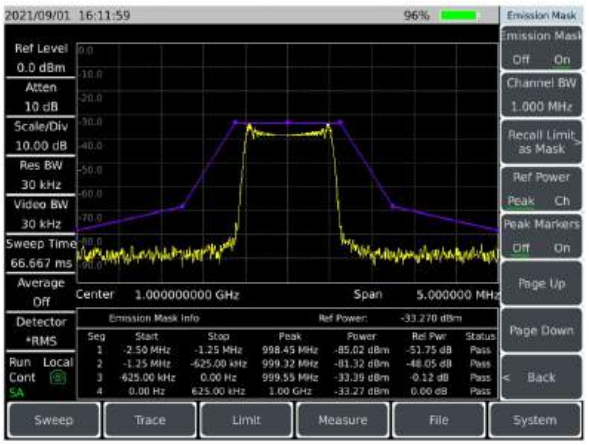
Adjacent-Channel Power Ratio



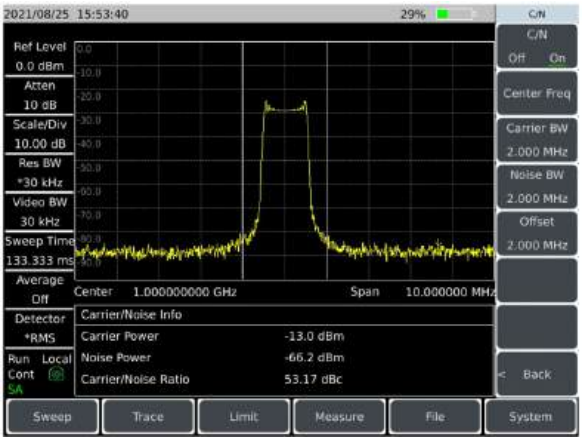
Spur Emission Mask



Emission Mask

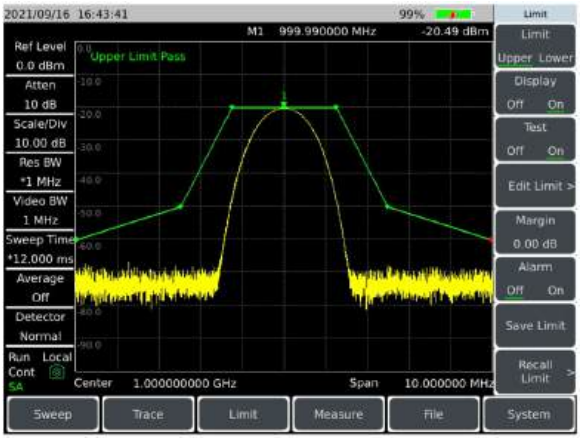


Spur Emission Mask



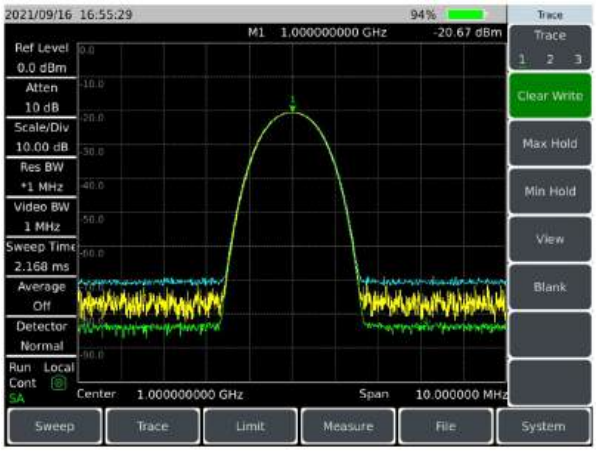
Harmonic Distortion

Limit Line

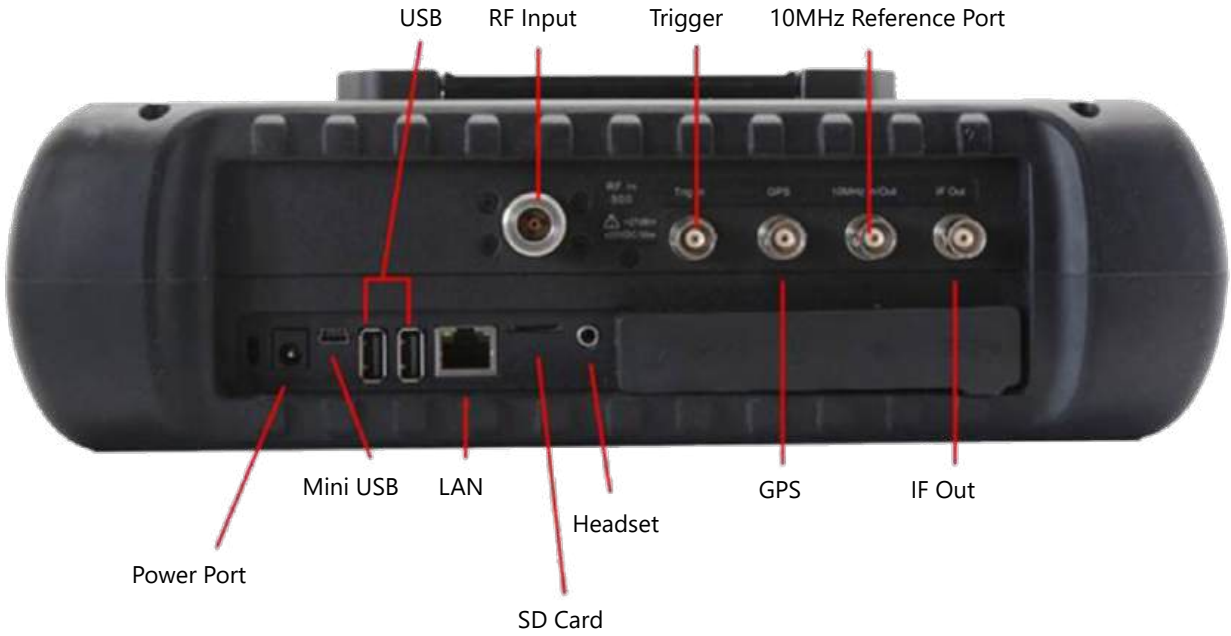


List Sweep

Multi-Traces

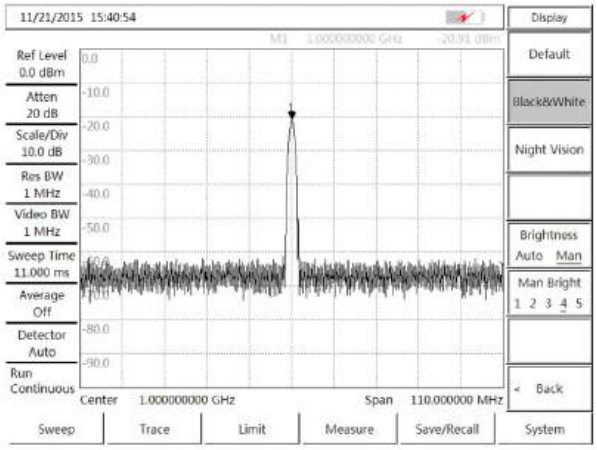


Various Measurement Functions

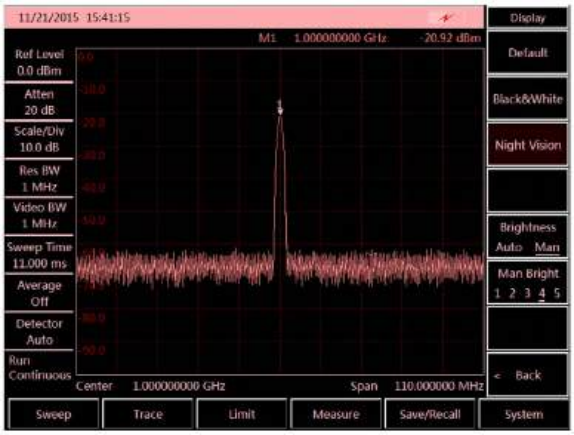


Easy & Convenient User Operation

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



Night Vision Mode

Typical Applications

Comprehensive Performance Evaluation of Electronic Weapon Equipment

TW4202SCA spectrum analyzer has 5G NR, LTE FDD/TDD, GSM/EDGE and other wireless communication signal demodulation analysis and 120MHz bandwidth real-time spectrum analysis function, adopts a handheld structure, small size, light weight, battery-powered , Can be applied to the field installation and commissioning of wireless communication base stations and maintenance support.

Field Test and Diagnosis of Transmitter and Receiver

TW4202SCA spectrum analyzer has various measurement function modes like spectrum analyzer, interference analyzer, Real-time spectrum analyzer, etc., as well as various intelligent measurement functions such as indoor/outdoor map measurement, 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, TW4202SCA spectrum analyzer can be used for electromagnetic environment detection, radio interference analysis, electromagnetic environment background assessment, spectrum monitoring and illegal channel interference signal recognition.

Specification

Frequency Range	TW4202SCA: 9 kHz to 9 GHz, Frequency Resolution:1Hz
Frequency Reference	Frequency: 10MHz Aging: ±0.5ppm/Year Initial Frequency Accuracy: ±0.3ppm Temperature Stability:±0.1ppm(-10~50℃, Comparative to 25℃)
Sweep Time	Range: 10μs~6000s (Zero Span) Accuracy: ±2.00% (Zero Span)
Frequency Readout Accuracy	±(Frequency Readout× frequency Reference +2%× Span +10%×Resolution Bandwidth)
Frequency Span	Range: 100Hz~9GHz or 0Hz Accuracy: ±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)	≤-108dBc/Hz@ Frequency Offset 10kHz ≤-110dBc/Hz@ Frequency Offset 100kHz ≤-118dBc/Hz@ Frequency Offset 1MHz ≤-129dBc/Hz@ Frequency Offset 10MHz	
DANL (input port is connected with a 50Ω load, 0dB input attenuation, average detection, logarithm of video type, RBW normalized to 1Hz, tracking source off, 20℃~30℃)	Pre-amplifier Off: ≤-140dBm(2MHz~3GHz) ≤-138dBm(3GHz~9GHz)	Pre-amplifier On: ≤-160dBm(2MHz~3GHz) ≤-157dBm(3GHz~9GHz)
Residual Response (exceptional frequency: 3.15GHz)	Pre-amplifier Off:≤-82dBm(10MHz~9GHz)	Pre-amplifier On:≤-95dBm(10MHz~9GHz)
Second Harmonic Distortion (0dB attenuation, -30dBm input signal)	50MHz~2GHz: <-65dBc 2GHz~4.5GHz: <-70dBc	
TOI (-15dBm two-tone signal, 100kHz span, pre-amplifier off)	50MHz~5.2GHz:≥+10dBm 5.2GHz~9GHz:≥+12dBm	
Absolute Amplitude Accuracy (input signal 0dBm~-50dBm, all settings are automatic couplings, 20℃ ~30℃,30 minutes of preheating)	±1. 3dB (10MHz~9GHz)	
Input Attenuator	Attenuation Range: 0dB~30dB, 5dB Steps	
Max. Continuous Input	+27dBm Peak Typical(≥10dB Attenuation) +20dBm Peak Typical(<10dB Attenuation) +10dBm Peak Typical(Pre-amp On)	
Reference Level	Range: -150dBm~+30dBm Conversion Uncertainty: ±1.20dB	
Dimension	314mm (W)×218mm (H)×91mm (D) (Excluding Handle, Stand) 338mm(W)×218mm (H)×100mm (D) (Including Handle, Stand)	
Weight	≤4.6kg	
Working Temperature	-10℃~+50℃ (the battery operation temperature is 0℃~+45℃)	
Storage Temperature	-40℃~+70℃ (the battery storage temperature is -20℃~+60℃)	
Electromagnetic Compatibility	Conforms to GJB3947A-2009 3.9.1 Requirements	
Power Supply	AC power adapter: input 100 to 240VAC, 50/60Hz; Output 15VDC, 4A Lithium-ion battery: 10.8V	
Battery operation time	2h (typical)	
Power Consumption	≤40W	
Test Interface	RF input: Type-N Connector(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	

Ordering Information

Model

Model	Name	Description
TW4202SCA	Handheld Spectrum Analyzer	9 kHz~9 GHz

Standard

No.	Name
1	Power Supply: Standard 3-Phase Power Cord, Power Adapter and Rechargeable Lithium Ion Battery
2	Instrument Quick guide
3	USB Remote Control Cable
4	Certificate of Conformity

Options

Option Model	Name	Description
TW4202SCA-001	Optional Accessories of English Version	English Signs,Keys,Menu
TW4202SCA-002	User Manual (Chinese)	--
TW4202SCA-003	User Manual (English)	--
TW4202SCA-004	Programming Manual (Chinese)	--
TW4202SCA-005	Programming Manual (English)	--
TW4202SCA-006	Power Adapter	Power Adapter
TW4202SCA-007	Rechargeable Lithium Ion Battery	Standby Battery
TW4202SCA-009	Micro SD Card	Class4, Capacity: 8G
TW4202SCA-010	GPS and BEIDOU function	GPS exposed Antenna
TW4202SCA-016	Interference Analyzer Option	Provide Spectrogram,RSSI Measurement etc. Functions
TW4202SCA-019	List Sweep Option	To Realize Continuous Sweep Measurement of Various Frequency Bands
TW4202SCA-020	Zero Span IF Output	Output the Third or Fourth IF Signal(Choose One of Two)
TW4202SCA-021	ZE9080 Directional Antenna A	Frequency Range:9kHz~20MHz,N(f)(Requires Option 025)
TW4202SCA-022	ZE9080 Directional Antenna B	Frequency Range:20MHz~200MHz,N(f)(Requires Option 025)
TW4202SCA-023	ZE9080 Directional Antenna C	Frequency Range:200MHz~500MHz, N(f)(Requires Option 025)
TW4202SCA-024	ZE9080 Directional Antenna D	Frequency Range:500MHz~8GHz,N(f)(Requires Option 025)
TW4202SCA-025	ZE9080 Antenna Amplifier	Frequency Range:10kHz~8GHz,N(m), include option 050 (Requires Option 021/022/023/024)
TW4202SCA-028	Functional Bag	Protect the Instrument
TW4202SCA-029	Backpack	Easy to Carry
TW4202SCA-030	Safety Instrument Carrying Case	Used to Carry
TW4202SCA-038	Location Analyzer Option	Internal software which requires option 010, option 050 and directional antenna for function realization
TW4202SCA-041	Omnidirectional Whip Antenna	Frequency Range:700MHz~2700MHz,suitable for communication frequency band
TW4202SCA-042	700MHz~4GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:700MHz~4GHz
TW4202SCA-043	700MHz~6GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:700MHz~6GHz
TW4202SCA-044	680MHz~10GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:680MHz ~10GHz
TW4202SCA-046	400MHz~4GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:400MHz~4GHz
TW4202SCA-047	400MHz~6GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:400MHz~6GHz
TW4202SCA-048	380MHz~10GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:380MHz ~10GHz
TW4202SCA-050	USB Electronic Compass	External USB electronic compass, requires option 038 for function realization
TW4202SCA-051	6GHz Omnidirectional Antenna	Portable Omnidirectional Antenna, Frequency Range:680MHz~6GHz
TW4202SCA-052	8GHz Omnidirectional Antenna	Portable Omnidirectional Antenna, Frequency Range:300MHz~8GHz
TW4202SCA-053	VHF/UHF Extension-Type Whip Antenna	FrequencyRange:140MHz/430MHz
TW4202SCA-054	Passive Directional Antenna(700MHz~4GHz)	Passive Log Periodic Antenna, Frequency Range:700MHz~4GHz
TW4202SCA-055	Passive Directional Antenna(700MHz~6GHz)	Passive Log Periodic Antenna, Frequency Range:700MHz~6GHz
TW4202SCA-056	Passive Directional Antenna(680MHz~10GHz)	Passive Log Periodic Antenna, Frequency Range:680MHz~10GHz
TW4202SCA-060	N/SMA-JJ RF Cable (2m)	N/SMA RF Coaxial Cable (m-m), DC~18GHz,2m length

Option Model	Name	Description
TW4202SCA-061	N/SMA-JJ RF Cable (1m)	N/SMA RF Coaxial Cable (m-m), DC~18GHz,1m length
TW4202SCA-067	ZE9080 Antenna Transportation Case	Special case for ZE9080 antenna, for the whole set of ZE9080 antenna and antenna amplifier, including option 021, 022, 023, 024, 025
TW4202SCA-068	Real-time spectrum analysis	Provide real-time spectrum analysis function,including digital fluorescence and waterfall chart
TW4202SCA-069	5G NR measurement	Can perform demodulation analysis of 5G NR signals
TW4202SCA-070	Time gated measurement	Perform time slot signal analysis
TW4202SCA-071	LTE measurement	Perform 4G LTE FDD/TDD demodulation analysis
TW4202SCA-072	GSM/EDGE measurement	Perform 2G GSM/EDGE demodulation analysis
TW4202SCA-073	120MHz analysis bandwidth	The analog bandwidth is extended to 120MHz, affecting the zero-span IF output, IQ data acquisition, and real-time spectrum analysis functions
TW4202SCA-074	Indoor/outdoor map measurement	Built-in software,including indoor/outdoor maps, need to be used with 010 option

Quality&**Precise**

MAXWELLON PSA080/200

5kHz~8GHz/9kHz~20GHz

Handheld Spectrum Analyzer

2023

Maxwellon

The PSA080/200 spectrum analyzer is a broadband, high-performance portable microwave spectrum analyzer that measures frequencies ranging from 5 kHz to 8 GHz/9 kHz to 20 GHz. It can be used in both indoor and outdoor environments.

The product adopts 10.1 inch LED backlight high brightness display screen, supporting multi touch operation, with multiple intelligent measurement functions such as spectrum Analysis, Network Measurement, Field Strength Measurement, Channel Scanning, Third-Order Intermodulation, Harmonic Distortion, Carrier To Noise Ratio, and Pass-Fail. Highly integrated RF front-end and fully digital IF technology ensure excellent performance and stable performance, with a maximum real-time bandwidth of 40 MHz to meet the testing of commonly used radio signals such as mobile communication, television, and WiFi. The built-in GPS/BD function module is suitable for outdoor use. The product is widely used in various fields such as aerospace, microwave communication, satellite navigation, radar detection, electronic detection and countermeasures, precision guidance, etc.

Key Feature

- Frequency range: 5kHz~8GHz/9kHz~20GHz
- Noise level: better than -160dBm
- Resolution bandwidth: 1Hz~5MHz
- Maximum real-time bandwidth: 40MHz
- Equipped with measurement functions such as field strength measurement, frequency counting, channel measurement, third-order intermodulation, harmonic distortion, carrier to noise ratio, chromatogram, audio demodulation, and Pass Fail
- Built-in GPS/BD function module
- 10.1-inch color display screen with touch operation support
- Equipped with intermediate frequency output, reference input, trigger input, USB, LAN, headphone and other interfaces
- Removable lithium-ion battery with a range of over 3.5 hours

Specification

Model		PSA080	PSA200
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)	Standard	Aging rate:<1ppm/year	Aging rate:<0.5ppm/year
		Temperature drift:<0.5ppm (15℃ to 35℃)	Temperature drift:<0.2ppm (15℃ to 35℃)
	High stability time base option	Aging rate:<0.2ppm/year	
		Temperature drift:<0.1ppm (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		<10% (<5% typical value)	
Video Bandwidth (VBW)		1Hz to 5MHz	
DANL (1Hz resolution bandwidth, RF attenuator 0dB)			
Pre Amplifier Off		5kHz~1MHz <-120dBm, -130dBm(Typical Value) 1MHz~10MHz <-130dBm, -140dBm(Typical Value) 10MHz~2GHz <-138dBm, -142dBm(Typical Value) 2GHz~3.1GHz <-136dBm, -140dBm(Typical Value) 3.1 GHz~5GHz <-136dBm, -140dBm(Typical Value) 5GHz~8GHz <-135dBm, -138dBm(Typical Value)	9kHz~1MHz <-100dBm 1MHz~20MHz <-105dBm-3×(f/2MHz)dB 20MHz~4.0GHz <-138dBm 4GHz~7GHz <-135dBm 7GHz~8GHz <-133dBm 8GHz~15GHz <-135dBm 15GHz~18GHz <-133dBm 18GHz~20GHz <-128dBm

Model		PSA080	PSA200
DANL (1Hz resolution bandwidth, RF attenuator 0dB)			
Pre Amplifier On		1MHz~10MHz <-140dBm, -145dBm(Typical Value) 10MHz~2GHz <-158dBm, -162dBm(Typical Value) 2GHz~3.1GHz <-156dBm, -160dBm(Typical Value) 3.1 GHz~5GHz <-155dBm, -159dBm(Typical Value) 5GHz~8GHz <-153dBm, -155dBm(Typical Value)	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 (Typical 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
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
			13.5GHz~20GHz:±2.0dB
Amplitude			
Measurement Range (fc≥10MHz)		DANL to+20dBm	
Max. Safe Input Level		+27dBm (Average Continuous Power)	
Max. DC Input Voltage		50Vdc	
Input Attenuator Range		0 to 30dB in steps of 1dB	
Stray and Residual Response			
TOI (third order distortion)	>30MHz	+7dBm	
SHI (second-order distortion)	>10MHz	+40dBm	
Input related spurious signal		<-60dBc	
Remaining Response		<-90dBm(Typical Value <-100dBm)	<-85dBm
Input/Output			
RF Input		N-type female (50 Ω)	
USB		Main control end: USB 2.0 A connector, Dual USB interface	
LAN		10/100 Base-T, RJ-45 connector	
FM/AM Audio Demodulation		Speaker and Headphone Jack	
Reference Input		10MHz, SMA female; Input power from 0dBm to+10dBm	
Intermediate Frequency Output		145MHz, SMA female	
External Trigger Input		3.3 V TTL level (± 5V, 100mA maximum)	
GPS/BD Antenna Input		SMA female	

Common Parameters		
Monitor	LED backlight, 10.1 inch TFT-LCD, 1208×800	
Machine Weight (Including Battery)	About3.9kg	
Dimensions (Length X Width X Height)	334mm×242mm×68mm	
Operating Temperature	0℃ - 50℃	
Storage Temperature	-20℃ - +70℃	
Battery	14.8V 6400mAh	
Power Adapter	Input	100V~240VAC 50/60Hz 1.4A
	Output	+20V 6A
Overall Power Consumption	About 26W	About 29W

Ordering Information

Model

Model	Name	Description
PSA080	Handheld Spectrum Analyzer	5kHz - 8GHz
PSA200	Handheld Spectrum Analyzer	9kHz - 20GHz

Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	AC/DC adapter (AC input, +20V output)

Options

Option Model	Name
PSA-AWK	Advanced measurement options
PSA-OCXO	High stability time base option
PSA-BD	GPS/BD navigation
ANT01	Near field probe kit
OA750/DA800	Omnidirectional antenna/directional antenna
UP60	USB power sensor

Quality&**Precise**

MAXWELLON SA2080/2200

5kHz~8GHz/9kHz~20GHz

Spectrum Analyzer

2023

Maxwellon

Maxwellon SA2080/2200 series spectrum analyzer is a wide-band, high-performance analyzer with a frequency measurement range of 5kHz-8GHz/18GHz. Highly integrated RF front-end and full digital IF technology ensure its excellent performance and stable performance. 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. It has a variety of intelligent measurement functions such as spectrum analysis, network measurement, field strength measurement, channel scanning, third-order intermodulation, harmonic distortion, carrier-to-noise ratio and Pass-Fail.

Key Feature

- Frequency range: 5kHz - 8GHz / 9kHz - 20GHz
- DANL <-160dBm
- Resolution bandwidth: 1Hz -5MHz
- Maximum real-time bandwidth: 40MHz
- 145MHz analog IF output
- 8.4 inch LED high-brightness standard display screen

Specification

Model		SA2080	SA2200
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)		Standard: Aging rate:<1ppm/year, Temperature drift:<0.5ppm (15℃ to 35℃)	
		High stability time base option: Aging rate:<0.2ppm/year, Temperature drift:<0.1ppm (15℃ to 35℃)	
Resolution Bandwidth(RBW)			
Range		1Hz to 5MHz in steps of 1, 3, and 5	
Selectivity (60db/3db)	RBW≤500kHz	<5:1 typical value (digital implementation, close to Gaussian shape)	
Accuracy	RBW≤500kHz	<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
Sweep Time			
Non Zero Sweep Width		5ms to 3000s	
Zero Sweep Width		20us to 3000s	
Sweep Mode		Continuous, Single	

Model		SA2080	SA2200
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		N-type female (50 Ω)	
USB		USB 2.0	
LAN		10/100 Base-T, RJ-45 connector	
RS232		9-pin D-SUB (male)	
FM/AM Audio Demodulation		Speaker and Headphone Jack	
Reference Input/Output		10MHz, BNC female; Input power: 0dBm to+10dBm; Output power: 0dBm ± 2dB	
IF Output		145MHz, BNC female	
VGA		800 × 600, 60Hz, 15 pin D-SUB (female)	
External Trigger Input		5V TTL level (± 10V, 100mA maximum)	
General			
Display		TFT-LCD, 8.4 inches, 800×600	
Max. Weight		7kg	
Dimensions (width × high × deep)		390mm×182mm×230mm	
Working Temperature		0 ℃ to 40 ℃	
Storage Temperature		-30℃ to+70℃	
Power		Input Voltage:100V to 240V	
		AC Frequency: 40Hz to 60Hz	
		Max. Power Consumption: 30W	Max. Power Consumption: 35W

Ordering Information

Model

Model	Name	Description
SA2080	Spectrum Analyzer	5kHz - 8GHz
SA2200	Spectrum Analyzer	9kHz - 20GHz

Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	AC/DC adapter

Options

Option Model	Name
SA2000-OCXO	High stability time base option
SA2000-Meas	Advanced measurement options
ANT01	Near field probe kit
OA750/DA800	Omnidirectional antenna/directional antenna
UP60	USB power sensor
TR1000	RF demonstration kit

Quality&**Precise**

MAXWELLON
4025

9kHz~20GHz

Handheld Spectrum Analyzer

2023

Maxwellon

The 4025 Spectrum analyzer is a new generation of high-performance handheld Spectrum analyzer launched by Maxwellon. Its frequency measurement range covers 9kHz~20GHz. It is mainly used for the installation, commissioning, maintenance and interference troubleshooting of outdoor wireless communication equipment. It is small in size, light in weight, strong in environmental adaptability, flexible in power supply, and convenient in operation.

The Spectrum analyzer has multiple measurement function modes such as 40MHz Bandwidth Real-Time Spectrum Analysis, Interference Analysis, Channel Sweep, Field Strength Measurement, USB Continuous Wave And Peak Power Measurement, Analog Demodulation Analysis, Directional Analysis, and Channel Power, Occupied Bandwidth, Adjacent Channel Power, Spectrum Emission Template, Carrier Noise Ratio Intelligent Measurement functions such as Harmonic Distortion, Stray Emission Templates, Indoor And Outdoor Map Coverage, supporting interfaces such as LAN, USB, Micro SD card, WiFi wireless communication, etc.

Key Feature

Wide Frequency Range:

9kHz~20GHz, low frequency expandable to 5kHz, standard with full band preamplifier

Excellent Spectral Purity:

Display Average Noise Level: -165 dBm/Hz (2MHz~2 GHz, preamplifier on, Typ.)

SSB Phase Noise:-113dBc/Hz@100kHz Frequency offset@1GHz carrier (Typ.);-108dBc/Hz@100kHz Frequency offset@10GHz carrier (Typ.)

Third-Order Intermodulation Distortion: +16dBm@900MHz (Typ.)

Total Level Uncertainty:±1.0dB(Typ.)

Fast Sweep Speed:

Sweep time <33ms (sweep width 20 GHz, resolution bandwidth 3MHz)

Sweep time <4s (sweep width 1 GHz, resolution bandwidth 1 kHz, Fast FFT Sweep Mode)

Multiple Measurement Function Modes:

Spectrum Analysis, Interference Analysis (Waterfall, RSSI), Channel Sweep, Field Strength Measurement, USB Continuous Wave Power Measurement, USB Peak Power Measurement, Analog Demodulation Analysis (AM, FM, PM), Directional Analysis, 40MHz Bandwidth Real-Time Spectrum Analysis (Supporting Digital Afterglow Spectrum And Waterfall Display), etc

Multiple Intelligent Measurement Functions:

Channel Power, Occupied Bandwidth, Adjacent Channel Power, Spectrum Emission Template, Carrier to Noise Ratio, Harmonic Distortion, Spurious Emission Template, Indoor And Outdoor Map Coverage, Time Gate Measurement, etc. Support GPS/Beidou Positioning and Frequency Tame Calibration Function For Internal Crystal Oscillators. The Typical Frequency Reference Accuracy After GPS Lock Calibration Can Reach ±10ppb

Various Auxiliary Testing Interfaces and Digital Interfaces:

10MHz Reference Input/Output, GPS/Beidou Antenna, Zero Sweep Width Intermediate Frequency Output, WiFi Wireless Communication Interface, LAN, USB, Micro SD, etc

Convenient and Fast User Operation Experience:

10.1-inch LCD and capacitive touch screen with 6 independent markers, supporting tag dragging, frequency amplitude parameter dragging and scaling functions, supporting signal tracking and peak tracking, with 3 display traces and 6 detection methods (standard, positive peak, negative peak, sampling, mean, RMS)

Good Outdoor Usability:

Strong environmental adaptability, working temperature -20℃~55℃, storage temperature -50℃~70℃,Lightweight, with a total battery weight of approximately 3.5kg. It supports three display modes: default, outdoor, and night vision; Built in large capacity lithium-ion battery, typical battery life can reach 4.5 hours

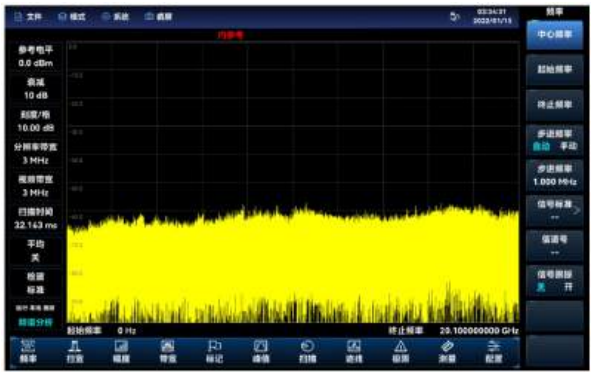
Multiple Field Testing Attachments Selection:

Usb Continuous Wave Power Probe, USB Peak Power Probe, Omnidirectional Antenna, Directional Antenna, Electronic Compass, Emi Near-Field Probe, Car Charger, Battery Charger, etc.

Abundant Measurement Function Modes And Options

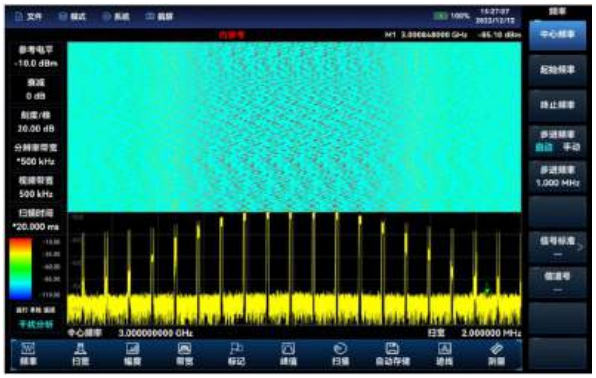
Spectrum Analysis

The spectrum analysis function of the 4025 Spectrum Analyzer is equipped with such test functions as Channel Power, Occupied Bandwidth, Adjacent Channel Power, Spectrum Transmission Template, Carrier Noise Ratio, Audio Demodulation, Harmonic Distortion, Spectrum Transmission Template, Multi Carrier Adjacent Channel Power, etc. It has the characteristics of high test sensitivity, fast sweep speed, large dynamic range, good phase noise index, etc. The 4025 Spectrum analyzer has a variety of built-in predefined signal standards, which can directly call and support the noise marker and frequency counter functions. It can display three traces at the same time, and has different detection methods such as standard, positive peak, negative peak, sampling, mean and RMS. It supports signal tracking and peak tracking functions.



Interference Analysis (Option)

The interference analysis option of the 4025 Spectrum Analyzer has Spectrum Measurement, Waterfall Chart and Rssi Measurement functions. The waterfall chart uses the three-dimensional display mode of frequency, amplitude and time to conveniently observe periodic or intermittent signals. The waterfall chart displays the strength of different response signal amplitudes in different colors. RSSI (received signal strength indication) is mainly used to measure the strength change of a point frequency signal within a time period, Both waterfall plot and RSSI measurement support automatic signal storage function.



Channel Sweep (Option)

The channel sweep measurement mode provides measurement of signal power for multiple channels. The signal power is displayed in the form of a Bar chart or a list, and the signal power of up to 20 channels can be measured. According to the method of setting channels, there are three measurement methods: channel sweep, frequency sweep, and list sweep. All three measurement methods can set the bandwidth and number of channels.

Analog Demodulation Analysis (Option)

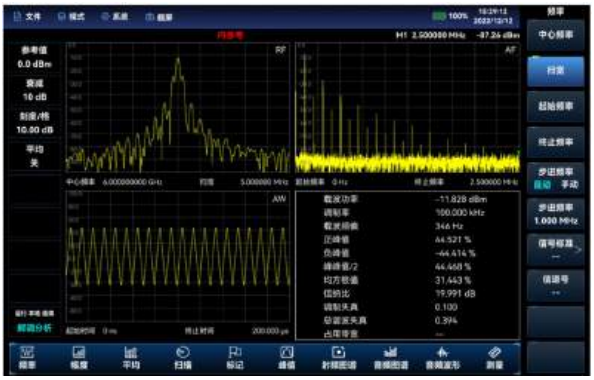
Demodulation analysis measurement mode provides display of AM, FM, and PM modulation signal spectra and analysis of related parameters. The main spectra and related parameter measurements are as follows:

RF Spectrum: Similar to spectrum analysis mode, it displays the spectrum of modulated signals and can be used for bandwidth measurement.

Audio Spectrum: Display the spectrum of the demodulated audio signal.

Audio Waveform: Display the waveform of the demodulated audio signal in the time domain.

Parameter Analysis: Measure and analyze the Carrier Power, Modulation Rate, Carrier Frequency Offset, Modulation Depth (AM), Modulation Frequency Offset (FM), Modulation Phase Offset (PM), SNR, Modulation Distortion, Total Harmonic Distortion and other parameters of the modulated signal.



USB Power Measurement (Option)

The USB power measurement function can measure continuous wave signal power up to 40GHz through the external USB power probe of the 87230/87231/84232/87233 series of the Maxwellon.

USB Peak Power Measurement (Option)

The 4025 spectrum analyzer is connected to the 87234 D/E/F/L USB peak power probe of Maxwellon via the USB interface, which can test radio frequency microwave signals up to 67GHz and achieve Pulsed power measurement in a large dynamic range.

Field Strength Measurement (Option)

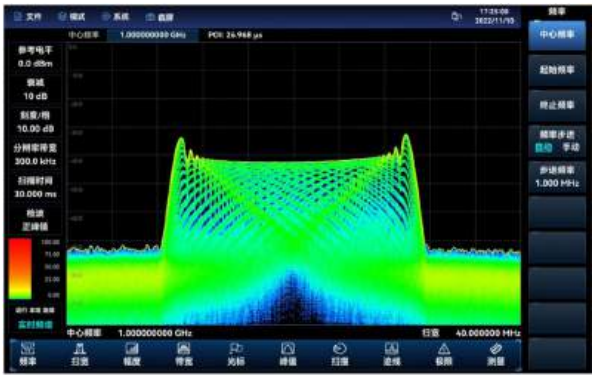
The 4025 Spectrum Analyzer can measure the field strength with a portable antenna, and is widely used in space electromagnetic environment monitoring and radio management. Users can directly call antenna files or customize antenna factors. Field strength measurement can be divided into three modes: Point Frequency Measurement, Frequency Sweep Measurement, and List Sweep Measurement. Point Frequency Measurement observes the frequency deviation, amplitude value, and field strength value of the current point by setting the point frequency; Frequency Sweep Measurement observes the amplitude and field strength changes within a frequency range by setting the starting frequency, step frequency, and number of sweep points; List Sweep Measurement observes the amplitude and field strength values of frequency points in the list by calling pre edited or saved lists.

Directional Analysis(Option)

The directional analysis option of the 4025 Spectrum Analyzer needs to be equipped with directional antenna, electronic compass, GPS Beidou and other options to realize the direct search of interference signal , horizontal sweep direction finding and map cross positioning functions. When selecting the ZE9080 series antenna and handheld handle, it does not need to be configured separately due to its built-in electronic compass.

40MHz Bandwidth Real-Time Spectrum Analysis (Option)

The real-time spectrum analysis function of 4025 is mainly used to capture and analyze transient time-varying signals and burst signals. The maximum real-time analysis bandwidth is 40MHz, which can realize the digital afterglow and waterfall map measurement function of transient signals.



Outdoor Map (Option)

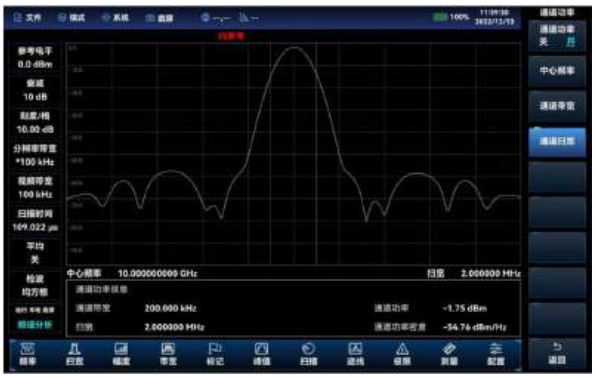
The outdoor map option is a measurement function in spectrum analysis mode, which can perform RSSI testing of interference signals and adjacent channel power ratio testing. The test results can be annotated on the map in real-time based on time or distance. The test results marked on the map can be saved to the instrument for future reference.

Indoor Map(Option)

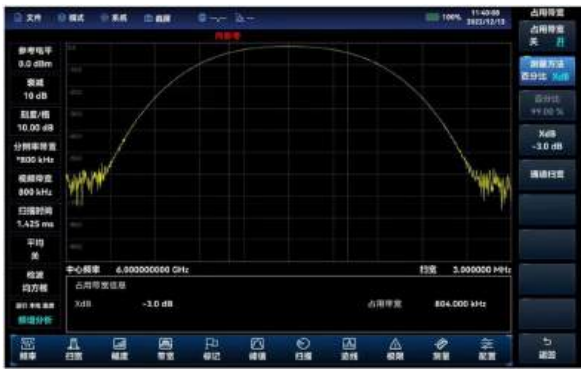
The indoor map option can be used for RSSI testing and adjacent channel power ratio testing. As GPS signals cannot be received indoors, users need to manually move the position and mark the test results on the map. The test results marked on the map can be saved to the instrument for future reference. Users can convert the floor plan in image format into a tile diagram and store it on the instrument through dedicated software (included with the option).

Comprehensive Intelligent Measurement Functions

Channel Power

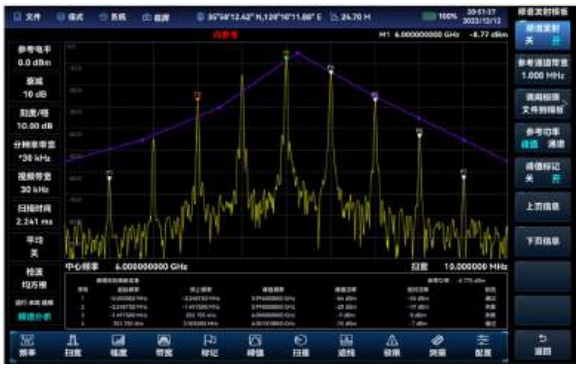


Occupied Bandwidth

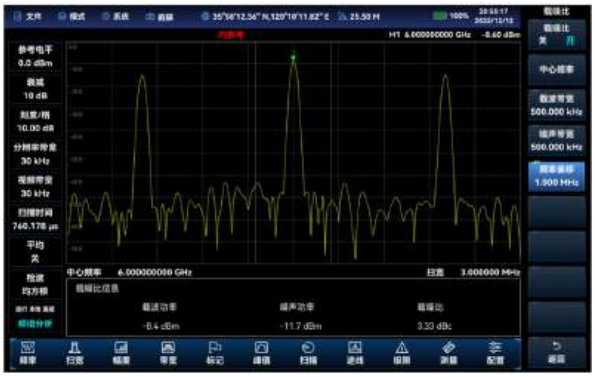


Adjacent Channel Power

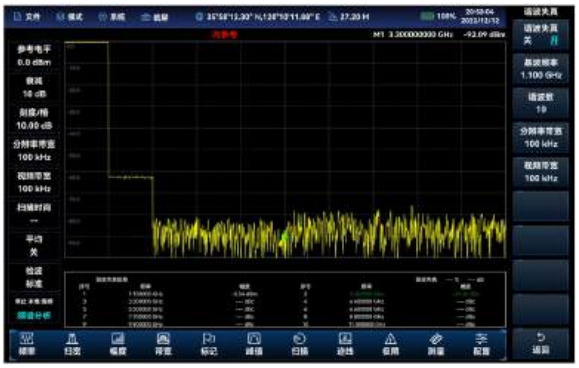
Spectrum Emission Template



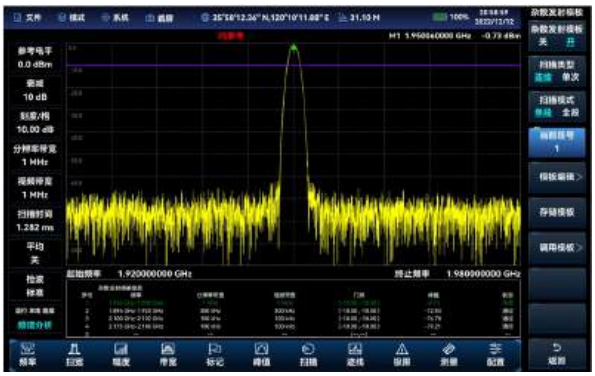
Carrier to Noise Ratio(CNR)



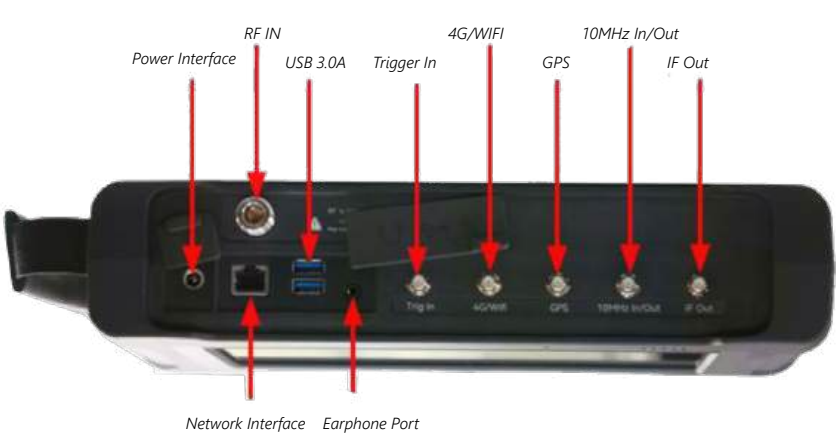
Harmonic Distortion



Spurious Emission Template



Multiple RF and Auxiliary Testing Interfaces



Typical Applications

Comprehensive Performance Evaluation Of Electronic Equipment

The 4025 Spectrum Analyzer product has multiple advantages, such as high performance index, fast sweep speed, multiple test functions, simple operation, etc. It uses a handheld structure, small size, light weight, strong environmental adaptability, battery power supply, and can be applied to the field installation, debugging and maintenance support of various electronic equipment, such as radar, communication, electronic countermeasures, electronic reconnaissance, precision guidance, etc.

Diagnosis Of Transmitters And Receivers

The 4025 Spectrum Analyzer product has a variety of measurement function modes such as spectrum analysis, real-time spectrum analysis, interference analysis, analog demodulation analysis, power measurement, channel sweep, field strength measurement, and a variety of intelligent measurement functions such as channel power, occupied bandwidth, adjacent channel power, carrier noise ratio, stray module board, harmonic distortion, etc, It can provide comprehensive spectrum analysis and diagnostic services for on-site testing of transmitters and receivers.

Broadband Spectrum Monitoring And Interference Identification

The 4025 Spectrum Analyzer can be used for electromagnetic environment detection, Radio jamming analysis, electromagnetic environment background assessment, spectrum monitoring and identification of illegal channel interference signals through external omnidirectional or directional antennas, and can be used for spectrum testing of complex signals such as Time-division multiple access signals and transient time varying signals through time gates and real-time spectrum analysis functions.

Specification

Frequency Range	9kHz~20GHz	
Frequency Reference	Nominal Frequency: 10MHz Aging Rate: $\pm5\times10^{-7}$/year Initial Frequency Accuracy:$\pm3\times10^{-7}$ Temperature Stability: $\pm1\times10^{-7}$(-20℃ +55℃) Frequency Reference Error=± (Until the last calibration date × Aging rate+temperature stability+calibration accuracy) ***Note:** The default calibration time until the last calibration is 1 year, and this indicator is guaranteed by the crystal oscillator manufacturer*	
Sweep Time	Range: 1μs~6000s(zero sweep width) Accuracy: ± 1.0% (zero sweep width)	
Frequency Reading Accuracy	±(Frequency Reading × Frequency Reference Error+1% × Sweep Width+10% × Resolution Bandwidth)	
Sweep Width	Range: 0Hz (zero sweep width), 10Hz~20GHz Accuracy: ± 1.0%	
Resolution Bandwidth	Bandwidth Range: 1Hz-20MHz(in steps of 1-2-3-5-8)	
Video Bandwidth	Bandwidth Range: 1Hz-20MHz(in steps of 1-2-3-5-8)	
SSB Phase Noise (Carrier 1GHz,+15℃ to+35℃)	≤-108dBc/Hz@10kHz ≤-110dBc/Hz@100kHz ≤-118dBc/Hz@1MHz ≤-129dBc/Hz@10MHz	
DANL (Input terminal connected to 50 Ω load, 0dB input attenuation, mean detection, resolution bandwidth normalized to 1Hz,+15℃ -+35℃)	Preamplifier On: ≤-161dBm(2MHz~2.4GHz) ≤-160dBm(2.4GHz~6GHz) ≤-159dBm(6GHz~9GHz) ≤-158dBm(9GHz~14GHz) ≤-156dBm(14GHz~20GHz)	Preamplifier Off: ≤-142dBm(2MHz~2.4GHz) ≤-141dBm(2.4GHz~6GHz) ≤-140dBm(6GHz~9GHz) ≤-138dBm(9GHz~14GHz) ≤-138dBm(14GHz~20GHz)
Second Harmonic Distortion (Attenuation 0dB, -30dBm input, preamplifier off)	≤-70dBc(50MHz~10GHz)	

Third-Order Intermodulation Distortion (-15dBm dual tone signal, 100kHz interval, 0dB attenuation, preamplifier off)	≥+13dBm(50MHz~20GHz)	
Mirror, Multiple, and Out of Band Response	<-65dBc(10MHz~7.5GHz) <-60dBc(7.5GHz~10.5GHz) <-65dBc(10.5GHz~20GHz)	
Residual Response (RF input terminal connected to 50 Ω load, 0dB input attenuation)	Preamplifier On: ≤-110dBm (10MHz~3GHz) ≤-105dBm(3GHz~9GHz) ≤-103dBm(9GHz~12GHz) ≤-100dBm(12GHz~20GHz)	Preamplifier Off: ≤-90dBm(10MHz~20GHz)
Total Level Uncertainty (Frequency 10MHz~20GHz, attenuation 10dB, 0dBm~-50dBm, preamplifier off, resolution bandwidth 1kHz, other parameters automatic)	±1.30dB(working temperature:+15℃ ~+35℃)	
Input Attenuator	Attenuation range 0-30dB, 2dB step	
Max. Safe Input Level	+27dBm continuous wave(input frequency ≥ 50MHz, ≥ 10dB attenuation, preamplifier off)	
Reference Level	Range: -150dBm~+30dBm, Min. 1dB step Conversion Error: ± 0.50dB (reference level 0dBm~-60dBm)	
Detection Mode	Standard, Positive Peak, Negative Peak, Sampling, Mean, Root Mean Square	
Dimensions (W×H×D)	316.5mm×236.5mm×75mm(excluding side straps, interface plugs, and rear bracket closure) 316.5mm×236.5mm×68mm(excluding side straps, interface plugs, and rear brackets)	
Weight	3.0kg(excluding built-in battery) 3.5kg(including built-in battery)	
Operation Temperature	-20℃ ~+55℃ (where the discharge of the battery is -20℃ ~+55℃ , and the charging of the battery is+10℃ ~+45℃)	
Storage Temperature	-50℃ ~+70℃ (where the storage temperature of the battery is -20℃ ~+50℃ , and the storage time is less than 1 month)	
EMC	Comply with the relevant requirements of item 3.9.1 of GJB 3947A-2009	
Power	AC power adapter: Input voltage 100 to 240VAC, 50/60Hz Output voltage 19VDC, 4.7A	Built-in lithium-ion battery: Nominal voltage 10.8V
Consumption	Typical values: 22W~28W (depending on operating mode)	
Battery Life	Typical values: 3.5h~4.5h (depending on operating mode)	
Test Port	RF input: N-type female connector	
Other Interfaces	10mhz Reference Input/Output: SMA Female External Trigger Input Interface: SMA Female GPS Antenna Interface: SMA Female (Optional) IF Output Interface: SMA Female (Optional) WiFi/4G Antenna Interface: SMA Female (optional, 4G antenna input interface is reserved and not currently supported)	
Communication And Auxiliary Interfaces	USB Interface: 2 USB 3.0 A-type interfaces, 1 USB 2.0 Type-C interface,1 USB 3.0 B-type interface (reserved). LAN Interface: Standard RJ-45 type. Headphone Interface: standard 3.5mm. Memory Card/SIM Card: slot for Micro SD card and SIM card (reserved for 4G option)	

Ordering Information

Model

Model	Name	Description
4025	Handheld Spectrum Analyzer	9 kHz~20 GHz

Standard

No.	Name	Description
1	Power Cord Components	Standard three core power cord Adapter input 100 240V 50/60Hz output 19 V 4.7 A Rechargeable lithium-ion batteries
2	Qualification Certificate	/

Options

Option Model	Name	Description
4025-01	English Version Options	Includes English signage, menus, and quick to use guides.
4025-02	Chinese Version Of User Manual	Chinese version of user manual.
4025-03	English Version Of User Manual	The English version of the user manual.
4025-04	Chinese Version Of Programming Manual	Chinese version of programming manual.
4025-05	Programming Manual In English	Programming manual in English.
4025-S01	USB Power Measurement	Provide power measurement function, which needs to be used in conjunction with an external USB continuous wave power probe 87230/87231/87232/87233.
4025-S02	USB Peak Power Measurement	Provide peak power measurement function, which needs to be used in conjunction with 87234D/E/F/L USB peak/average power meter.
4025-S03	Interference Analysis	Provide waterfall plots, RSSI measurements, and other functions.
4025-S04	Channel Scanning	Provide signal power measurement for multiple channels.
4025-S05	Field Strength Measurement	Measurement of electric field radiant intensity.
4025-S06	Outdoor Map	Under outdoor interference maps, RSSI testing and adjacent channel power ratio testing can be performed, and the test results can be annotated on the map in real-time based on time or distance, which needs to be used in conjunction with the 4025 H01 option.
4025-S07	Indoor Map	Under indoor maps, RSSI and adjacent channel power ratio tests can be conducted, and the test results can be annotated on the map through the correlation between signal strength and color.
4025-S08	Analog Demodulation Analysis	Analyzing and Measuring AM, FM, and PM modulated signals.
4025-S09	Zero Sweep Width If Output	Output analog IF signal at zero sweep width.
4025-S10	Time Gate Function	Used for time division interference signal testing.
4025-S11	Orientation Analysis	Used for locating external interference sources or unknown signals, it needs to be used in conjunction with the 4025-H01 option, USB electronic compass option, and directional antenna option.
4025-S12	40MHz bandwidth real-time spectrum analysis	40MHz bandwidth real-time spectrum analysis
4025-S13	List Sweep	Realize continuous scanning measurement of multiple frequency bands.
4025-H01	GPS/Beidou function	GPS or Beidou positioning functions can be achieved through external antennas.
4025-H02	WiFi wireless communication	Wireless data transmission communication with external devices is possible.
4025-H03	Pull rod aluminum alloy box	Pull rod aluminum alloy box.
4025-H04	Trolley transport box	Trolley transport box.
4025-H05	Portable backpack	Portable backpack.
AAL090KN029	AC adapter	Power adapter.
GSA3SA1	9900mAh rechargeable lithium-ion battery	Backup battery pack, nominal voltage 10.8V, battery capacity 9900mAh, not suitable for air transportation.
GS2040IM	9000mAh rechargeable lithium-ion battery	Backup battery pack, with a nominal voltage of 10.8V and a battery capacity of 9000mAh, suitable for air transportation.
GSCAR19V	Car power adapter	In the field of car chargers, the input voltage is 12-24V, and the output voltage is 19V, which can supply power to handheld measuring instruments.
GSCH4000B	Smart battery charging stand	Lithium ion battery charging stand.

MicroSD	Memory card	Mrico SD card with a capacity of 128G.
87230	87230 USB continuous wave function probe	Frequency range: 9kHz~6GHz, interface type N (m).
87231	87231 USB continuous wave function probe	Frequency range 10MHz~18GHz, interface type N (m).
87232	87232 USB continuous wave function probe	The frequency range is 50MHz~26.5GHz, and the interface type is 3.5mm (m).
87233	87233 USB continuous wave function probe	The frequency range is 50MHz~40GHz, and the interface type is 2.4mm (m).
87234D	87234D USB Peak/Average Power Meter	Frequency range 50MHz~18GHz, interface type N (m).
87234E	87234E USB Peak/Average Power Meter	The frequency range is 50MHz~26.5GHz, and the interface type is 3.5mm (m).
87234F	87234F USB Peak/Average Power Meter	The frequency range is 50MHz~40GHz, and the interface type is 2.4mm (m).
87234L	87234L USB Peak/Average Power Meter	Frequency range 500MHz~67GHz, interface type 1.85mm (m)
ZE9080 antenna module A	ZE9080 directional antenna A	Frequency range: 9kHz~20MHz, interface type N (f). (It is recommended to choose the ZE9080 handheld handle module option for use)
ZE9080 antenna module B	ZE9080 directional antenna B	Frequency range 20MHz~200MHz, interface type N (f). (It is recommended to choose the ZE9080 handheld handle module option for use)
ZE9080 antenna module C	ZE9080 directional antenna C	Frequency range 200MHz to 500MHz, interface type N (f). (It is recommended to choose the ZE9080 handheld handle module option for use)
ZE9080 antenna module D	ZE9080 directional antenna D	Frequency range: 500MHz~8GHz, interface type N (f). (It is recommended to choose ZE9080 handheld handle module for use)
ZE9080 handheld handle module	ZE9080 Antenna amplifier	Frequency range: 9kHz~8GHz, N (f), used in conjunction with ZE9080 antenna module A/B/C/D option, including amplifier and electronic compass.
ZE9080 Antenna New Trolley Box	ZE9080 antenna transport box	The ZE9080 antenna special transport box can accommodate ZE9080 antenna module A/B/C/D and ZE9080 handheld handle module options.
HyperLOG 7060X	700MHz~6GHz directional antenna	Active logarithmic periodic antenna, frequency 700MHz~6GHz, interface type SMA (f).
HyperLOG 60100X	680MHz~10GHz directional antenna	Active logarithmic periodic antenna, frequency 680MHz~10GHz, interface type SMA (f).
HyperLOG 60200X	680MHz~20GHz directional antenna	Active logarithmic periodic antenna, frequency 680MHz~20GHz, interface type SMA (f).
OmniLOG 70600	6GHz omnidirectional antenna	Portable omnidirectional antenna, frequency 680MHz~6GHz, interface type SMA (m).
OmniLOG 30800	8GHz omnidirectional antenna	Portable omnidirectional antenna, frequency 300MHz~8GHz, interface type SMA (m).
HyperLOG 7060	700MHz~6GHz passive directional antenna	Passive logarithmic periodic antenna, frequency 700MHz~6GHz, interface type SMA (f).
HyperLOG 60100	680MHz~10GHz passive directional antenna	Passive logarithmic periodic antenna, frequency 680MHz~10GHz, interface type SMA (f).
HyperLOG 60180	680MHz~18GHz passive directional antenna	Passive logarithmic periodic antenna, frequency 680MHz~18GHz, interface type SMA (f).
USB electronic compass	USB electronic compass	External USB electronic compass can be used in conjunction with HyperLOG 7060X, HyperLOG 60100X, HyperLOG 60200X, and 4025-S11 options.
UF2-SMAMNM-2.0M	N/SMA-JJ RF cable (2m)	N/SMA dual positive RF coaxial cable, DC~18GHz, 2m long.
PBS1	PBS1 near-field probe	The highest operating frequency is up to 9GHz, including one electric field probe and one 6mm, 12mm, 25mm, and 50mm magnetic field probe each, with an interface type of SMB (m).

Quality&**Precise**

MAXWELLON 4042

9kHz~ 9GHz/20GHz

Signal/Spectrum Analyzers

2023

Maxwellon

The 4042 series Spectrum analyzer is a basic Spectrum analyzer newly launched by Maxwellon, and its frequency measurement range covers 9kHz~20GHz. 4042 series Spectrum analyzer adopts a portable structure with a weight of less than 6.5kg, which has multiple advantages such as wide working frequency band, high performance indicators, fast sweep speed, multiple test functions, portability and easy operation.

4042 series Spectrum analyzer has multiple measurement function modes such as real-time spectrum analysis, interference analysis, channel sweep, field strength measurement, USB continuous wave and peak power measurement, analog demodulation analysis, IQ analysis, and intelligent measurement functions such as channel power, occupied bandwidth, adjacent channel power, spectrum transmission module, carrier noise ratio, harmonic distortion, stray transmission module, and supports digital interfaces such as LAN, USB, HDMI, etc. The 12.1 inch Multi-touch capacitive touch screen adopted by 4042 brings a better interactive experience. The product can be used in the R&D and testing process of industrial electronic products, communication testing, satellite communication, Microwave transmission, scientific research and teaching and many other fields.

Key Feature

Frequency Range:

9kHz~9GHz/20GHz, standard full band preamplifier

Excellent Spectral Purity:

Display Average Noise Level: -163 dBm/Hz (10 MHz ~ 2 GHz, preamplifier on, Typ.)

SSB Phase Noise:-113dBc/Hz@100kHz Frequency offset@1GHz carrier (Typ.);-108dBc/Hz@100kHz Frequency offset@10GHz carrier (Typ.)

Third-Order Intermodulation Distortion: +16dBm@900MHz (Typ.)

Total Level Uncertainty:±1.0dB(Typ.)

Fast Sweep Speed:

Sweep time <33ms (sweep width 20 GHz, resolution bandwidth 3MHz)

Sweep time <4s (sweep width 1 GHz, resolution bandwidth 1 kHz, Fast FFT Sweep Mode)

Multiple Measurement Function Modes:

Multiple Measurement Function Modes: Spectrum Analysis, Interference Analysis (Waterfall, RSSI), Channel Sweep, Field Strength Measurement, USB Continuous Wave Power Measurement, USB Peak Power Measurement, Analog Demodulation Analysis (AM, FM, PM), Real-Time Spectrum Analysis (Maximum Analysis Bandwidth 40mhz), IQ Analysis, Time Gate Sweep, etc

Multiple Intelligent Measurement Functions:

Channel Power, Occupied Bandwidth, Adjacent Channel Power, Spectrum Emission Mask, Carrier To Noise Ratio, Harmonic Distortion, Stray Emission Mask, etc

Various Auxiliary Testing Interfaces and Digital Interfaces:

10MHz reference input/output, zero sweep width IF output, LAN, USB, HDMI, etc

Convenient and Fast User Operation Experience:

12.1 inch capacitive touch screen, supporting Multi-touch, with 6 independent marks, supporting signal tracking and peak tracking, with 3 display traces, 6 detection modes (standard, positive peak, negative peak, sampling, mean, root mean square), and supporting HDMI output

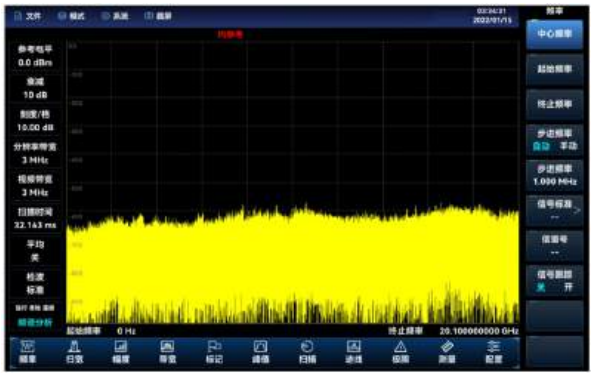
Support Multiple External Options And Accessories:

USB continuous wave power probe, USB peak power probe, E-MI near-field probe, etc.

Abundant Measurement Function Modes And Options

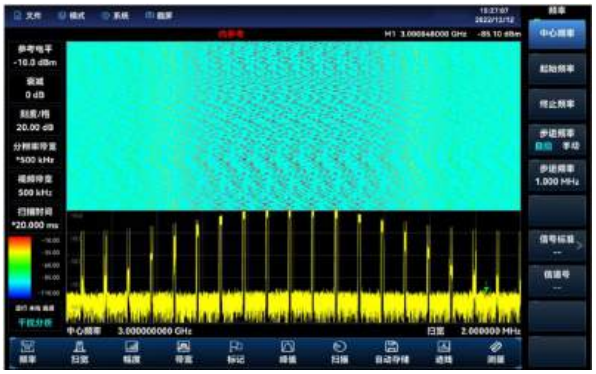
Spectrum Analysis

The 4042 series Spectrum analyzer has test functions such as Channel Power, Occupied Bandwidth, Adjacent Channel Power, Spectrum Emission Mask, Carrier To Noise Ratio, Audio Demodulation, Harmonic Distortion, Spectrum Emission Mask, Multi Carrier Adjacent Channel Power, etc. It supports noise marking and frequency counter functions, can display three traces at the same time, and has different detection methods such as standard, positive peak, negative peak, sampling, mean and root mean square, Support signal tracking and peak tracking functions.



Interference Analysis (Option)

The interference analysis option has functions such as spectrum measurement, waterfall plot, and RSSI measurement. The waterfall plot uses a three-dimensional display of frequency, amplitude, and time to conveniently observe periodic or intermittent signals. The waterfall plot displays different colors to reflect the strength of signal amplitude. RSSI (received signal strength indicator) is mainly used to measure the intensity change of a point frequency signal over a period of time, Both waterfall plot and RSSI measurement support automatic signal storage function.



Channel Sweep (Option)

The channel sweep measurement mode provides measurement of signal power for multiple channels. The signal power is displayed in the form of a Bar chart or a list, and the signal power of up to 20 channels can be measured. According to the method of setting channels, there are three measurement methods: channel sweep, frequency sweep, and list sweep. All three measurement methods can set the bandwidth and number of channels.

Analog Demodulation Analysis (Option)

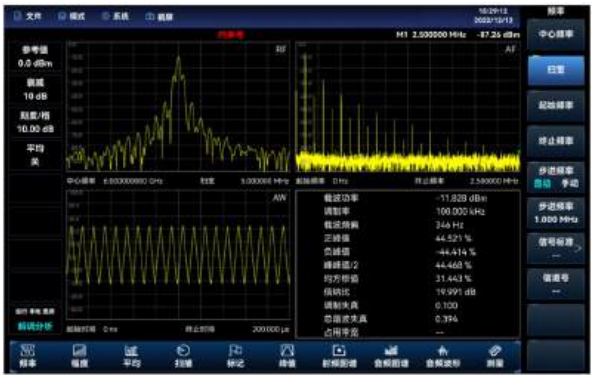
Demodulation analysis measurement mode provides display of AM, FM, and PM modulation signal spectra and analysis of related parameters. The main spectra and related parameter measurements are as follows:

RF Spectrum: Similar to spectrum analysis mode, it displays the spectrum of modulated signals and can be used for bandwidth measurement.

Audio Spectrum: Display the spectrum of the demodulated audio signal.

Audio Waveform: Display the waveform of the demodulated audio signal in the time domain.

Parameter Analysis: Measure and analyze the Carrier Power, Modulation Rate, Carrier Frequency Offset, Modulation Depth (AM), Modulation Frequency Offset (FM), Modulation Phase Offset (PM), SNR, Modulation Distortion, Total Harmonic Distortion and other parameters of the modulated signal.

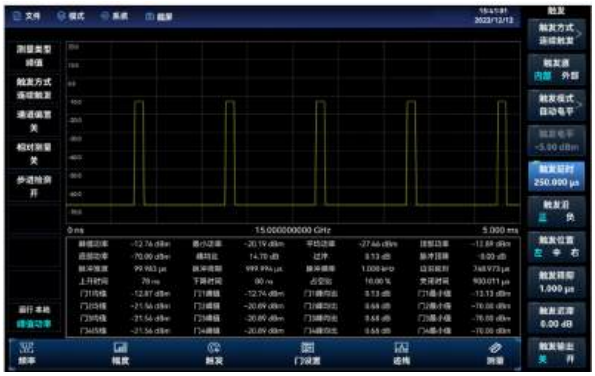


USB Power Measurement (Option)

The USB power measurement function can measure continuous wave signal power up to 40GHz through the external USB power probe of the 87230/87231/84232/87233 series of the Maxwellon.

USB Peak Power Measurement (Option)

The 4042 spectrum analyzer is connected to the 87234 D/E/F/L USB peak power probe of Maxwellon via the USB interface, which can test radio frequency microwave signals up to 67GHz and achieve Pulsed power measurement in a large dynamic range.

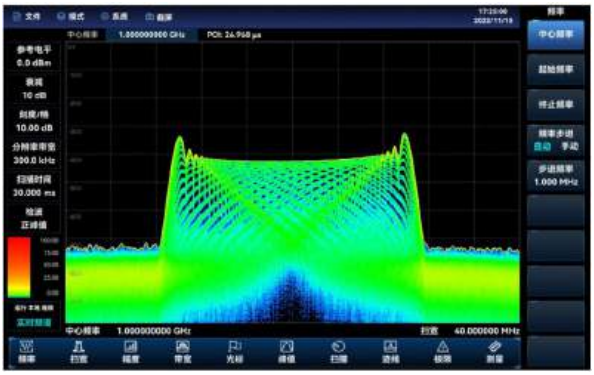


Field Strength Measurement (Option)

Field strength measurement can be divided into three modes: point frequency measurement, frequency sweep measurement, and list sweep measurement. The point frequency measurement observes the frequency deviation, amplitude value, and field strength value of the current point by setting the point frequency; Frequency sweep measurement observes the amplitude and field strength changes within a frequency range by setting the starting frequency, step frequency, and number of sweep points; List sweep measurement observes the amplitude and field strength values of frequency points in the list by calling pre edited or saved lists.

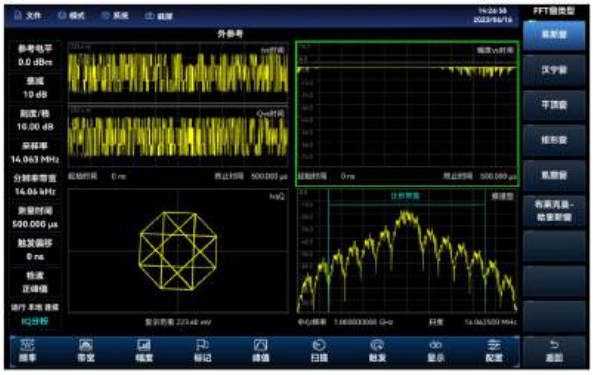
40MHz Bandwidth Real-Time Spectrum Analysis (Option)

The real-time spectrum analysis function of 4042 is mainly used to capture and analyze transient time-varying signals and burst signals. The maximum real-time analysis bandwidth is 40MHz, which can realize the digital afterglow and waterfall map measurement function of transient signals.



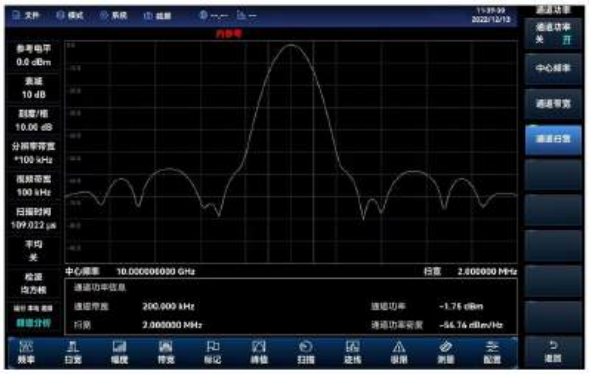
IQ Analysis (Option)

The IQ analysis option supports the capture and display of IQ data, and can support graphical display interfaces such as IQ vs time, amplitude vs time, spectrum, and IvsQ.

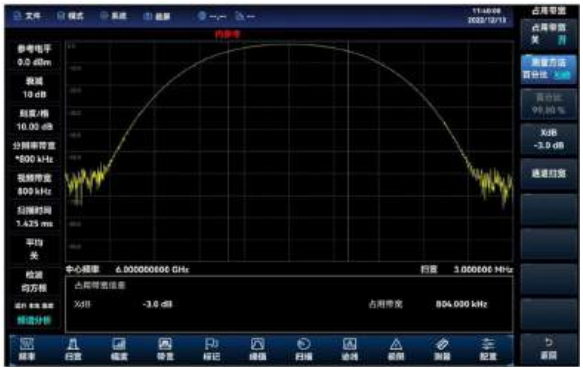


Comprehensive Intelligent Measurement Functions

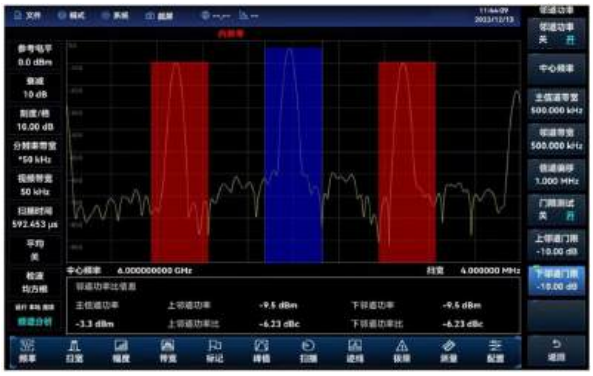
Channel Power



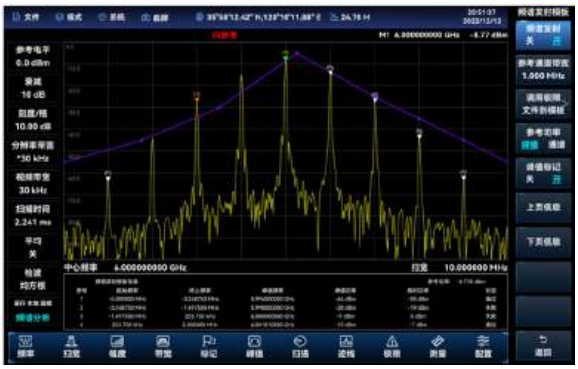
Occupied Bandwidth



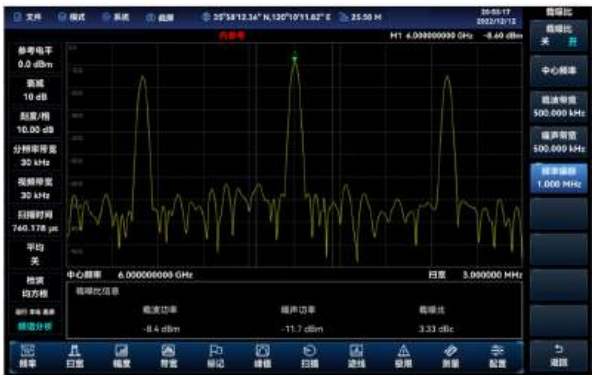
Adjacent Channel Power



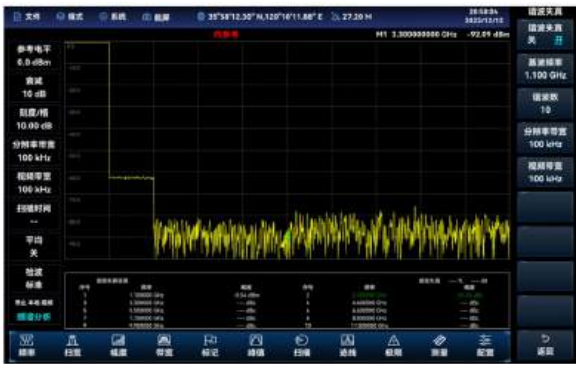
Spectrum Emission Mask



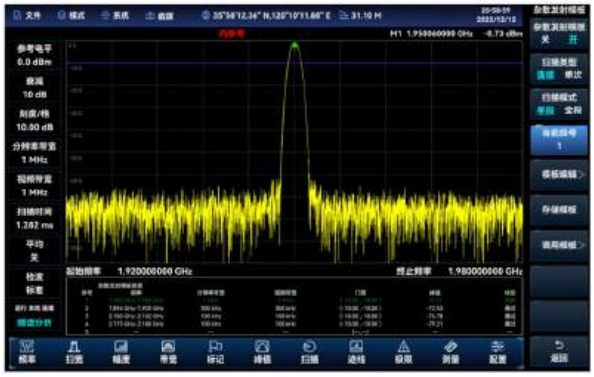
Carrier to Noise Ratio(CNR)



Harmonic Distortion



Spurious Emission Mask



Multiple RF and Auxiliary Testing Interfaces

Specification

Frequency Range	4042B:9kHz~9GHz 4042D:9kHz~20GHz	
Frequency Reference	Nominal Frequency: 10MHz Aging Rate: ±5×10^{-7}/year Initial Frequency Accuracy:±3×10^{-7} Temperature Stability: ±1×10^{-7}(-20℃ +55℃) Frequency Reference Error=± (Until the last calibration date × Aging rate+temperature stability+calibration accuracy) ***Note:*** *The default calibration time until the last calibration is 1 year, and this indicator is guaranteed by the crystal oscillator manufacturer*	
Sweep Time	Range: 1μs~6000s(zero sweep width) Accuracy: ± 1.0% (zero sweep width)	
Frequency Reading Accuracy	±(Frequency Reading × Frequency Reference Error+1% × Sweep Width+10% × Resolution Bandwidth)	
Sweep Width	Range: 0Hz (zero sweep width), 10Hz~20GHz Accuracy: ± 1.0%	
Resolution Bandwidth	Bandwidth Range: 1Hz-20MHz(in steps of 1-2-3-5-8)	
Video Bandwidth	Bandwidth Range: 1Hz-20MHz(in steps of 1-2-3-5-8)	
SSB Phase Noise (Carrier 1GHz,+15℃ to+35℃)	≤-108dBc/Hz@10kHz ≤-110dBc/Hz@100kHz ≤-118dBc/Hz@1MHz ≤-129dBc/Hz@10MHz	
DANL (Input terminal connected to 50 Ω load, 0dB input attenuation, mean detection, resolution bandwidth normalized to 1Hz,+15℃ -+35℃)	Preamplifier On: ≤-161dBm(2MHz~2.4GHz) ≤-160dBm(2.4GHz~6GHz) ≤-159dBm(6GHz~9GHz) ≤-158dBm(9GHz~14GHz) ≤-156dBm(14GHz~20GHz)	Preamplifier Off: ≤-142dBm(2MHz~2.4GHz) ≤-141dBm(2.4GHz~6GHz) ≤-140dBm(6GHz~9GHz) ≤-138dBm(9GHz~14GHz) ≤-138dBm(14GHz~20GHz)
Second Harmonic Distortion (Attenuation 0dB, -30dBm input, preamplifier off)	≤-70dBc(50MHz~10GHz)	
Third-Order Intermodulation Distortion (-15dBm dual tone signal, 100kHz interval, 0dB attenuation, preamplifier off)	≥+13dBm(50MHz~20GHz)	
Mirror, Multiple, and Out of Band Response (-10dBm mixer level)	<-65dBc(10MHz~7.5GHz) <-60dBc(7.5GHz~10.5GHz) <-65dBc(10.5GHz~20GHz)	
Residual Response (RF input terminal connected to 50 Ω load, 0dB input attenuation)	Preamplifier On: ≤-110dBm (10MHz~3GHz) ≤-105dBm(3GHz~9GHz) ≤-103dBm(9GHz~12GHz) ≤-100dBm(12GHz~20GHz)	Preamplifier Off: ≤-90dBm(10MHz~20GHz)
Total Level Uncertainty (Frequency 10MHz~20GHz, attenuation 10dB, 0dBm~-50dBm, preamplifier off, resolution bandwidth 1kHz, other parameters automatic)	±1.30dB(working temperature:+15℃ ~+35℃)	
Input Attenuator	Attenuation range 0-30dB, 2dB step	
Max. Safe Input Level	+27dBm continuous wave(input frequency ≥ 50MHz, ≥ 10dB attenuation, preamplifier off)	
Reference Level	Range: -150dBm~+30dBm, Min. 1dB step Conversion Error: ± 0.50dB (reference level 0dBm~-60dBm)	
Detection Mode	Standard, Positive Peak, Negative Peak, Sampling, Mean, Root Mean Square	
Dimensions (W×H×D)	377mm × 250mm × 119.5mm (with foot pads closed, excluding protrusions such as handles, rotating pulse generators, and adapters)	
Weight	≤6.5kg	

Operation Temperature	0℃ ~+50℃
Storage Temperature	-40℃ ~+70℃
EMC	Comply with the relevant requirements of item 3.9.1 of GJB 3947A-2009
Power	100-120VAC, 50-60Hz; Or 200-240VAC, 50-60Hz
Consumption	≤55W
Test Port	RF input: N-type female connector
Other Interfaces	10mhz Reference Input/Output: BNC Female External Trigger Input Interface: BNC Female GPS Antenna Interface: SMA Female (Optional) IF Output Interface: BNC Female (Optional) WiFi Antenna Interface: SMA Female (optiona)
Communication And Auxiliary Interfaces	Front Panel: USB 3.0 Type-A *1 USB 2.0 Type-A *1 Rear Panel: USB 2.0 Type-A *2 USB 3.0 Type-B(reserved) *1 USB 2.0 Type-C *1 LAN(standard RJ-45 type) *1 HDMI interface *1

Ordering Information

Model

Model	Name	Description
4042B	Spectrum/Signal Analyzers	9 kHz~9GHz
4042D	Spectrum/Signal Analyzers	9 kHz~20 GHz

Standard

No.	Name	Description
1	Power Cord Components	Standard three core power cord
2	Qualification Certificate	/

Options

Option Model	Name	Description
4042-002	Chinese version of user manual	Chinese version of user manual.
4042-004	Chinese version of programming manual	Chinese version of programming manual.
4042-S01	USB power measurement	Provide power measurement function, which needs to be used in conjunction with an external USB continuous wave power probe 87230/87231/87232/87233.
4042-S02	USB peak power measurement	Provide peak power measurement function, which needs to be used in conjunction with 87234D/E/F/L USB peak/average power meter.
4042-S03	Interference analysis	Provide waterfall plots, RSSI measurements, and other functions.
4042-S04	Channel scanning	Provide signal power measurement for multiple channels.
4042-S05	Field strength measurement	It is used to measure the electric field Radiant intensity intensity of the tested equipment.
4042-S08	Analog Demodulation Analysis	Capable of analyzing and measuring AM, FM, and PM modulated signals.
4042-S09	Zero sweep width IF output	Output analog intermediate frequency signal at zero sweep width.
4042-S10	Time Gate	Used for time division interference signal testing.
4042-S12	40MHz bandwidth real-time spectrum analysis	Provide 40MHz bandwidth real-time spectrum analysis function.
4042-S13	List Scan	Realize continuous scanning measurement of multiple frequency bands.
4042-S14	IQ analysis	Storage and display of IQ data.
4042-H03	4042 safety box	Safe transport box.
4025-H36	PBS1 near-field probe	The highest operating frequency is up to 9GHz, including one electric field probe and one 6mm, 12mm, 25mm, and 50mm magnetic field probe each. The interface type is SMB (m).
87230	USB continuous wave power probe	Frequency range: 9kHz~6GHz, interface type N (m).
87231	USB continuous wave function probe	Frequency range 10MHz~18GHz, interface type N (m).
87232	USB continuous wave function probe	The frequency range is 50MHz~26.5GHz, and the interface type is 3.5mm (m).
87233	USB continuous wave function probe	The frequency range is 50MHz~40GHz, and the interface type is 2.4mm (m).
87234D	USB peak/average power meter	Frequency range 50MHz~18GHz, interface type N (m).
87234E	USB peak/average power meter	The frequency range is 50MHz~26.5GHz, and the interface type is 3.5mm (m).
87234F	USB peak/average power meter	The frequency range is 50MHz~40GHz, and the interface type is 2.4mm (m).
87234L	USB peak/average power meter	The frequency range is 500MHz~67GHz, and the interface type is 1.85mm (m).

Quality&**Precise**

MAXWELLON TW4206

9 kHz - 9.5/ 20/ 40 GHz

Handheld Real-Time Spectrum Analyzer

2026

MAXWELLON

Multi-touchscreen Ease Operation

The **Maxwellon TW4206 spectrum analyzer** features a 10.1-inch multi-touch display, providing an intuitive interface comparable to benchtop instruments. Weighing as little as 1.5 kg, it enables effortless single-handed operation.

Benchtop-Class Solid RF Performance

The **TW4206** supports frequencies from **9 kHz to 40 GHz** with a standard **100 MHz bandwidth**. Its phase noise is typically **< –100 dBc/Hz** at a **1 GHz carrier and 10 kHz offset**, ensuring accurate and reliable measurements.

Unlocking Premium Performance

With **Maxwellon**, there is no need to pay extra for optional features. The **TW4206** provides most measurement functions as standard, delivering premium performance without additional licensing costs.

Specification

Model	TW4206-90	TW4206-200	TW4206-400
Frequency range	9 kHz-9.5 GHz	9 kHz-20 GHz	9 kHz-40 GHz
Analysis bandwidth	100 MHz	100 MHz	100 MHz
Phase noise 1 GHz@10 kHz	-101.6 dBc/Hz	-99.7 dBc/Hz	-107 dBc/Hz
1 GHz DANL	-167.5 dBm/Hz	-166.3 dBm/Hz	-159.9 dBm/Hz
Sweep speed (RBW=250 kHz)	About 1.1 THz/s		
Operation system	Linux		
Memory and storage	4 GB RAM 32 GB EMMC		
Touchscreen and weight	10.1-inch, 1.5 kg		
Typical battery life	About 3h		
Standard measurement functions	Advanced measurements including channel power, OBW, automatic phase noise, automatic harmonic, SEM, AM/FM demodulation and more.		
Option code	34: external omnidirectional antenna: 400-8000 MHz, gain< 2 dBi 35: directional antenna: 500 MHz-10 GHz, active gain 25 dBi 71: basic digital demodulation: 2ASK, 2/4FSK, GMSK, BPSK, QPSK, 8PSK, 16/64/128/256QAM 72: pulse detection, auto pulse width, PRI and duty cycle		

Quality&**Precise**

MAXWELLON 4052

2Hz~4GHz/8GHz/13.6GHz/18GHz/26.5GHz/40GHz/45GHz/50GHz

Signal/ Spectrum Analyzer

2023

MAXWELLON

4052 series Signal/Spectrum Analyzer is a new signal/Spectrum analyzer product launched by Maxwellon.

4052 has excellent testing dynamic range, phase noise, amplitude accuracy and testing speed, and has rich testing functions such as Spectrum Analysis, I/Q Analysis, Real-Time Spectrum Analysis, Transient Analysis, Vector Signal Analysis, Pulse Analysis, Audio Analysis, etc.

As a multi-functional general Signal/Spectrum Analyzer, 4052 has good expansion capability, and can build a test system or conduct secondary development through a variety of digital and analog output interfaces. With excellent performance and flexible application, it can meet your testing needs for rapid production of signals and equipment in fields such as wireless communication, automotive electronics, low orbit satellites, and the Internet of Things.

Key Feature

- 2Hz~50GHz Coaxial Frequency Coverage Range
- 1.2GHz Analysis Bandwidth, Flexible Selection From 10MHz to 1.2GHz
- Phase Noise: -122dBc/Hz(1GHz carrier at 10KHz frequency offset)
- 10 Gigabit Ethernet Interface
- Full Bandwidth Real-Time Recording And Playback
- Powerful Wireless Communication and Satellite Signal Analysis Functions

Excellent Spectrum Measurement Performance

Ultra Wide Frequency Coverage

The frequency measurement range covers 2Hz~50GHz, with 8 optional frequency band configurations to meet the testing requirements from low frequency to millimeter wave.

Excellent Phase Noise Performance

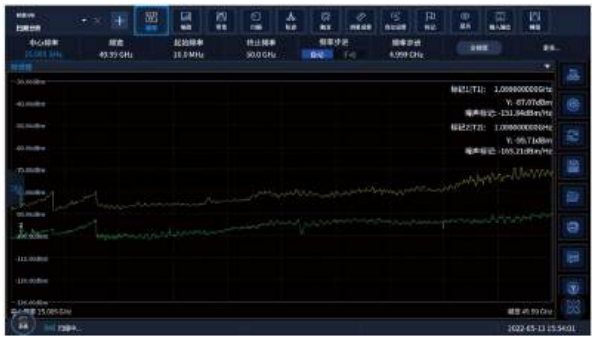
Excellent phase noise performance can meet the testing requirements of users in communication signal measurement. Under the condition of 1GHz carrier and 10kHz frequency offset, the phase noise is better than -122dBc/Hz.

Excellent DANL

The average noise level displayed at 1GHz is -154dBm/Hz, which can reach -165dBm/Hz with a preamplifier, and -172dBm/Hz with noise cancellation enabled. (All are typical values)

High Precision Amplitude Measurement

Excellent amplitude measurement accuracy, with signal amplitude measurement accuracy better than ± 0.5dB in the frequency band below 8GHz.



DANL (preamplifier is off/on)

1.2GHz Analysis Bandwidth

Multiple Analysis Bandwidth Configuration Options

Provide a total of 6 bandwidth configuration options, including 10MHz/40MHz/200MHz/400MHz/600MHz/1.2GHz, to flexibly configure in different testing application scenarios such as broadband radar, 5G NR, WLAN, etc.

Excellent SFDR

-75dBc(at 200MHz analysis bandwidth)

-65dBc(at 1.2GHz analysis bandwidth)

1.2GHz analysis bandwidth testing interface

Comprehensive Wireless Communication Protocol Analysis Capabilities

5G NR Signal Analysis

The 5G NR measurement function can perform in band demodulation analysis on the 5G NR uplink and downlink signals of 3GPP Rel 15 and Rel 16 versions. It supports two duplex modes, FDD and TDD, QPSK to 256QAM modulation formats, Test Model and custom parameter settings, and provides measurement results such as error vector amplitude (EVM), frequency error, and power for different channels and signals. It has constellation diagrams, error summary tables various display graphs such as resource allocation.

LTE, NB IoT, WCDMA, GSM Signal Analysis

Paired with Maxwellon's dedicated protocol analysis software, it can perform in band modulation analysis on LTE, LTE-Advanced, NB IoT, WCDMA, GSM, EDGE communication signals, providing various measurement results such as EVM, constellation diagram, frequency error, etc.

Analysis of Out of Band Characteristics of Wireless Communication Signals

In terms of out of band measurement, it can provide a wide range of standards and limit line one click setting capabilities, and efficiently perform measurements such as Adjacent Channel Leakage Ratio (ACLR) and Spectrum Emission Mask (SEM).

5G NR signal analysis interface

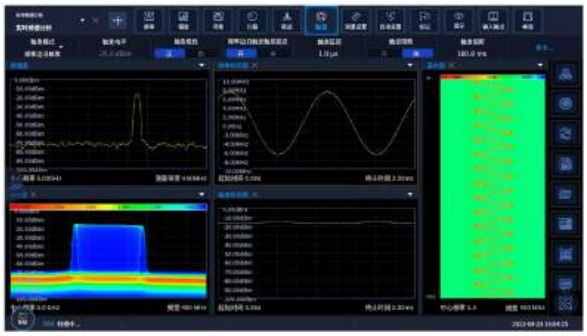
Powerful Real-time Spectrum Analysis Function

Burst Signal Capture

The real-time spectrum analysis function supports the detection of transient and sudden interference signals, trigger and capture of transient signal data, transient signal events, time-domain and frequency-domain analysis and other functions.

Powerful Real-time Processing Performance With Large Bandwidth

Real time analysis bandwidth up to 400MHz, 100% frequency domain interception signal duration less than 0.6μs. The time domain interception signal has a duration of 2ns and a spectrum processing speed of up to 1500000 times/second.



Real time spectrum analysis interface

Real Time Recording and Playback of Full Bandwidth Data

Excellent RF Performance

The Maxwellon 4052 with excellent performance is used as the receiving front-end for RF acquisition and recording, with a large dynamic range, low distortion, and high sensitivity. Combined with the powerful analysis function of Maxwellon 4052, it can also provide functions such as search, analysis, and playback of complex signals.

Recording and Playback

The recording signal bandwidth is up to 1200MHz, with recording, playback, dump and other functions, and real-time spectrum analysis mode real-time preview analysis.

Advanced User Interface, New Interactive Experience

The Maxwellon 4052 features an 11.6-inch touch screen display, providing a more comprehensive and intuitive display of testing details. The parameter setting menu is concise, with one click direct access to parameter settings. Multiple measurement modes run and display in parallel, making mode switching convenient and efficient.

Mode Settings
Multi mode parallel operation
Real time switching

Menu Bar
One click direct parameter settings

USB 3.0 Interface
More efficient storage and connectivity

Status Bar
Visual display of parameter settings

11.6-inch High-resolution
Multi-touch display

Large Display Window
More intuitive and specific display of test details

Forward-looking Interface Configuration

10 Gigabit Network Control Interface

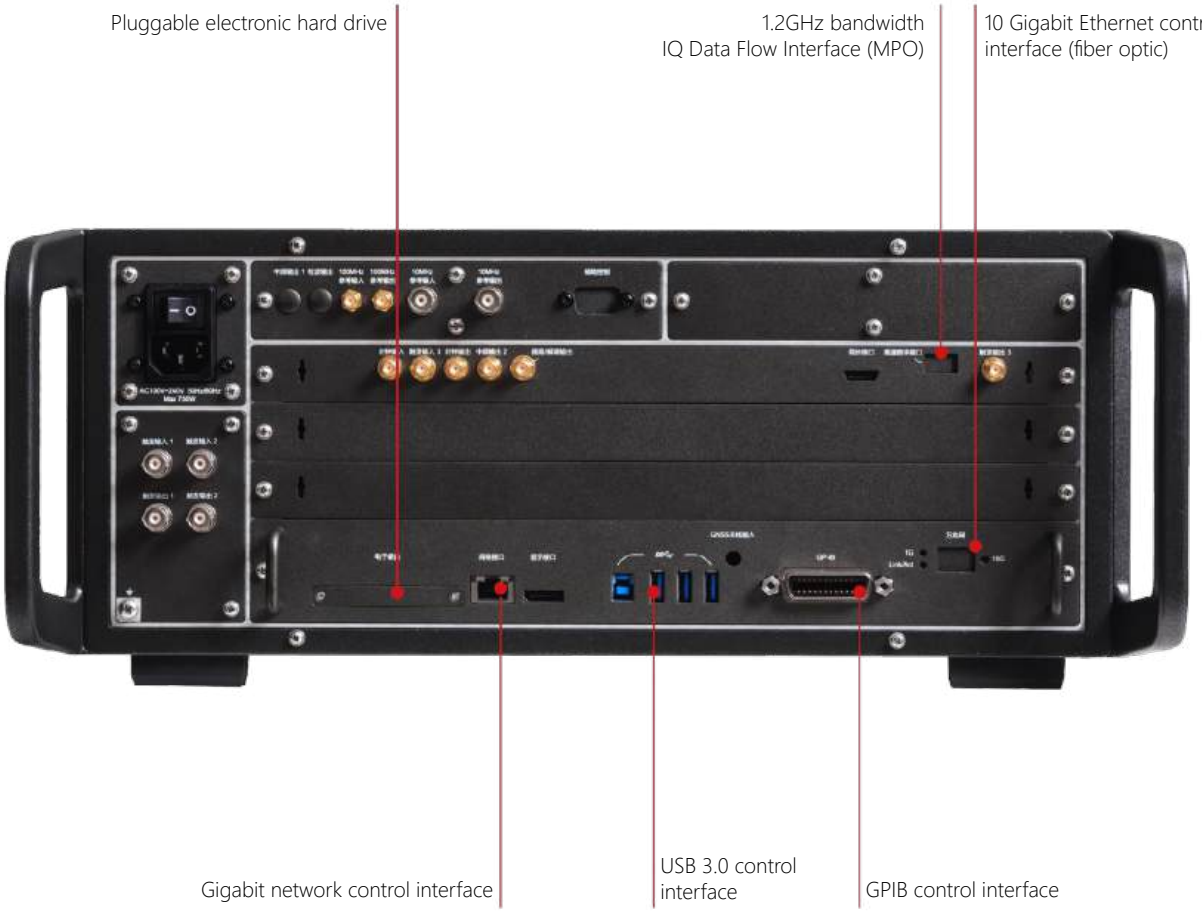
Configurable 10 Gigabit Ethernet interface, providing you with higher bandwidth, faster rate, and more stable data transmission.

4TB built-in Electronic Hard Drive

It can be equipped with a built-in 4TB electronic hard drive, providing convenience for storing massive data during the measurement process.

Fiber Optic Interface With 1.2GHz Bandwidth

Configurable with a 1.2GHz ultra wideband digital interface, achieving real-time broadband data acquisition and output with a 1.2GHz bandwidth.



Specification

Frequency Range	Model	DC Coupling	AC Coupling
	4052A	2Hz~4GHz	10MHz~4GHz
	4052B	2Hz~8GHz	10MHz~8GHz
	4052C	2Hz~13.6GHz	10MHz~13.6GHz
	4052D	2Hz~18GHz	10MHz~18GHz
	4052E	2Hz~26.5GHz	10MHz~26.5GHz
	4052F	2Hz~40GHz	10MHz~40GHz
	4052G	2Hz~45GHz	10MHz~45GHz
	4052H	2Hz~50GHz	10MHz~50GHz
10MHz Frequency Reference	Frequency Accuracy: ±(up to the last calibration date × aging rate+temperature stability+calibration accuracy)		
	Aging Rate: $\pm 5\times10^{-10}$/day		
	Temperature Stability: $\pm 5\times10^{-8}$		
	Calibration Accuracy: $\pm 4\times10^{-8}$		
Frequency Reading Accuracy	±(frequency reading × frequency reference accuracy+0.1% bandwidth+5% resolution bandwidth+2Hz+0.5 horizontal resolution*) **Horizontal resolution=bandwidth/(scan points -1)*		
Frequency Counting Accuracy	±(frequency reading × Frequency reference accuracy+0.1Hz)		
Bandwidth	Range: 0Hz (zero bandwidth), 10Hz to the highest frequency range of this model		
	Accuracy: ± (0.1%) × Bandwidth+Bandwidth/(Scan Points -1)		
Sweep Time Range	Bandwidth ≥ 10Hz: 1ms~16000s		
	Bandwidth=0Hz: 1μS~16000s		
Sweep Points	101~120001		
Resolution Bandwidth	Range: 0.1Hz~20MHz (1, 2, 3, 5 steps)		
	Conversion Uncertainty: ± 0.10dB 1Hz~1MHz (1, 2, 3, 5 steps) ± 0.30dB 2MHz~10MHz (1, 2, 3, 5 steps) ± 1.00dB 20MHz		
Analyze Bandwidth	Standard configuration: 10MHz		
	Option H38-40: 40MHz		
	Option H38-200:200MHz		
	Option H38-400:400MHz		
	Option H38-600:600MHz		
	Option H38-1200:1.2GHz		
Video Bandwidth	1Hz~20MHz (1, 2, 3, 5 steps)		
Trigger Method	Freedom, Power, Video, External Trigger 1/2, Timer		
Detection Mode	Normal, Positive Peak, Negative Peak, Sampling, Video Averaging, Power Averaging, Voltage Averaging		
Phase Noise (Carrier 1GHz, 20°C to 30°C)	Frequency Offset	Value	
	100Hz	-95dBc/Hz	
	1kHz	-112dBc/Hz	
	10kHz	-122dBc/Hz	
	100kHz	-122dBc/Hz	
	1MHz	-135dBc/Hz	
Residual FM	≤ 0.25Hz × N (10Hz resolution bandwidth, 10Hz video bandwidth, rated value within 20 ms, specific N values refer to harmonic frequency division)		

DANL

(Input terminal matching load, trajectory average, average type is video average, detection method is video average detection, 0dB input attenuation, normalized to 1Hz RBW, 20°C~30°C)

4052A/B preamplifier off

Frequency Range	Nominal	Typical Value
10MHz~1GHz	-151dBm	-154 dBm
1GHz~2GHz	-149dBm	-154 dBm
2GHz~3GHz	-147dBm	-151 dBm
3GHz~4GHz	-144dBm	-148 dBm
4GHz~6GHz	-147dBm	-150 dBm
6GHz~8GHz	-145dBm	-149 dBm

4052A/B preamplifier on

Frequency Range	Nominal	Typical Value(H34A-XX)	Typical Value(H34-XX)
10MHz~50MHz	-156dBm	-160dBm	-160dBm
50MHz~4GHz	-161dBm	-164dBm	-164dBm
4GHz~6GHz	-161dBm	-164dBm	-165dBm
6GHz~8GHz	-157dBm	-160dBm	-163dBm

4052C/D/E/F/G/H preamplifier off

Frequency Range	Nominal	Typical Value(H34-XX)
10MHz~1GHz	-149dBm	-153dBm
1GHz~2GHz	-147dBm	-152dBm
2GHz~3GHz	-146dBm	-149dBm
3GHz~4GHz	-141dBm	-146dBm
4GHz~6GHz	-142dBm	-147dBm
6GHz~8GHz	-139dBm	-143dBm
8GHz~18GHz	-145dBm	-148dBm
18GHz~26.5GHz	-141dBm	-144dBm
26.5GHz~40GHz	-135dBm	-140dBm
40GHz~45GHz	-134dBm	-139dBm
45GHz~50GHz	-130dBm	-136dBm

4052C/D/E/F/G/H preamplifier on

Frequency Range	Nominal	Typical Value(H34-XX)
10MHz~50MHz	-156dBm	-160dBm
50MHz~4GHz	-161dBm	-164dBm
4GHz~6GHz	-161dBm	-165dBm
6GHz~8GHz	-157dBm	-163dBm
8GHz~18GHz	-157dBm	-160dBm
18GHz~26.5GHz	-154dBm	-158dBm
26.5GHz~40GHz	-151dBm	-157dBm
40GHz~50GHz	-148dBm	-154dBm

Frequency Response And Absolute Amplitude Accuracy

(10dB attenuation, 20°C~30°C)

Frequency Range	Preamplifier off
10MHz~4GHz	±0.40dB
4GHz~8GHz	±0.50dB
8GHz~18GHz	±1.50dB
18GHz~26.5GHz	±2.00dB
26.5GHz~45GHz	±2.50dB
45GHz~50GHz	±3.00dB
Frequency Range	**Preamplifier on**
10MHz~4GHz	±1.00dB
4GHz~8GHz	±1.50dB
8GHz~18GHz	±2.50dB
18GHz~45GHz	±3.00dB

Frequency Response And Absolute Amplitude Accuracy (10dB attenuation, 20°C~30°C)	Frequency Range	Preamplifier on
	45GHz~50GHz	±3.50dB
	Absolute Amplitude Accuracy (10dB attenuation, 20°C to 30°C, 1 Hz≤resolution bandwidth≤1 MHz, input signal -10 to -50 dBm): ± 0.24dB (500MHz calibration frequency) ± (0.24dB+Frequency Response) (All frequencies excluding 500MHz calibration frequency)	
1dB Gain Compression (Dual tone method test, resolution bandwidth 5kHz, 3MHz frequency interval, 20°C~30°C)	Frequency Range	Value
	10MHz~100MHz	0dBm
	100MHz~1GHz	0dBm
	1GHz~8GHz	+5dBm
	8GHz~50GHz	+5dBm
TOI (Test two -10dBm signals into the mixer, with a frequency interval of 50kHz and a temperature range of 20°C to 30°C)	Frequency Range	Value
	10MHz~200MHz	+12dBm
	200MHz~4GHz	+17dBm
	4GHz~8GHz	+16dBm
	8GHz~50GHz	+18dBm
Remaining Response (Input terminal matching load, 0dB attenuation)	-90dBm (200kHz~8GHz)	
IQ Data	Storage Depth (IQ length): Analysis bandwidth ≤ 40MHz: 500M IQ samples, IQ byte length: 32-bit I, 32-bit Q Analysis bandwidth>40MHz: 1000M IQ samples, IQ byte length: 16 bit I, 16 bit Q	
Dimensions(W*H*D)	426mm × 177mm × 450mm (excluding handles, feet, pads, and side straps)	
Weight	Approximately 23kg (standard configuration)	
Power	AC 110~240V, 50~60Hz	
Consumption	Maximum power consumption: 300W (standard) 450W (equipped with broadband or real-time options such as H38/H41)	
Temperature Range	Working temperature: 0°C~+50°C Storage temperature: -40°C~+70°C	
RF Interface	A/B/C/D type: N type (negative), 50 Ω E type: 3.5mm (positive), 50 Ω F/H type: 2.4mm (positive), 50 Ω	

Ordering Information

Model

Model	Name	Description
4052A	Signal/ Spectrum Analyzer	2Hz~4GHz
4052B	Signal/ Spectrum Analyzer	2Hz~8GHz
4052C	Signal/ Spectrum Analyzer	2Hz~13.6GHz
4052D	Signal/ Spectrum Analyzer	2Hz~18GHz
4052E	Signal/ Spectrum Analyzer	2Hz~26.5GHz
4052F	Signal/ Spectrum Analyzer	2Hz~40GHz
4052G	Signal/ Spectrum Analyzer	2Hz~45GHz
4052H	Signal/ Spectrum Analyzer	2Hz~50GHz

Standard

No.	Name	Description
1	Power Cord Components	Standard three core power cord
2	Qualification Certificate	/

Options

Option Model	Name	Description
4052-H02	High and medium frequency output	Output second intermediate frequency signals with a frequency range of 425MHz, 750MHz, etc.
4052-H08	Broadband logarithmic detection output	Output a logarithmic detection signal that reflects the level characteristics of the input signal.
4052-H11	10 Gigabit Network Control and Data Interface	A 10 Gigabit Ethernet interface based on optical fiber, with a transmission rate of 10Gbit/s, used for fast remote control and fast IQ data transmission. 4052-H17-E needs to be configured.
4052-H17-E	CPU Enhancement	Upgrade to Intel I7 processor, enhance CPU computing and processing capabilities, and improve measurement speed.
4052-H19-2T	Local storage space expansion	Support up to 2TB of storage space (electronic hard drive). 4052-H17-E needs to be configured.
4052-H19-4T	Local storage space expansion	Support up to 4TB of storage space (electronic hard drive). 4052-H17-E needs to be configured.
4052-H33-08	Electronic attenuator	The upper limit of the working frequency is based on the upper limit of the selected signal analyzer host frequency, with a maximum frequency of 8GHz and a attenuation range of 30dB in steps of 0.5dB.
4052-H34-04	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052A with a frequency limit of 4GHz. Please select H34-04 for the preamplifier.
4052-H34-08	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052B with a frequency limit of 8GHz. Please select H34-08 for the preamplifier.
4052-H34-13	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052C with a frequency limit of 13.6GHz. Please select H34-13 for the preamplifier.
4052-H34-18	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052D with a frequency limit of 18GHz. Please select H34-18 for the preamplifier.
4052-H34-26	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as the 4052E frequency limit of 26.5GHz. Please select H34-26 for the preamplifier.
4052-H34-40	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052F with a frequency limit of 40GHz. Please select H34-40 for the preamplifier.
4052-H34-45	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052G with a frequency limit of 45GHz. Please select H34-45 for the preamplifier.
4052-H34-50	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4052H with a frequency limit of 50GHz. Please select H34-50 for the preamplifier.
4052-H34A-04	Low noise preamplifier	Only A-type hosts can be configured, and cannot be selected simultaneously with 4052-H34-04.
4052-H34A-08	Low noise preamplifier	Only B-type hosts can be configured, and cannot be selected simultaneously with 4052-H34-08.

4052-H36	Preselector bypass	Bypass the tracking preselector in the receiving channel. (Note: Except for 4052A/B, other models are equipped with the H38 series analysis bandwidth option, which requires the H36 preselector bypass option to provide the best broadband signal reception characteristics.)
4052-H38-40	40MHz analysis bandwidth	Supports 10Hz to 40MHz analysis bandwidth. (Note: In addition to 4052A/B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4052-H38-200	200MHz analysis bandwidth	Supports 10Hz~200MHz analysis bandwidth, recommended for simultaneous configuration 4052-H17-E option. (Note: In addition to 4052A/B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4052-H38-400	400MHz analysis bandwidth	Supports 10Hz~400MHz analysis bandwidth, recommended for simultaneous configuration 4052-H17-E option. (Note: In addition to 4052A/B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4052-H38-600	600MHz analysis bandwidth	Supports 10Hz~600MHz analysis bandwidth, recommended for simultaneous configuration 4052-H17-E option. (Note: In addition to 4052A/B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4052-H38-1200	1.2GHz analysis bandwidth	Supports 10Hz~1.2GHz analysis bandwidth, and it is recommended to also configure the 4052-H17-E option. (Note: In addition to 4052A/B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4052-H39	Audio analysis	Implement audio signal parameter testing, distortion testing, and waveform analysis. (This option cannot be selected simultaneously with the H48 noise figure test.)
4052-H40	External frequency extension	Provide the ability to extend the frequency testing range using external mixing methods. This option will provide local oscillator output and intermediate frequency input interface functions, as well as signal recognition capability.(This option is only available when the host model is not 4052A/B; the extended frequency range depends on the selected spread spectrum module; the spread spectrum module needs to be purchased separately)
4052-H41-200	Real-time Spectrum Analysis	It can provide 200MHz bandwidth digital fluorescence spectrum and seamless waterfall map function at most, including frequency mask trigger and broadband real-time spectrum analysis. It is recommended to configure 4052-H17-E option at the same time. (Note: When configuring H38-40 and H38-200, this option is optional; the maximum real-time analysis bandwidth is determined by the selected bandwidth option.)
4052-H41-400	Real-time Spectrum Analysis	It can provide 400MHz bandwidth digital fluorescence spectrum and seamless waterfall map function at most, including frequency mask trigger and broadband real-time spectrum analysis. It is recommended to configure 4052-H17-E option at the same time. (Note: When configuring H38-40, H38-200, and H38-400, this option is optional; the maximum real-time analysis bandwidth is determined by the selected bandwidth option.)
4052-H48	Noise Coefficient Test	Provide noise source driving and noise coefficient testing functions. (Note: To select this option, it is necessary to simultaneously purchase the H34 low noise preamplifier option corresponding to the frequency band of the entire machine, as well as the corresponding 1660X noise source probe, to complete the noise figure testing function. This option cannot be selected simultaneously with the H39 audio analysis.)
4052-H96	User Manual (Paper Version)	Provide a detailed user manual in hard copy.
4052-H97	Shelf Kit	The shelf handle and accessories are used for the installation of 4052 in standard cabinets.
4052-H98	English Kit	English panel, English manual, English operation interface, and English operating system.
4052-H99-1	Aluminum Alloy Transport Box	High strength and lightweight aluminum alloy transport box with handles and rollers for easy transportation.
4052-H99-2	Plastic Safety Pull Rod With Wheel Packaging Box	High strength plastic safety pull rod with wheel packaging box, with handles and rollers, convenient for transportation.
4052-S01	Absolute Power Measurement	High precision measurement of RF signal power is achieved by connecting an external USB power probe. (Corresponding 8723X series power probes need to be configured.)

4052-S02	Noise Power Ratio Test	Provide noise power ratio testing capability.
4052-S04	Phase Noise Test	Provide single sideband phase noise curve and single point phase noise testing capability.
4052-S05	EMC Pre Compatibility Testing	Provide EMI pre compatibility testing capabilities.
4052-S09	Analog Demodulation	Implement AM, FM Φ Analysis of modulation and distortion characteristics of M signal.
4052-S10	Transient Analysis	Realize the testing and analysis of the instantaneous parameter spectrum, spectrum, and time-varying characteristics of the signal, and support the playback of recorded data.
4052-S10H	Frequency Hopping Signal Analysis	Provide automatic measurement of characteristics such as dwell time, switching time, frequency, and error of frequency hopping signals. (S10 option needs to be selected at the same time)
4052-S10F	FMCW Signal Analysis	Provide automatic measurement of FMCW signal slope, deviation, power, and other characteristics. (S10 option needs to be selected at the same time)
4052-S12	Vector Signal Analysis	Provide flexible demodulation functions for various single carrier digital modulation signals, which can provide rich graphs such as vector maps, constellation maps, eye maps, spectrum maps, etc. to analyze the characteristics of modulation signals. Through demodulation, the modulation error of the signal can be obtained, helping to determine the cause of signal error.
4052-S13	Pulse Signal Analysis	Realize automatic measurement of time, level, and modulation parameters of pulse waveforms, as well as statistical analysis of pulse sequences.
4052-S16	Multi Carrier Group Delay Measurement	Provide absolute and relative group delay measurement capabilities for broadband signals
4052-S40	Wlan 802.11a/b/g Measurement	Broadband wireless LAN protocol physical layer testing (802.11a/b/g), covering RF, modulation analysis, and modulation quality testing.
4052-S40N	Wlan 802.11n Measurement	Broadband Wireless LAN Protocol Physical Layer Testing (802.11n), covering RF, modulation analysis, and modulation quality testing.
4052-S40AC	Wlan 802.11ac Measurement	Broadband Wireless LAN Protocol Physical Layer Testing (802.11ac), covering RF, modulation analysis, and modulation quality testing.
4052-S40AX	Wlan 802.11ax Measurement	Broadband Wireless LAN Protocol Physical Layer Testing (802.11ax), covering RF, modulation analysis, and modulation quality testing.
4052-S46D	5G NR Downlink Signal Measurement	Supporting 5G NR downlink signal demodulation, providing measurements such as EVM and spectral flatness; Support power measurement functions such as ACP, spectrum transmission mask, CCDF, etc; Supports multiple bandwidth and multiple TMs.
4052-S46U	5G NR Uplink Signal Measurement	Support 5G NR uplink signal demodulation, provide EVM, spectrum flatness and other measurements; Support power measurement functions such as ACP, spectrum transmission mask, CCDF, etc; Supports multiple bandwidth

Power Probes (requires 4052-S01 option)

Option Model	Name	Description
87230	USB continuous wave power probe	9kHz~6GHz power probe
87231	USB continuous wave power probe	10MHz~18GHz power probe
87232	USB continuous wave power probe	50MHz~26.5GHz power probe
87233	USB continuous wave power probe	50MHz~40GHz power probe

Millimeter Wave Spread Spectrum Module (requires 4052-H40 option)

Option Model	Name	Description
82407NA	Spectrum Analyzer Spread Spectrum Module	50GHz~75GHz
82407NC	Spectrum Analyzer Spread Spectrum Module	60GHz~90GHz
82407PA	Spectrum Analyzer Spread Spectrum Module	75GHz~110GHz
82407QA	Spectrum Analyzer Spread Spectrum Module	90GHz~140GHz
82407QB	Spectrum Analyzer Spread Spectrum Module	110GHz~170GHz
82407RA	Spectrum Analyzer Spread Spectrum Module	140GHz~220GHz
82407SA	Spectrum Analyzer Spread Spectrum Module	170GHz~260GHz
82407S	Spectrum Analyzer Spread Spectrum Module	220GHz~325GHz
82407TA	Spectrum Analyzer Spread Spectrum Module	260GHz~400GHz
82407R	Spectrum Analyzer Spread Spectrum Module	325GHz~500GHz
82407U	Spectrum Analyzer Spread Spectrum Module	500GHz~750GHz

Noise Source (requires 4052-H48 option, 4052-H34 option)

Option Model	Name	Description
16603DB	Noise Source	10MHz~18GHz
16603EB	Noise Source	10MHz~26.5GHz
16603FB	Noise Source	10MHz~40GHz
16603HB	Noise Source	10MHz~50GHz
16604DB	Intelligent Noise Source	10MHz~18GHz
16604EB	Intelligent Noise Source	10MHz~26.5GHz
16604FB	Intelligent Noise Source	10MHz~40GHz
16604HB	Intelligent Noise Source	10MHz~50GHz

Quality&**Precise**

MAXWELLON TW4202

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

Handheld Spectrum Analyzer

2023

Maxwellon

Maxwellon TW4202 series handheld/ portable 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.

Maxwellon TW4202 series handheld/ portable 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.

Key Feature

- Wide frequency range cover from 9kHz to 67GHz, 9 models
- Low displayed average noise level up to -163dBm @ 1Hz RBW (typical)
- Excellent phase noise performance:

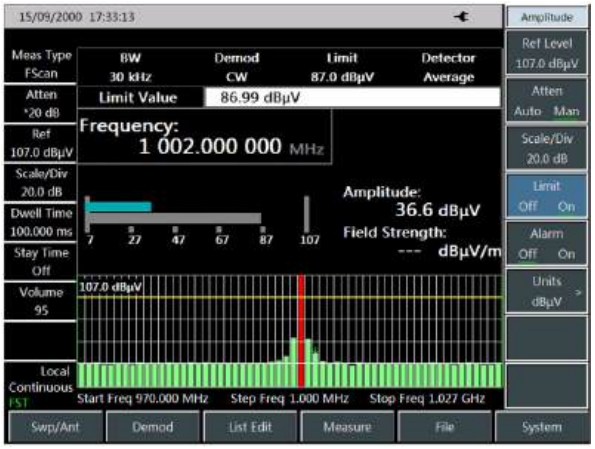
-112dBc/Hz@100kHz frequency offset@1GHz carrier (TW4202SA/SB/SC)

-106dBc/Hz@100kHz frequency offset@1GHz carrier (TW4202A/B/C/D/E/F)

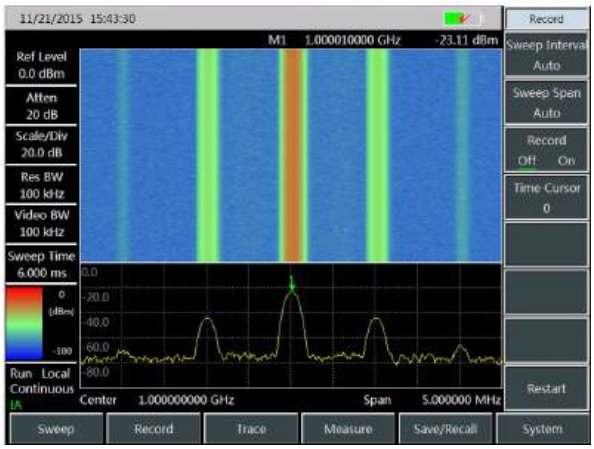
- Fast sweep speed: 1GHz span, fastest sweep time <20ms
- Resolution bandwidth: 1Hz - 10MHz
- Full-band pre-amplifier: Standard configuration
- A variety of measurement function modes: spectrum analyzer, interference analyzer (spectrogram, RSSI), AM/FM/PM analyzer, channel sweepner, high accuracy power 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 °C - 50 °C
- Powered by battery or AC adapter

Features To Boost Your Efficiency

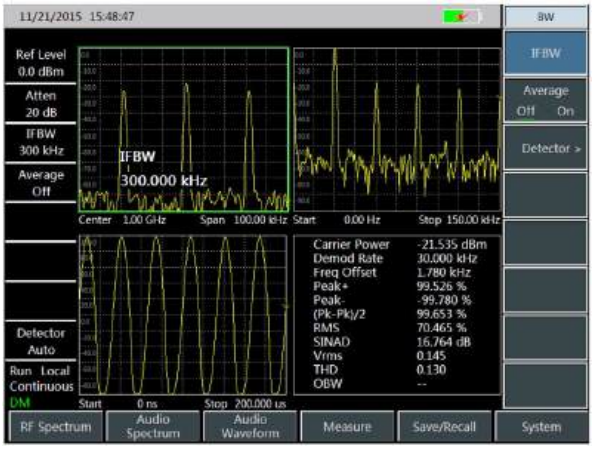
Field Strength



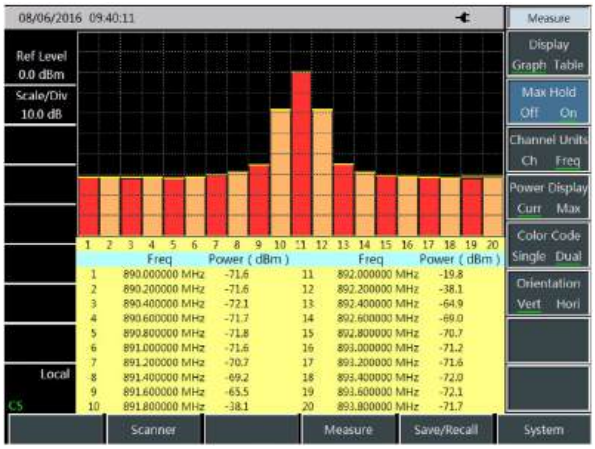
Interference Analyzer (Spectrogram)



AM/FM/PM Demodulation

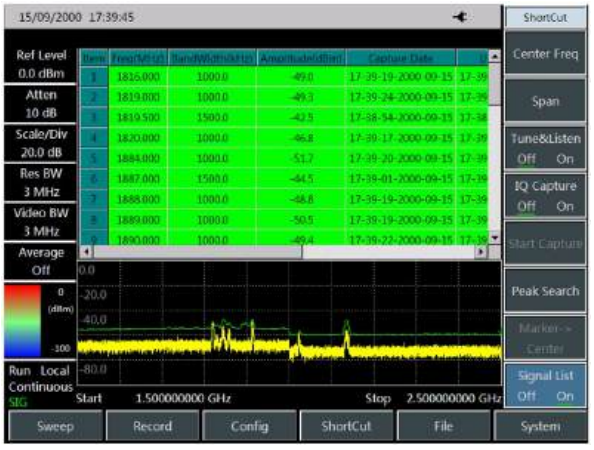


Channel Scanner

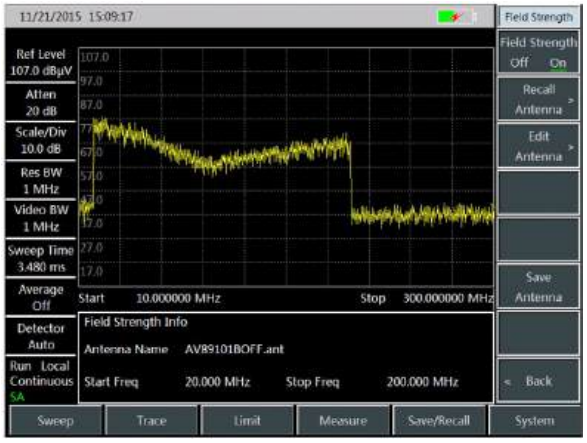


Power Meter (USB Power Probe)

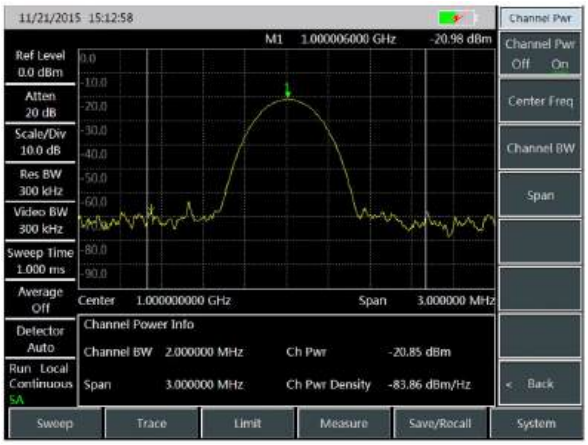
Signal Analyzer



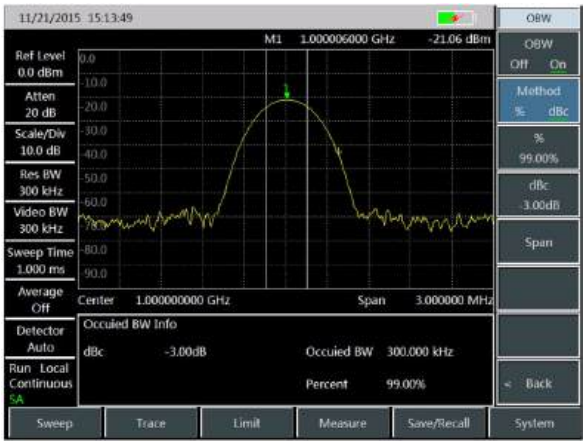
Field Strength Measurement



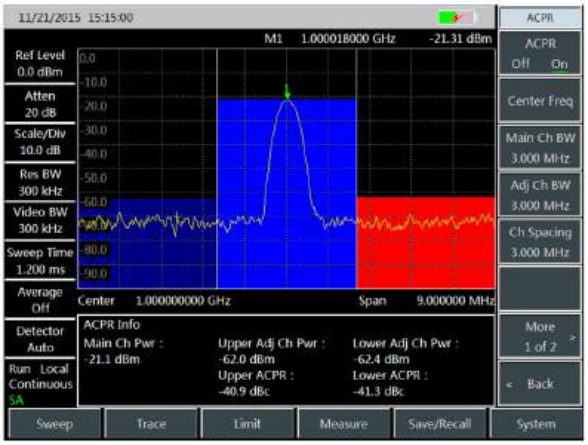
Channel Power



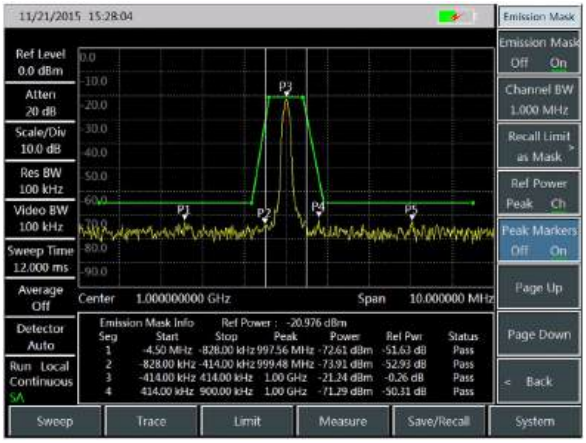
Occupied Bandwidth



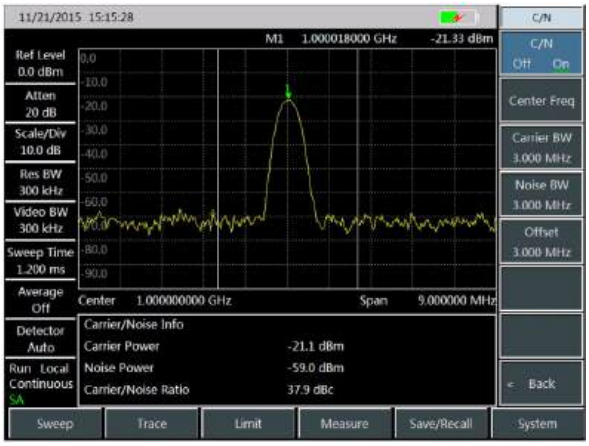
Adjacent Channel Power Ratio



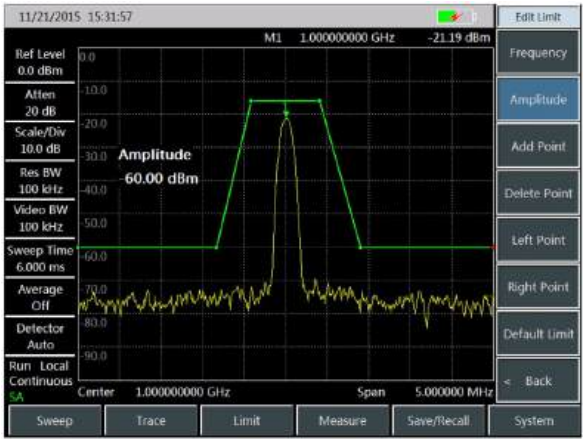
Emission Mask



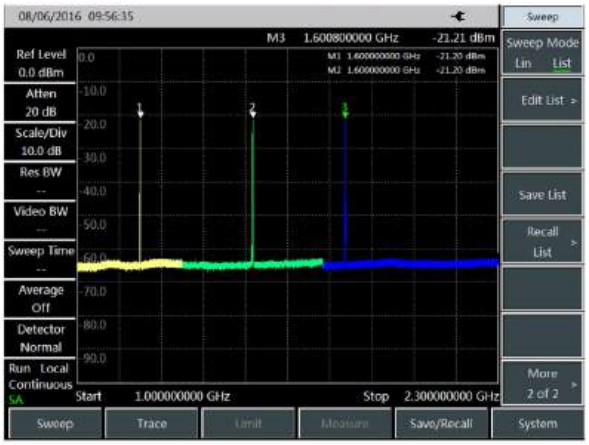
Carrier-to-Noise Ratio



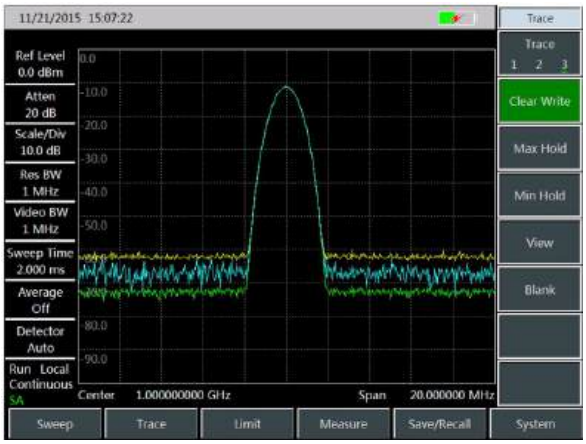
Limit Line



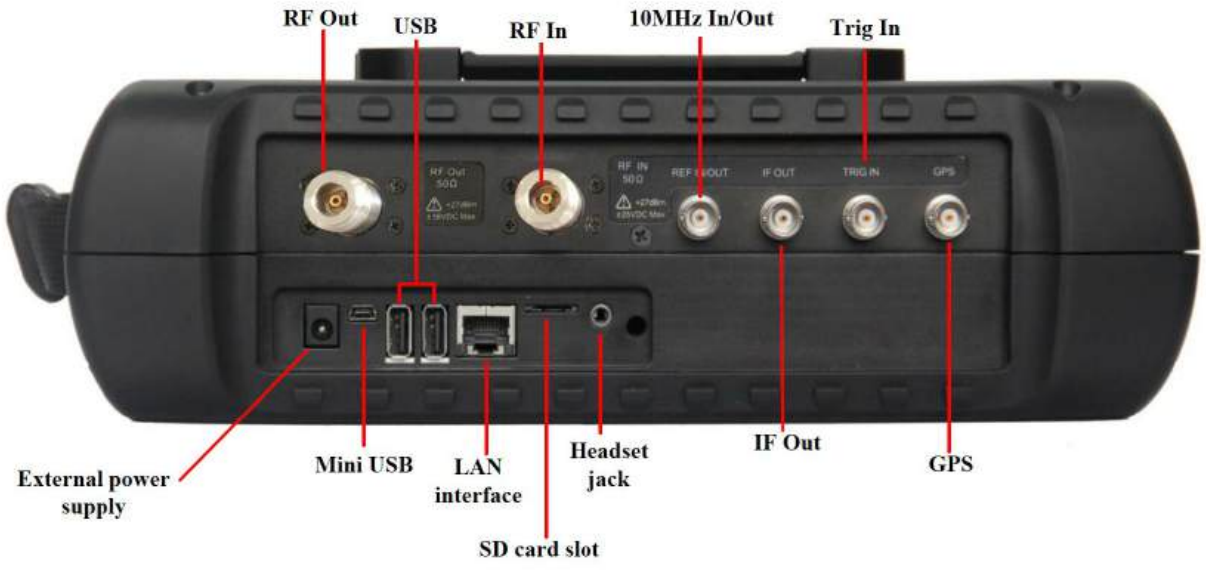
List Sweep



Multi-Traces

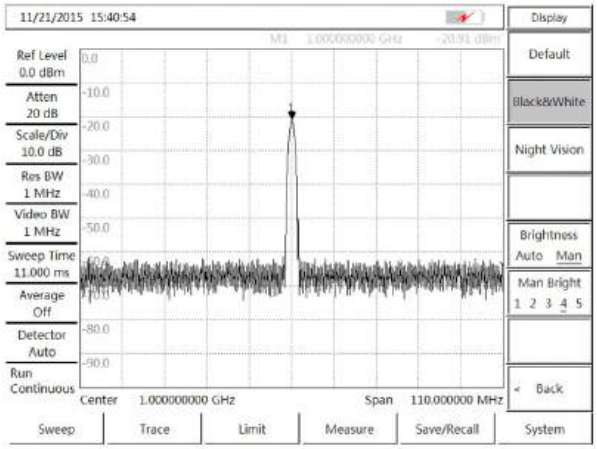


Various Auxiliary Test Interfaces

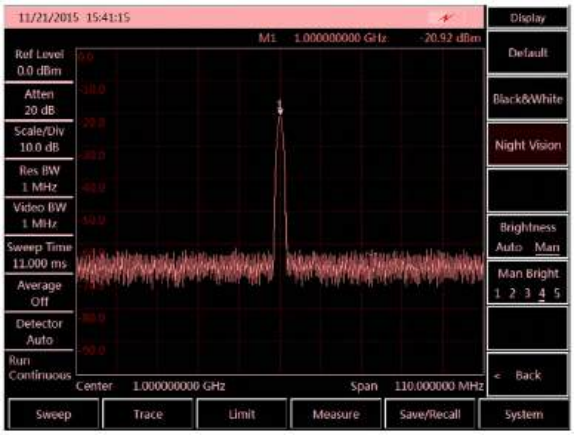


Easy & Convenient User Operation

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



Night Vision Mode

Typical Applications

Comprehensive Performance Evaluation of Electronic Weapon Equipment

TW4202 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

TW4202 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, TW4202 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..

Specification

Frequency Range	TW4202A: 9 kHz to 4 GHz, TW4202B: 9 kHz to 6.5 GHz, TW4202C: 9 kHz to 9 GHz, TW4202D: 9 kHz to 20 GHz, TW4202E: 9 kHz to 26.5 GHz, TW4202F: 9 kHz to 32 GHz,, Tuning Resolution:1Hz	TW4202G: 9 kHz to 44 GHz,, TW4202H: 9 kHz to 50 GHz,, TW4202L: 9 kHz to 67 GHz,,
Frequency Reference	Frequency: 10MHz Aging: ±0.5ppm/Year Initial Frequency Accuracy: ±0.3ppm Temperature Stability:±0.1ppm(-10~50**℃**, Comparative to 25**℃**)	
Sweep Time	Range: 10μs~600s (Zero Span) Accuracy: ±2.00% (Zero Span)	
Frequency Readout Accuracy	±(Frequency Readout× frequency Reference +2%× Span +10%×Resolution Bandwidth)	
Frequency Span	Range: 100Hz~Upper Frequency Limit of Corresponding Model or 0Hz Accuracy: ±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)	TW4202A/B/C:	TW4202D/E/F/GH/L:
	≤-108dBc/Hz@Frequency Offset 10kHz ≤-112dBc/Hz@Frequency Offset 100kHz ≤-118dBc/Hz@Frequency Offset 1MHz ≤-129dBc/Hz@Frequency Offset 10MHz	≤-102dBc/Hz@Frequency Offset 10kHz ≤-106dBc/Hz@Frequency Offset 100kHz ≤-111dBc/Hz@Frequency Offset 1MHz ≤-123dBc/Hz@Frequency Offset 10MHz
DANL (input port is connected with a 50Ω load, 0dB input attenuation, average detection, logarithm of video type, RBW normalized to 1Hz, tracking source off, 20**℃**~30**℃**)	TW4202A/B/C:	
	Pre-amp Off: ≤-140dBm(10MHz~3GHz) ≤-138dBm(3GHz~9GHz)	Pre-amp On: ≤-160dBm(10MHz~3GHz) ≤-157dBm(3GHz~9GHz)
	TW4202D/E/F/G:	
	Pre-amp Off: ≤-138dBm(10MHz~20GHz) ≤-135dBm(20GHz~32GHz) ≤-127dBm(32GHz~40GHz)	Pre-amp On: ≤-157dBm(10MHz~20GHz) ≤-154dBm(20GHz~32GHz) ≤-148dBm(32GHz~40GHz)
	TW4202H/L:	
	Pre-amp Off: ≤-135dBm(10MHz~20GHz) ≤-134dBm(20GHz~32GHz) ≤-129dBm(32GHz~40GHz) ≤-120dBm(40GHz~46GHz) ≤-114dBm(46GHz~50GHz) ≤-114dBm(50GHz~60GHz) ≤-100dBm(60GHz~67GHz)	Pre-amp On: ≤-153dBm(10MHz~20GHz) ≤-152dBm(20GHz~32GHz) ≤-147dBm(32GHz~40GHz) ≤-142dBm(40GHz~46GHz) ≤-132dBm(46GHz~50GHz) ≤-132dBm(50GHz~60GHz) ≤-118dBm(60GHz~67GHz)
Residual Response	TW4202A/B/C(exceptional frequency: 3.2GHz):	
	Pre-amp Off: ≤-82dBm(10MHz~9GHz)	Pre-amp On: ≤-95dBm(10MHz~9GHz)
	TW4202D/E/F/G(exceptional frequency: 3.2GHz):	
	Pre-amp Off: ≤-90dBm(10MHz~13GHz) ≤-85dBm (13GHz~20GHz) ≤-80dBm (20GHz~44GHz)	Pre-amp On: ≤-100dBm (10MHz~32GHz) ≤-95dBm (32GHz~44GHz)
Second Harmonic Distortion (0dB attenuation, -30dBm input signal)	TW4202A/B/C/H/L: <-65dBc TW4202D/E/F/G: <-60dBc≤-80dBm (20GHz~44GHz)	
Absolute Amplitude Accuracy (input signal 0dBm~-50dBm, all settings are automatic couplings, 20**℃** ~30**℃**,30 minutes of preheating)	±1.8dB (10MHz~13GHz) ±2.3dB (13GHz~40GHz) ±2.7dB (40GHz~50GHz) ±3.0dB (50GHz~67GHz)	

Input Attenuator	TW4202A/B/C/H/L: Attenuation Range: 0dB~30dB, 5dB Stepping
	TW4202D/E/F/G: Attenuation Range: 0dB~50dB, 10dB Stepping
Max. Continuous Input	TW4202A/B/C/H/L:
	+27dBm Peak Typical(≥10dB Attenuation) +20dBm Peak Typical(<10dB Attenuation) +10dBm Peak Typical(Pre-amp On)
	TW4202D/E/F/G:
	+30dBm Peak Typical(≥10dB Attenuation) +23dBm Peak Typical(<10dB Attenuation) +13dBm Peak Typical(Pre-amp On)
Reference Level	Range: -120dBm~+30dBm Conversion Uncertainty: ±1.20dB
Dimension	314mm (W)×218mm (H)×91mm (D) (Excluding Handle, Stand) 338mm(W)×218mm (H)×100mm (D) (Including Handle, Stand)
Weight	TW4202A/B/C: ≤4.5kg TW4202D/E/F/G:≤5.1kg TW4202H/L: ≤5.3kg
Working Temperature	-10℃~+50℃ (the battery operation temperature is 0℃~45℃)
Storage Temperature	-40℃~+70℃ (the battery operation temperature is -20℃~60℃)
Electromagnetic Compatibility	Conforms to GJB3947A-2009 3.9.1 Requirements
Battery Operation Time	TW4202A/B/C: about 3h TW4202D/E/F/G: about 2.5h TW4202H/L: 2h
Power Consumption	TW4202A/B/C: ≤25W TW4202D/E/F/G: ≤33W TW4202H/L: ≤38W
Test Interface	RF Input: TW4202A/B/C/D/E: Type N Connector female TW4202F/G: 2.4mm Connector(male) TW4202H/L : 1.85 mm Connector(male) RF Output: Test interface of tracking generator option for TW4202A/B/C: Type N Connector 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

Ordering Information

Model

Model	Name	Description
TW4202A	Handheld Spectrum Analyzer	9 kHz~4 GHz
TW4202B	Handheld Spectrum Analyzer	9 kHz~6.5 GHz
TW4202C	Handheld Spectrum Analyzer	9 kHz~9 GHz
TW4202D	Handheld Spectrum Analyzer	9 kHz~20 GHz
TW4202E	Handheld Spectrum Analyzer	9 kHz~26.5 GHz
TW4202F	Handheld Spectrum Analyzer	9 kHz~32 GHz
TW4202G	Handheld Spectrum Analyzer	9 kHz~44 GHz
TW4202H	Handheld Spectrum Analyzer	9 kHz~50 GHz
TW4202L	Handheld Spectrum Analyzer	9 kHz~67 GHz

Standard

No.	Name
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

Options

Option Model	Name	Description
TW4202-001	Optional Accessories of English Version	English Signs, Keys, Menu
TW4202-002	User Manual (Chinese)	--
TW4202-003	User Manual (English)	--
TW4202-004	Programming Manual (Chinese)	--
TW4202-005	Programming Manual (English)	--
TW4202-006	Power Adapter	Power Adapter
TW4202-007	Rechargeable Lithium Ion Battery	Standby Battery
TW4202-008	Purple Cat5e Cable	Point to Point, 2 Meters
TW4202-009	Micro SD Card	Class4, Capacity: 8G
TW4202-010	GPS Antenna	GPS exposed Antenna
TW4202-011	USB Power Meter Option	Provide USB Power Measurement Function (Requires USB Power Probe:012/013/014/015)
TW4202-012	87230 USB CW Power Probe	9kHz~6GHz Power Probe
TW4202-013	87231 USB CW Power Probe	10MHz~18GHz Power Probe
TW4202-014	87232 USB CW Power Probe	50MHz~26.5GHz Power Probe
TW4202-015	87233 USB CW Power Probe	50MHz~40GHz Power Probe
TW4202-016	Interference Analyzer Option	Provide Spectrogram, RSSI Measurement etc. Functions
TW4202-017	AM/FM/PM Analyzer Option	To Realize Modulation Characteristics Analysis of AM/FM/PM Signals
TW4202-018	Channel Scanner Option	To Realize Signal Power Measurement of Multiple Channels and Frequency
TW4202-019	List Sweep Option	To Realize Continuous Sweep Measurement of Various Frequency Bands
TW4202-020	Zero Span IF Output	Output the Third or Fourth IF Signal(Choose One of Two)
TW4202-021	89101A Antenna	Frequency Range:10kHz~20MHz(Requires Option 025)
TW4202-022	89101B Antenna	Frequency Range:20MHz~200MHz(Requires Option 025)
TW4202-023	89101C Antenna	Frequency Range:200MHz~500MHz(Requires Option 025)
TW4202-024	89101D Antenna	Frequency Range:500MHz~4GHz(Requires Option 025)
TW4202-025	89401 Antenna Amplifier	Frequency Range:10kHz~4GHz,N(f)(Requires Option 021/022/023/024)
TW4202-026	89901 Antenna	Frequency Range:1GHz~18GHz,N(f)
TW4202-027	89902 Antenna	Frequency Range:18GHz~40GHz,2.92mm(f)
TW4202-028	Functional Bag	Protect the Instrument
TW4202-029	Backpack	Easy to Carry
TW4202-030	Safety Instrument Carrying Case	Used to Carry
TW4202-031	89901 Antenna handle	Requires Option 026
TW4202-032	89902 Antenna handle	Requires Option 027
TW4202-034	Field Strength Option	Provide Pscan, Fscan, MScan etc.Functions
TW4202-035	4GHz Tracking Generator	Frequency Range 100kHz~4GHz(Only For TW4202A)
TW4202-036	6.5GHz Tracking Generator	Frequency Range 100kHz~6.5GHz(Only For TW4202B)
TW4202-037	9GHz Tracking Generator	Frequency Range 100kHz~9GHz(Only For TW4202C)

Option Model	Name	Description
TW4202-038	Location Analyzer Option	Internal software which requiresoption 010,option 050 and directional antenna for function realization
TW4202-039	Interference Map	Internal software which requires option 010 for function realization
TW4202-041	Omnidirectional Whip Antenna	Frequency Range: 700MHz~2700MHz,suitable for communication frequency band
TW4202-042	700MHz~4GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:700MHz~4GHz
TW4202-043	700MHz~6GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:700MHz~6GHz
TW4202-044	680MHz~10GHz Directional Antenna	Active Log Periodic Antenna,Frequency Range:680MHz~ 10GHz
TW4202-045	680MHz~20GHz Directional Antenna	Active Log Periodic Antenna,Frequency Range:680MHz~ 20GHz
TW4202-046	400MHz~4GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:400MHz~4GHz
TW4202-047	400MHz~6GHz Directional Antenna	Active Log Periodic Antenna, Frequency Range:400MHz~6GHz
TW4202-048	380MHz~10GHz Directional Antenna	Active Log Periodic Antenna,Frequency Range:380MHz~ 10GHz
TW4202-049	380MHz~20GHz Directional Antenna	Active Log Periodic Antenna,Frequency Range:380MHz~ 20GHz
TW4202-050	External Electronic Compass	External USB electronic compass, requires option 038 for function realization
TW4202-051	6GHz Omnidirectional Antenna	Portable Omnidirectional Antenna, Frequency Range:680MHz~6GHz
TW4202-052	8GHz Omnidirectional Antenna	Portable Omnidirectional Antenna, Frequency Range:300MHz~8GHz
TW4202-053	VHF/UHF Extension-Type Whip Antenna	Frequency Range:140MHz/430MHz
TW4202-054	Passive Directional Antenna(700MHz~4GHz)	Passive Log Periodic Antenna, Frequency Range:700MHz~4GHz
TW4202-055	Passive Directional Antenna(700MHz~6GHz)	Passive Log Periodic Antenna, Frequency Range:700MHz~6GHz
TW4202-056	Passive Directional Antenna(680MHz~10GHz)	Passive Log Periodic Antenna,Frequency Range:680MHz~10GHz
TW4202-057	Passive Directional Antenna(680MHz~18GHz)	Passive Log Periodic Antenna,Frequency Range:680MHz~18GHz
TW4202-058	Passive Directional Antenna(680MHz~25GHz)	Passive Log Periodic Antenna,Frequency Range:680MHz~25GHz
TW4202-059	Passive Directional Antenna (680MHz~35GHz)	Passive Log Periodic Antenna,Frequency Range:680MHz~35GHz
TW4202-060	N/SMA-JJ RF Cable (2m)	N/SMA RF Coaxial Cable (m-m), DC~18GHz,2m length
TW4202-061	N/SMA-JJ RF Cable (1m)	N/SMA RF Coaxial Cable (m-m), DC~18GHz,1m length
TW4202-067	ZE9080 Antenna Transportation Case	Special case for ZE9080 antenna, for the whole set of ZE9080 antenna and antenna amplifier,including option021, 022, 023, 024, 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

Quality&**Precise**

MAXWELLON 4051

3Hz~4GHz/9GHz/13.2GHz/18GHz/26.5GHz/40GHz/45GHz/50GHz/67GHz/85GHz

Signal/ Spectrum Analyzer

2023

Maxwellon

Maxwellon 4051 series signal / spectrum analyzer has excellent performance in dynamic range, phase noise, amplitude accuracy, and measurement speed. It have high-sensitivity spectrum Analyzer, standard power measurement components, IQ Analyzer, Vector Signal Analyzer, Real-Time Spectrum Analyzer, Transient Analyzer, Pulse Signal Analyzer, Audio Analyzer, Analog Demodulation measurement, Phase Noisemeasurement and Noise Figure,etc.

4051 series signal / spectrum analyzer has good expansion capacity, and can improve the features by means of flexible configuration options and also can construct testing system or redevelop by means of the output interface of all digital and analogue signals. The analyzer is applicable for signal and equipment test of fields including aviation, aerospace, radar detection, communications, electromagnetic countermeasure, and navigation.

Key Feature

- Wide frequency range
- Max. 1GHz analysis bandwidth
- Excellent measurement & receiving performance
- Comprehensive spectrum analysis capability
- Abundant measurement application functions
- Powerful RF signal streaming and playback analysis function
- Flexible analog signal output interface
- Easy & convenient operation

Wide Frequency Range

10 optional frequency band configurations (3Hz~4/9/13.2/18/26.5/40/45/50/67/85GHz)

The frequency range can be extended up to 500GHz (with external frequency extensionoption)

Maximum 1GHz Analysis Bandwidth

Provide 5 analysis bandwidth configuration: 10MHz (standard), 40MHz, 200MHz, 550MHz, 1GHz etc.

The bandwidth can be flexibly selected: from 10Hz to 1GHz, more than 40 levels

4GB storage depth, according to the selected bandwidth, the seamless capture time differs from several microsecond to several hours

Excellent Measurement & Receiving Performance

Wideband preamplifiers (up to 67 GHz) can be configured for the host frequency band

1GHz measurement DANL is -156dBm/Hz; with preamplifier on, the typical value is -167dBm/Hz

50GHz measurement DANL is -141dBm/Hz; configured with preamplifier, the typical value is -150dBm/Hz

67GHz measurement DANL is -135dBm/Hz; configured with preamplifier, the typical value is -150dBm/Hz

85GHz measurement DANL is -135dBm/Hz

Fully digital IF design, excellent scale fidelity and IF error

Comprehensive Spectrum Analysis Capability

Support frequency sweep and FFT sweep

Zero frequency band fast sweep, the fastest sweep time is 1μs

Accurate frequency counting, counting resolution can be 0.001Hz

Sweep point number can be arbitrarily selected among 101~30001

Can be configured with 6 traces, have abundant marker operation functions

6 trace detector modes, 3 average types

Time gate measurement support

Occupied bandwidth, channel power, adjacent channel power measurement functions

Measurement functions of power statistics, burst power, harmonic distortion, TOI, spurious emission etc.

Abundant Measurement Application Functions

Transient Analysis And Signal Playback Analysis

Frequency-domain and time-domain correlation measurementis helpful for understandingand deeply analyzing transient signal events.

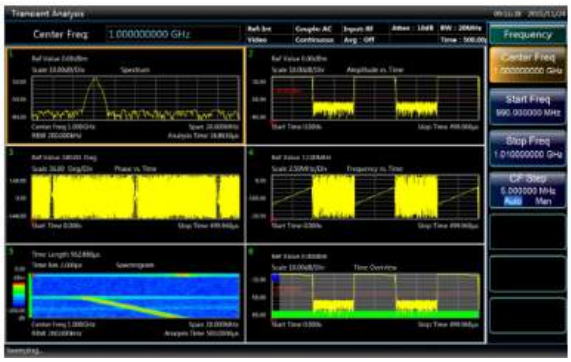
Waterfall diagram display, analyzing the macroscopic law of analysis signal spectrum changing over time.

Simultaneously analyze the changes of analysis signal frequency, amplitude, and phaseover time, to assist the measurementin the process of power control and frequency locking.

Support 500Msamples (64bits accuracy) seamless capture data storage

Support multiple storage formats of signal files: CSV, DATetc.

Support the playback analysis of signal files



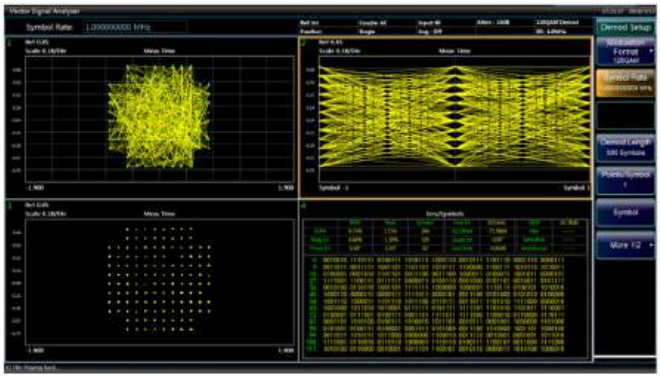
Vector Signal Analysis Function

With comprehensive time domain, frequency domain, modulation domain signal analysis and viewing function, it supportsmore than 20 modulation system demodulationanalysis.

Simultaneous display of demodulation before, after demodulation, reference signal, symbols, and various error results, and support multiple display windows such as spectrum diagram, constellation diagram, vector diagram, phase trace diagram, eyediagram, error/ symbol table, etc.

Provide pulse search function to realize the search and positioning of pulse signals, support users to input synchronization words and offsets, and display the demodulation results of designated parts.

With adaptiveequalization function, it can be used to separate the linear error from the nonlinear modulation error, anddisplay the system amplitude-frequency response and group delay.



Real-time Spectrum Analysis Function

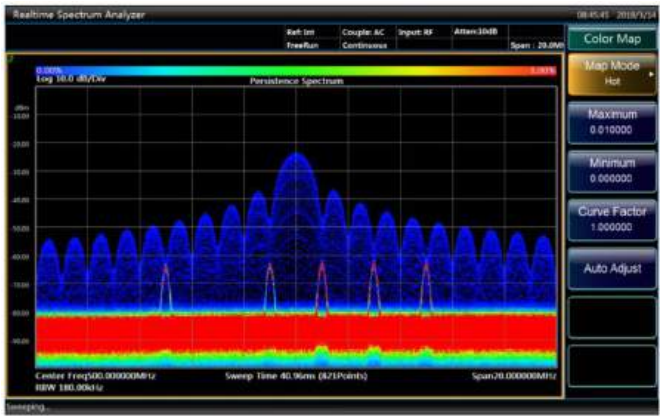
4051 can achieve seamless Real-time Spectrum Analysis, and frequency template trigger function, which can be used to trigger, capture,and analyze complex signals.

Max. real-time analysis bandwidth: 40MHz, 200MHz(optional), frequency up to 85GHz

Digital phosphor spectrum, seamless waterfall, instantaneous spectrum, power vs. time, frequency vs. time and other charts

100%POI, Min. duration of the signal: 4.3us

Multiple real-time trigger functions such as frequency template trigger and power triggerwhichcan be used to capture and analyze the data before and after the signal event of interest occurs.



Pulse Signal Analysis Function

Pulse signal spectrum and time domain characteristic measurementsupports more than 20 kinds of pulse parameters measurement (including time, amplitude, frequency and phase).

perform detailed analysis ofamplitude, intra-pulse frequency/phase characteristics, and spectral characteristics of arbitrary pulse.

Pulse trend statistics for arbitrary pulse parameters

Phase Noise Measurement / Audio Analysis / Analog Demodulation Analysis Function

The Phase Noise measurementrelies on the excellent phase noise of the signal analyzer and provides one-button automatic measurement to meet thedaily signal source phase noise measurementapplications.

Independently optimized audio measurement channel for low frequency signal parameter measurementand analysis.

Analog Demodulation Analyzeris used to simulate terminal, radio, and general analog modulation source measurement. Demodulate the AM/FM/ΦM signal and measure parameters such as modulation index, modulation distortion, residual FM, and FM linearityand so on.

DTMB Measurement Function

Capable of measuring single-carrier and multi-carrier DTMB signals

It has radio frequency characteristic analysis functions such as channel power,shoulder attenuation, spectrum mask, etc.

Automatically identify the frame header type and modulation method of the signal, and perform modulation quality analysis

Analyze channel response and impulse response

WLAN Measurement Function

Provides measurement functions such as modulation analysis, spectrum flatness, power vs. time, channel power, occupied bandwidth, spectrum mask, power statistics, CCDF, etc., enabling comprehensive testing of WLAN equipment.

Themeasurement setting menu is flexible, which can perform one-button measurement or manual setting, which is convenient for users to perform complete test and analysis on WLAN signals.

Provides constellation diagram, error table, symbol table, EVM vs. carrier, gain unbalance vs. carrier, quadrature error vs. carrier, amplitude error vs. time, phase error vs. time, frequency spectrum, time domain waveform, etc.

Absolute Power Measurement Function

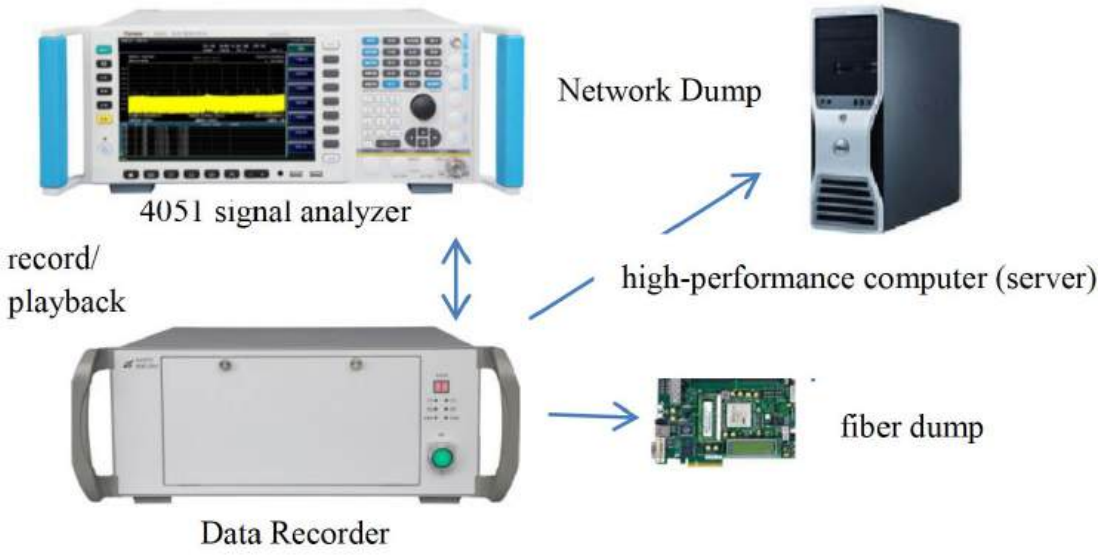
Support USB power probe to achieve high-precision power measurement

The performanceis equivalent to high-precision power meter

Powerful RF Signal Streamingand Playback Analysis Function

Bandwidth of broadband real-time signal recording up to 200MHz/550MHz

Data Recorder, both SSD and HDD can be selected

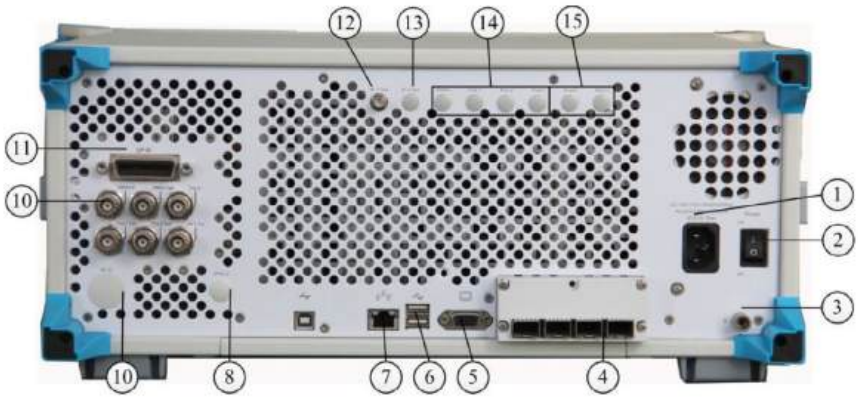


Flexible Analog Signal Output Interfaces

275MHz~475MHz high intermediate frequency output, 1 Hz frequency steps

10MHz~160MHz IF output, 1Hz frequency steps, 4-gear automatic gain control level

Digital reconstruction signal output, provide IF, AM/FM demodulation and IQ demodulation signal output



1. Input interface of power supply
2. Power switch
3. ground terminal
4.40/200MHz bandwidth digital interface
5. monitor
6.USB interface
7.LAN interface
8. positioning antenna input
9. rear panel RF input
10. rear panel BNC in/out
11. GPIB interface
12. IF OUT 1
13. IF OUT 2
14. broadband reconstruction IF/video signal output
15. reconstructing IF/video signal output

Easy & Convenient Operation

Humanized automatic tuning and automatic scale

One-button measurement

10.1-inch LCD with 1280*800 resolution, to display the measurement results more clearly

Support multiple auxiliary interfaces of USB, LAN, GPIB, monitor etc. for user's convenience

Typical Applications

Comprehensive performance assessment of electronic system: As a multifunctional signal/spectrum analyzer, 4051 can be widely used for the comprehensive performance assessment of electronic systems in fields of radar and communication etc., which provides high-sensitivity, large dynamic range, high-precision, and high-efficiency solutions.

Measurement and diagnosis of transmitter and receiver: With the functions of spectrum analysis, one-button measurement, instantaneous analysis, Analog Demodulation Analyzer, Pulse Signal Analyzer, Phase Noise Measurement etc. 4051 can provide comprehensive diagnosis service for transmitter and receiver measurement.

Can be directly used for the integration of ATE, and provide signal output, data output and result analysis for the system.

The application of electromagnetic signal RF streaming: it can be applied to signal data recording space, electromagnetic spectrum environment acquisition and recording in the process of large-scale weapon and equipment measurement.

Specification

Frequency Range	Model	DC Coupling	AC Coupling
	4051 A	3Hz~4GHz	10MHz~4GHz
	4051 B	3Hz~9GHz	10MHz~9GHz
	4051 C	3Hz~13.2GHz	10MHz~13.2GHz
	4051 D	3Hz~18GHz	10MHz~18GHz
	4051 E	3Hz~26.5GHz	10MHz~26.5GHz
	4051 F	3Hz~40GHz	10MHz~40GHz
	4051 G	3Hz~45GHz	10MHz~45GHz
	4051 H	3Hz~50GHz	10MHz~50GHz
	4051 L	3Hz~67GHz	/
	4051 N	3Hz~85GHz	/
10MHz Frequency Reference	Frequency Accuracy: ±(up to the last calibration date × aging rate+temperature stability+calibration accuracy)		
	Aging Rate: $\pm 1\times10^{-7}$/year		
	Temperature Stability: $\pm 1.5\times10^{-8}$ (20°C~30°C); $\pm 5\times10^{-8}$ (0°C~55°C)		
	Calibration Accuracy: $\pm 4\times10^{-8}$		
Frequency Reading Accuracy	±(frequency reading × frequency reference accuracy+0.1% bandwidth+5% resolution bandwidth+2Hz+0.5 horizontal resolution*) **Horizontal resolution=bandwidth/(scan points -1)*		
Frequency Counting Accuracy	±(frequency reading×Frequency reference accuracy+0.1Hz)		
Span	Range: 0Hz (zero span), 10Hz~ the highest frequency of the model		
	Accuracy: ±(0.1%×span+span/(sweep points number-1))		
Sweep Time Range	span ≥10Hz: 1ms~6000s		
	span =0Hz: 1us~6000s		

Resolution Bandwidth	Range: 1Hz~3MHz (1, 2, 3, 5 steps) 4, 5, 6, 8, 10, 20MHz (rated value)		
	Conversion Uncertainty: ± 0.30dB 1 Hz 10MHz ± 1.00dB 20MHz		
Video Bandwidth	1Hz~3MHz (1, 2, 3, 5 steps) 4, 5, 6, 8, 10, 20MHz (rated value)		
Signal Analysis Bandwidth	10Hz~10MHz (standard), 40MHz (option H38A), 200MHz (option H38B), 550MHz(option H38C), 1GHz(option H38D)		
Trigger Source	Free, Line, video, External Level (front panel),External Level (back panel), Burst RF, Timer		
Trace Detector	Normal, Positive Peak, Negative Peak, Sample,Video Average,Power Average, Voltage Average		
SSB Phase Noise (Carrier 1GHz, 20°C to 30°C)	Frequency Offset	Nominal	Typical Value
	100Hz	-96dBc/Hz	-105dBc/Hz
	1kHz	-115dBc/Hz	-118dBc/Hz
	10kHz	-125dBc/Hz	-129dBc/Hz
	100kHz	-125dBc/Hz	-129dBc/Hz
Residual FM (central frequency 1GHz, resolution bandwidth 10Hz, video bandwidth 10Hz)	≤(0.25 Hz x N) p-p, the rated value within 20ms N is the number of frequency multiple times of LO		
DANL (the input end is connected to match load, sampleor average wave detection, the average type is logarithm, 0dBinput attenuation, RF gain takes the DANL as the priority, 20°C ~ 30°C)	4051A/B/C/D/E/F /G/H		
	Frequency Range	Nominal	Typical Value
	10MHz~1GHz	-153dBm	-156dBm
	1GHz~2GHz	-151dBm	-154dBm
	2GHz~3GHz	-150dBm	-153dBm
	3GHz~3.6GHz	-148dBm	-151dBm
	3.6GHz~4GHz	-145dBm	-148dBm
	4GHz~5GHz	-148dBm	-152dBm
	5GHz~9GHz	-150dBm	-152dBm
	9GHz~18GHz	-148dBm	-151dBm
	18GHz~26.5GHz	-143dBm	-146dBm
	26.5GHz~40GHz	-138dBm	-144dBm
	40GHz~50GHz	-133dBm	-141dBm
	4051L /N		
	Frequency Range	Nominal	Typical Value
	10MHz~1GHz	-153dBm	-155dBm
	1GHz~2GHz	-151dBm	-153dBm
	2GHz~3GHz	-148dBm	-150dBm
	3GHz~3.6GHz	-147dBm	-148dBm
	3.6GHz~4GHz	-143dBm	-145dBm
	4GHz~5GHz	-144dBm	-147dBm
	5GHz~9GHz	-145dBm	-147dBm
	9GHz~18GHz	-145dBm	-148dBm
	18GHz~26.5GHz	-141dBm	-143dBm
	26.5GHz~40GHz	-135dBm	-138dBm
	40GHz~50GHz	-131dBm	-135dBm
	50GHz~67GHz	-131dBm	-135dBm
	67GHz~72GHz	-124dBm	-128dBm
	72GHz~85GHz	-131dBm	-135dBm
	4051A/B/C/D/E/F/G/H /L		
	Frequency Range	With Preamplifier (on)	With preamplifier (on)(typical)
	10MHz~1GHz	-162dBm	-164dBm
	1GHz~2GHz	-162dBm	-165dBm
	2GHz~3GHz	-160dBm	-164dBm
	3GHz~3.6GHz	-156dBm	-163dBm

DANL
(the input end is connected to match load, sampleor average wave detection, the average type is logarithm, 0dBinput attenuation, RF gain takes the DANL as the priority, 20°C ~ 30°C)

Frequency Range	With Preamplifier (on)	With preamplifier (on)(typical)
3.6GHz~4GHz	-155dBm	-162dBm
4GHz~5GHz	-155dBm	-164dBm
5GHz~9GHz	-155dBm	-164dBm
9GHz~18GHz	-154dBm	-160dBm
18GHz~26.5GHz	-154dBm	-157dBm
26.5GHz~40GHz	-150dBm	-152dBm
40GHz~50GHz	-145dBm	-150dBm
50GHz~67GHz	-145dBm	-150dBm

Frequency Response & Absolute Amplitude Accuracy
(10dB attenuation, 20°C ~ 30°C)

Frequency Range	Nominal	Typical Value
3Hz~20MHz	±0.7dB	±0.5dB
20MHz~2GHz	±0.5dB	±0.4dB
2GHz~3.6GHz	±0.7dB	±0.5dB
3.6GHz~4GHz	±1.0dB	±0.8dB
4GHz~9GHz	±1.5dB	±0.9dB
9GHz~18GHz	±2.0dB	±1.0dB
18GHz~26.5GHz	±2.5dB	±1.2dB
26.5GHz~40GHz	±3.0dB	±1.8dB
40GHz~50GHz	±3.0dB	±2.0dB
50GHz~67GHz	±3.5dB	±3.0dB
67GHz~85GHz	±4.0dB	±3.0dB

Frequency range	Preamplifier on/off	Preamplifier on/off (typical)
3Hz~20MHz	±1.2dB/±1.5dB	±0.6dB/±0.6dB
20MHz~2GHz	±1.0dB/±1.5dB	±0.6dB/±0.8dB
2GHz~3.6GHz	±1.2dB/±1.5dB	±0.6dB/±0.9dB
3.6GHz~4GHz	±1.5dB/±1.8dB	±1.0dB/±1.2dB
4GHz~9GHz	±2.0dB/±2.5dB	±1.3dB/±1.5dB
9GHz~18GHz	±2.5dB/±3.0dB	±1.5dB/±1.6dB
18GHz~26.5GHz	±3.0dB/±3.5dB	±1.6dB/±1.8dB
26.5GHz~40GHz	±3.5dB/±4.0dB	±2.2dB/±2.3dB
40GHz~67GHz	±3.5dB/±4.0dB	±2.4dB/±2.6dB

Absolute Amplitude Accuracy (10dB attenuation, 20°C~30°C,1 Hz≤resolution bandwidth≤1MHz input signal -10~-50 dBm):

±0.24dB	500MHz
±(0.24dB+frequency response)	all frequency

1dB Gain Compression
(mixer level, dual-tone test, resolution bandwidth is 5kHz, 3MHzfrequency interval, 20°C ~ 30°C)

Frequency range	Feature
20MHz~40MHz	-3dBm
40MHz~200MHz	+1dBm
200MHz~4GHz	+3dBm
4GHz~9GHz	-1dBm
9GHz~50GHz	+1dBm
50GHz~85GHz	-1dBm

TOI Distortion
(input mixer 2 -10 dBm signal test, frequency interval is 50kHz, 20°C ~ 30°C)

Frequency range	Feature	Typical
10MHz~200MHz	+13dBm	+15dBm
200MHz~4GHz	+13dBm	+16dBm
4GHz~9GHz	+11dBm	+15dBm
9GHz~18GHz	+13dBm	+15dBm
18GHz~50GHz(L Type)	+13dBm	+17dBm
50GHz~67GHz	+9dBm	+11dBm
67GHz~85GHz	+9dBm	+11dBm

Residual Response (the input end is connected to match load, 0 dB attenuation)	-100dBm	200kHz~9GHz
	-100dBm(rated value)	other frequency
Dimensions	W × H × D 510mm×190m m ×534mm (includin g handle, foot pad, bottom feet)	
	W × H × D = 426mm×177mm×460mm (excluding handle, foot pad, bottom feet)	
Weight	A bout 25kg (different configuration cause different	
Power Supply	Standard: AC 220~240V,50~60Hz	
	4051 H98: AC 100~240V,50~60Hz	
Power Consumption	Standby: less than 20W; Operating: less than 400W	
Temperature Range	Operating temperature: 0°C ~ +50°C; Storage temperature: 40°C ~ +70°C	
Input Connector	4051A/B/C/D: type N (female), impedance:50Ω	
	4051E: 3.5mm(male), impedance: 50Ω	
	4051F/4051G/4051H: 2.4mm(male), impedance: 50Ω	
	4051L: 1.85mm (male), impedance: 50Ω	
	4051N:1.0mm (male), impedance: 50Ω	

Notes:

1. Rated valuesreferto the estimated performance, or the performance which is useful for the productbeyond the warrant range.
2. Typical value refers to other performance information beyond the product guaranteerange; when the performance is over the technical index, 80% of the samples will present 95% confidence within 20°C ~ 30°Ctemperature range; typical performance excludes test uncertainty

Ordering Information

Model

Model	Name	Description
4051A	Signal/ Spectrum Analyzer	3Hz~4GHz
4051B	Signal/ Spectrum Analyzer	3Hz~9GHz
4051C	Signal/ Spectrum Analyzer	3Hz~13.2GHz
4051D	Signal/ Spectrum Analyzer	3Hz~18GHz
4051E	Signal/ Spectrum Analyzer	3Hz~26.5GHz
4051F	Signal/ Spectrum Analyzer	3Hz~40GHz
4051G	Signal/ Spectrum Analyzer	3Hz~45GHz
4051H	Signal/ Spectrum Analyzer	3Hz~50GHz
4051L	Signal/ Spectrum Analyzer	3Hz~67GHz
4051N	Signal/ Spectrum Analyzer	3Hz~85GHz
4051N	Signal/ Spectrum Analyzer	3Hz~90GHz (Option H90)

Standard

No.	Name	Description
1	Power cord	Standard three core power cord
2	USB mouse	/
3	User manual	/
4	Programming manual	/

Options

Option Model	Name	Description
4051-H01	Back RF input	To post position the RF signal input interface
4051-H02	High IF output	Output secondary IF signal, output frequency range is 275MHz ~ 475MHz, steps resolution is 1Hz.
4051-H03	IF output	Output third IF signal, output frequency range is 10MHz ~ 160MHz, steps resolution is 1Hz
4051-H04A	Reconstruct IF/Video Signal Output	To realize IF, AM/FM or I/Q signal output in form of digital reconstruction, the bandwidth upper limit is 40MHz. (Notes: H04A and H04B can be selected at the same time)
4051-H04B	Wide band Reconstruct IF/Video Signal Output	To realize IF, AM/FM or I/Q signal output in form of digital reconstruction, bandwidth range is 50MHz~100MHz. (Notes: H04B can only be selected when option H38B with 200MHz broadband is selected; H04A and H04B can be selected together)
4051-H08	Wide Log Detect Output	To output the logarithm wave-detection signal which can reflect the input signal level characteristics
4051-H12A	40MHz bandwidth digital interface	To output real-time broadband collecting data through optical fiber, support max. 400MHz bandwidth signal data output. (Notes: H12A cannot be selected when H38B has been selected; once this option is selected,H12B and H39 cannot be selected)
4051-H12B	200MHz bandwidth digital interface	To output real-time broadband collecting data through optical fiber, support max. 200MHz bandwidth signal data output. (Notes: H12B can only be selected when option H38B with 200MHz broadband is selected (once this option is selected, H12B and H39 cannot be selected)
4051-H12C	550MHz bandwidth digital interface	To output real-time broadband collecting data through optical fiber, support max. 550MHz bandwidth signal data output. (Notes: H12C can only be selected when option H38C with 550MHz broadband is selected (once this option is selected,H12A, H12B and H39 cannot be selected)
4051-H15	+24V DC power supply	+24V DC power supply
4051-H22A	4711 Data Recorder	Configured with SSD Data Recorder (have same interface characteristics) to realize real-time large-capacity recording of signal data. (Notes: A22A can only be selected together with H12A or H12B. For the recorder capacity selection, please refer to 4711 recorder data sheet).
4051-H22B	4712 Data Recorder	Configured with HDD Data Recorder (have same interface characteristics) to realize real-time large-capacity recording of signal data. (Notes: A22B can only be selected together with H12A or H12B. For the recorder capacity selection, please refer to 4712recorder data sheet).
4051-H33	Electronic Attenuator	Frequency range: 3Hz~4GHz, attenuation range:30dB, 1dB steps.
4051-H34-04 4051-H34-09 4051-H34-13 4051-H34-18 4051-H34-26 4051-H34-40 4051-H34-45 4051-H34-50 4051-H34-67	Low-noise Preamplifier	Can select low-waveband preamplifier or full-waveband preamplifier. When you select full-waveband preamplifier, we provide above 4 GHz frequency band noise optimization path. (Notes: the No. of low-waveband preamplifier is H34-04. The full-waveband preamplifier should be selected according to the frequency upper limit of the main unit. For example, the max. frequency of 4051E is 26.5GHz, then the full-waveband preamplifier H34-26 should be selected)
4051-H36	Pre-selector Bypass	The tracking pre-selector in the bypass receiving channel. (Notes: option H36 is needed together with H38A or H38B to provide the best wideband signal receiving characteristics)
4051-H38A	40MHz Analysis Bandwidth	Support 10Hz~40MHz analysis bandwidth. (Notes: option H38B and option H36 should be selected together to provide the best wideband signal receiving characteristics, H38B and H38A are no need to be selected at the same time)
4051-H38B	200MHz Analysis Bandwidth	Support 10Hz~200MHz analysis bandwidth. (Notes: option H38B and option H36 should be selected together to provide the best wideband signal receiving characteristics)
4051-H38C	550MHz Analysis Bandwidth	Support 10Hz~550MHz analysisbandwidth.(Notes: option H38C and option H36 should be selected together to provide the best wideband signal receiving characteristics, H38B and H38C are no needto be selected at the same time)
4051-H38D	1GHz Analysis Bandwidth	Support 10Hz~1GHz analysis bandwidth.(Notes: option H38D and option H36 should be selected together to provide the best wideband signal receiving characteristics, H38B and H38C are no need to be selected at the same time)

Option Model	Name	Description
4051-H39	External Mixer	Realize audio frequency signal parameter measurement, distortion measurement and waveform analysis (Notes: option H12A and H12B cannot be selected when selecting this option)
4051-H40	Real-time Spectrum Analyzer	To extend the frequency range using external frequency mixing method. This option provides LO output and IF input, as well as signal recognition ability. (Notes: this option can be selected when the main unit is not 4051A: the extended frequency range depends on the selected extension modules; the frequency extension module needs to buy additionally)
4051-H41	Noise Figure	This option provides digital phosphor spectrum and seamless waterfall, including frequency template trigger, which can support real-time spectrum analysis of 200MHz bandwidth.(Notes: Max. real-time analysis bandwidth depends on 4051-H38A, 4051-H38B options.)
4051-H48	Phase Noise Measurement	Noise source drive and noise figure measurement function (4051L exception)(Notes: H34 low-noise preamplifier option and corresponding 1660X noise source sensor needed)
4051-S04	Analog Demodulation	SSB phase noise curves and single-point phasenoise measurement.
4051-S09	Analyzer	Modulation characteristics and distortion characteristics analysis of AM, FM, PM signals
4051-S10	Transient Analyzer	To realize the measurement & analysis of transient parameters, spectrum, and time-varying characteristics of signals, support playback of the recorded data.
4051-S12	Vector Signal Analyzer	This option provides flexible demodulation functions of multiple single-carrier digital modulation signals. It can provide vector charts, constellation diagrams, eye diagrams, spectrum diagrams, etc., to analyze the characteristics of the modulation signal. The modulation error of the signal can be obtained by demodulation, which helps to judge the cause of the signal error.
4051-S13	Pulse Signal Analyzer	Automatic measurement on time, level and modulation parameters of pulse waveform and statistical analysis of pulse sequence
4051-S40	WLAN802.11a/b/g Measurement	Broadband wireless local area network protocol physical layer test (802.11a/ b/g), covering radio frequency, modulation analysis, and modulation quality testing.
4051-S40N	WLAN802.11n Measurement	Broadband wireless local area network protocol physical layer test (802.11n), covering radio frequency, modulation analysis, and modulation quality testing.
4051-S40AC	WLAN802.11ac Measurement	Broadband wireless local area network protocol physical layer test (802.11ac), covering radio frequency, modulation analysis, and modulation quality testing.
4051-S40AX	WLAN802.11ax Measurement	Broadband wireless local area network protocol physical layer test (802.11a x), covering radio frequency, modulation analysis, and modulation quality testing.
4051-S51	DTMB Signal Measurement	Provides one button power and modulation in compliance with DTMB standards Analysis function.
4051-H90	Coaxial Frequency Extension	Extend the 4051N coaxial frequency coverage to 90GHz
4051-H97	Mounting Suit	Handles and accessories for 4 051 mounting on standard racks
4051-H98	English Options	English panels,user manual, operation interface,and operation system. Power supply: AC 100/115V 50/60/400Hz; AC 220/240V 50/60Hz
4051-H99	Aluminum Transportation Case	High-strength lightweight aluminum transportation case, with handle and roller, convenient for transportation

Power Sensor Options

Option Model	Description
87230 USB CW power sensor	9kHz~6GHz
87231 USB CW power sensor	10MHz~18GHz
87232 USB CW power sensor	50MHz~26.5GHz
87233 USB CW power sensor	50MHz~40GHz

Millimeter Wave Extender Options (4051-H40 required)

Option Model	Description
82407 spectrum analyzer extender	50GHz~75GHz
82407A spectrum analyzer extender	75GHz~110GHz
82407B spectrum analyzer extender	110GHz~170GHz
82407C spectrum analyzer extender	170GHz~220GHz
82407D spectrum analyzer extender	220GHz~325GHz
82407R spectrum analyzer extender	325GHz~500GHz

Noise Source Options (4051-H48, 4051-H34 required)

Option Model	Description
16603DB Noise source	10MHz~18GHz
16603EB Noise source	10MHz~26.5GHz
16603FB Noise source	10MHz~40GHz
16603HB Noise source	10MHz~50GHz

Quality&**Precise**

MAXWELLON 4082

2Hz~8.4GHz/18GHz/26.5GHz/45GHz/50GHz/67GHz/90GHz/110GHz

Signal/ Spectrum Analyzer

2023

MAXWELLON

4082 series Signal/Spectrum Analyzer is a new signal/Spectrum analyzer product launched by Maxwellon.

It has excellent RF performance in DANL, Phase Noise, Intermodulation Suppression, Dynamic Range, Amplitude Accuracy, and Testing Speed. It Has Powerful Spectrum Analysis, Standard Power Measurement Suite, I/Q Analysis, Transient Analysis, Pulse Signal Analysis, Real-Time Spectrum Analysis, Analog Modulation Analysis, Vector Signal Analysis and other measurement functions.

Good scalability, capable of building test systems or conducting secondary development through various digital and analog output interfaces. The analysis bandwidth of up to 2GHz, combined with corresponding software analysis options, meets your stringent requirements for signal and equipment testing in fields such as mobile communication, satellite communication, Internet of Things, and semiconductors.

Key Feature

- 2Hz~110GHz Broadband Coaxial Coverage (External Spread Spectrum Can Reach 750ghz)
- Phase Noise: -134dBc/Hz (1GHz Carrier At 10KHz Frequency Offset)
- Built In 2GHz Analysis Bandwidth
- 2GHz Bandwidth I/Q Data Stream Interface
- Abundant Wireless Communication Signal Analysis Functions
- Powerful Satellite Rf Testing Function
- Comprehensive Pulse Signal Analysis Function
- 15.6 Inch Multi-Mode On Screen Display, Multi-Touch Operation

Excellent Spectrum Measurement Performance

Ultra Wide Frequency Coverage

The frequency measurement range covers 2Hz~110GHz, meeting the testing requirements from RF to millimeter wave.

110GHz Full Band Mirror Suppression

Equipped with a preselector in the full frequency range, it can effectively suppress mirroring and interference.

Excellent Low-Frequency Signal Measurement

The frequency band below 30MHz adopts RF direct acquisition technology, which has better low-frequency signal measurement capabilities.

Extremely Low DANL

1GHz: -154dBm/Hz; -167dBm/Hz (preamplifier on); -172 dBm/Hz (turning on the noise cancellation function)
110GHz: -140dBm/Hz

Excellent Phase Noise Performance

Excellent phase noise performance, it can meet the extreme requirements of users in communication signal measurement. 1GHz carrier, with a frequency offset of 1kHz, the phase noise is better than -125dBc/Hz; 10kHz frequency offset, with phase noise better than -134dBc/Hz.

Measurement results of DANL (101GHz~110GHz)

1.2GHz Analysis Bandwidth

Multiple Analysis Bandwidth Configuration Options

Provide a total of 7 bandwidth configuration options, including 10MHz/40MHz/200MHz/400MHz/600MHz/1.2GHz/2GHz, to meet the needs of different testing application scenarios such as 5G NR and WLAN.

Excellent SFDR

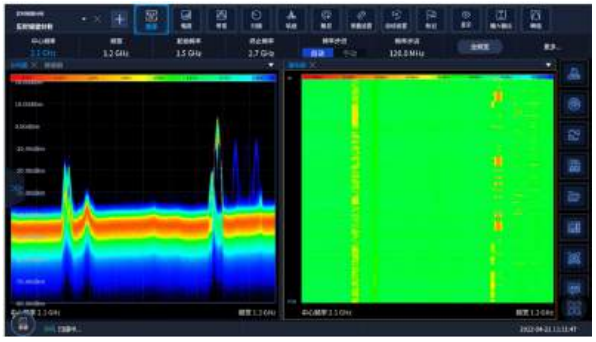
-75dBc(at 200MHz analysis bandwidth)

-65dBc(at 1.2GHz analysis bandwidth)

-55dBc(at 2GHz analysis bandwidth)

1.2GHz Real-Time Analysis Bandwidth

Real time spectrum analysis of 1.2GHz bandwidth, the shortest duration of 100% probability of interception (POI) signal is better than 0.28 μs. Can be used for capturing and measuring various transient burst signals such as pulse signals, burr signals, intermittent signals, etc



Real Time Spectrum Analysis Interface

Comprehensive Spectrum Analysis Capabilities

Frequency Sweep and FFT

Sweep points can be selected between 101 and 120001, with a maximum sweep time of 16000s, Zero bandwidth minimum sweep time 1 μs

.

Abundant Track and Detection Modes

It supports 6 track configurations, 6 detection modes and 3 average types, has abundant mark measurement functions such as noise marking, bandwidth power, power Spectral density, and supports track statistics, automatic track saving and calling.

Waterfall Chart Display of Historical Tracks

Supports saving 10000 frames of waterfall plot tracks, clearly displaying the changes in signal spectrum.

One Click Power Measurement Kit

Equipped with testing functions such as bandwidth occupation, adjacent/channel power, power statistics, burst power, harmonic distortion, third-order intermodulation, spurious emission, spectrum emission mask, etc.

Adjacent channel power measurement interface

Abundant Wireless Communication Signal Analysis Functions

5G NR Signal Analysis

The 5G NR measurement function can perform in band demodulation analysis on the 5G NR uplink and downlink signals of 3GPP Rel 15 and Rel 16 versions. It supports two duplex modes, FDD and TDD, QPSK to 256QAM modulation formats, Test Model and custom parameter settings, and provides measurement results such as error vector amplitude (EVM), frequency error, and power for different channels and signals. It has constellation diagrams, error summary tables Various display graphs such as resource allocation.

LTE,NB-IoT,WCDMA,GSM Signal Analysis

Paired with Maxwellonr's dedicated protocol analysis software, it can perform in band modulation analysis on LTE, LTE-Advanced, NB IoT, WCDMA, GSM, EDGE communication signals, providing various measurement results such as EVM, constellation diagram, frequency error, etc.

Analysis of Out of Band Characteristics

In terms of out of band measurement, it can provide a wide range of standards and limit line one click setting capabilities, and efficiently perform measurements such as Adjacent Channel Leakage Ratio (ACLR) and Spectrum Emission Mask (SEM).

5G NR signal analysis interface

Comprehensive Pulse Signal Analysis Function

Abundant Pulse Parameter Measurement

Pulse signal spectrum and time domain characteristic test can simultaneously analyze and display pulse parameters such as pulse width, pulse period, pulse rise and Fall time time, pulse power drop, peak power, minimum power, top value, bottom value, pulse amplitude, pre shock, overshoot, peak frequency error, effective value of frequency error, frequency offset, etc

Intrapulse Characteristic Analysis

Detailed analysis of amplitude, intra pulse frequency/phase characteristics, and spectral characteristics can be performed on any selected pulse.

Interpulse Characteristic Analysis

Equipped with pulse parameter trend analysis and statistical analysis functions, it can analyze the trend and distribution characteristics of inter pulse characteristic parameters.

Pulse signal analysis interface

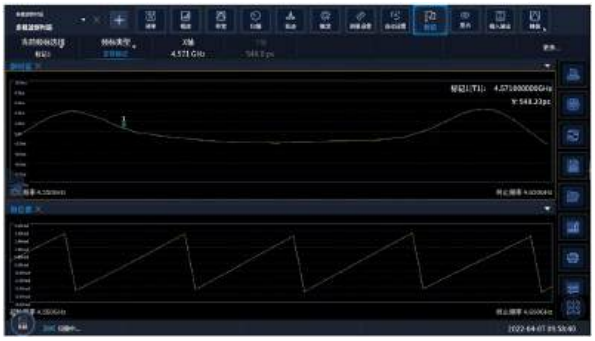
Powerful Satellite RF Testing Function

Multi Carrier Group Delay Measurement

Quickly measure the absolute and relative group delay of components such as satellite frequency converters and transponders. Measure the frequency response of the tested equipment and display the relationship between amplitude, phase, group delay, and frequency.

Measurement of Noise Power Ratio

Conveniently and intuitively measure the noise power ratio of broadband systems, thereby helping to measure the extent to which idle channels are affected when multiple channels are occupied.



Multi carrier group delay measurement interface

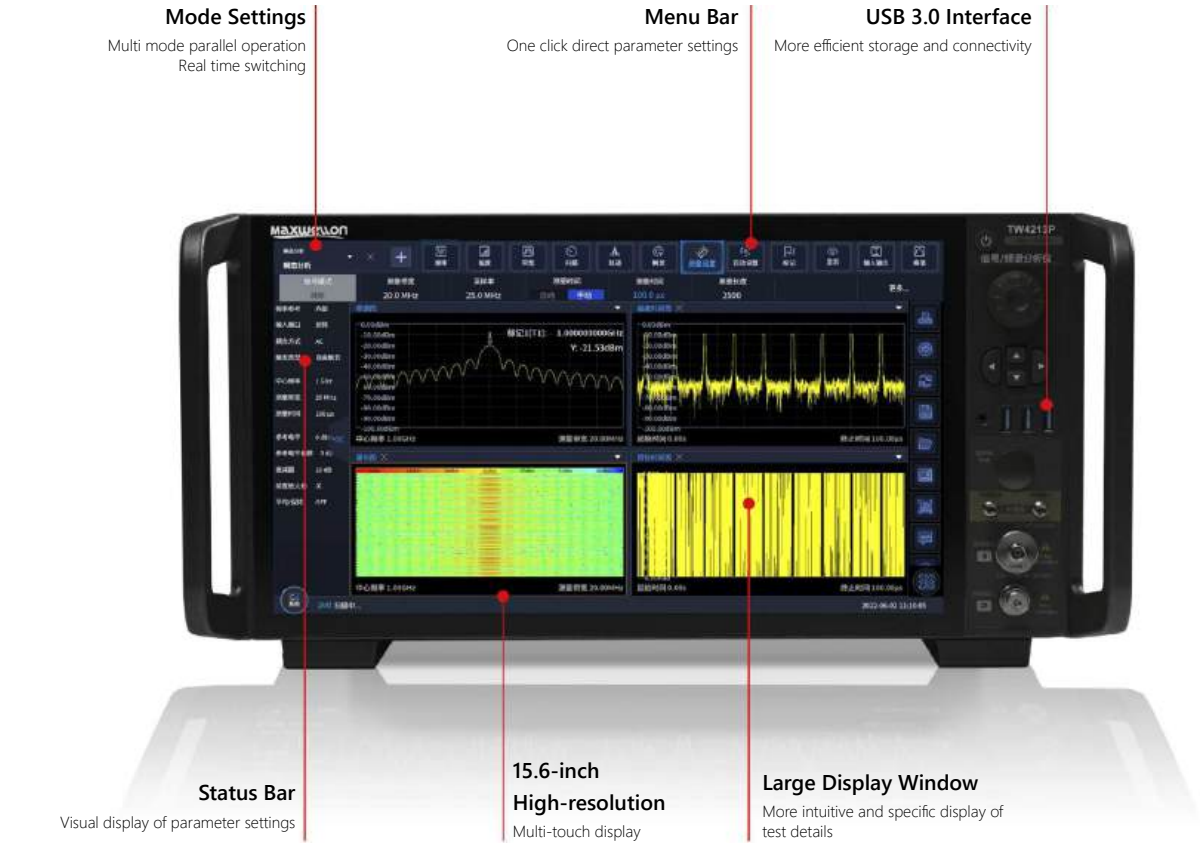
Large Touch Screen For More Convenient Operation

High Performance Processor, Large Memory

i7 processor and 16GB of memory, it runs smoother and ensures efficient long-term testing.

15.6-inch Large Touch Screen

A variety of measurement results can be seen at a glance, supporting Multi-touch, simple and efficient operation. Support dynamic adjustment of interface area layout and customization of menus. Multiple measurement modes run and display in parallel, with convenient and flexible mode switching.



Forward-looking Interface Configuration

Two Coupling Methods of AC/DC

Support both AC/DC coupling modes can reach up to 67GHz, providing flexible selection of RF input ports in higher frequency bands.

10 Gigabit Network Control Interface

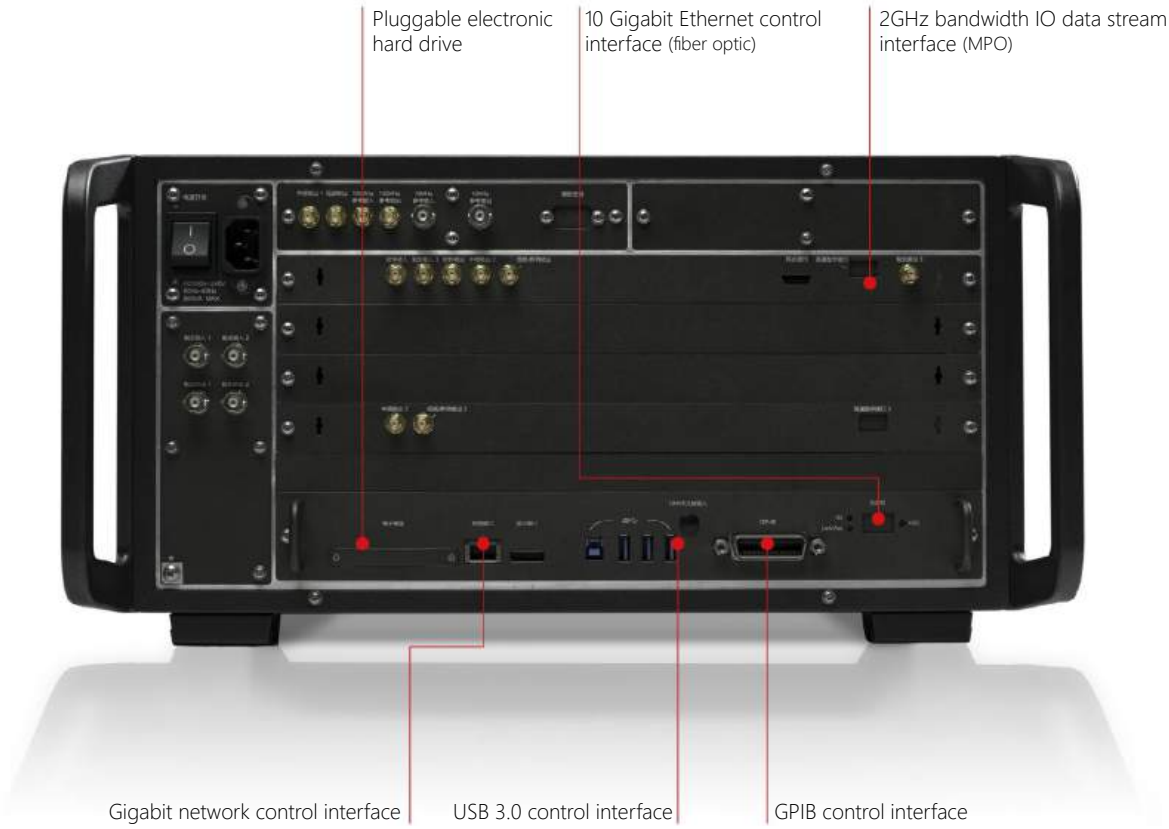
Configurable 10 Gigabit Ethernet interface, providing you with higher bandwidth, faster rate, and more stable data transmission.

4TB built-in Electronic Hard Drive

It can be equipped with a built-in 4TB electronic hard drive, providing convenience for storing massive data during the measurement process.

Fiber Optic Interface With 2GHz Bandwidth

Configurable with a 2GHz ultra wideband digital interface, achieving real-time broadband data acquisition and output with a 2GHz bandwidth.



Specification

Frequency Range	Model	DC Coupling	AC Coupling
	4082B	2Hz~8.4GHz	10MHz~8.4GHz
	4082D	2Hz~18GHz	10MHz~18GHz
	4082E	2Hz~26.5GHz	10MHz~26.5GHz
	4082F	2Hz~45GHz	10MHz~45GHz
	4082H	2Hz~50GHz	10MHz~50GHz
	4082L	2Hz~67GHz	10MHz~67GHz
	4082N	2Hz~90GHz	/
	4082P	2Hz~110GHz	/
10MHz Frequency Reference	Frequency Accuracy: ±(up to the last calibration date × aging rate+temperature stability+calibration accuracy)		
	Aging Rate: $\pm 5\times10^{-10}$/day		
	Temperature Stability: $\pm 5\times10^{-8}$		
Frequency Reading Accuracy	±(frequency reading × frequency reference accuracy+0.1% bandwidth+5% resolution bandwidth+2Hz+0.5 horizontal resolution*) **Horizontal resolution=bandwidth/(scan points -1)*		
Frequency Counting Accuracy	±(frequency reading × Frequency reference accuracy+0.1Hz)		
Bandwidth	Range: 0Hz (zero bandwidth), 10Hz to the highest frequency range of this model		
	Accuracy: ± (0.1%) × Bandwidth+Bandwidth/(Sweep Points -1)		
Sweep Time Range	Bandwidth ≥ 10Hz: 3μs~16000s		
	Bandwidth=0Hz: 1μS~16000s		
Sweep Points	101~120001		
Resolution Bandwidth	Range: 0.1Hz~20MHz (1, 2, 3, 5 steps)		
	Conversion Uncertainty(Based on RBW=300kHz as a reference): ± 0.10dB 1Hz~1MHz (1, 2, 3, 5 steps) ± 0.30dB 2MHz~10MHz (1, 2, 3, 5 steps) ± 1.00dB 20MHz		
Analyze Bandwidth	Standard configuration: 10MHz		
	Option H38-40: 40MHz		
	Option H38-200:200MHz		
	Option H38-400:400MHz		
	Option H38-600:600MHz		
	Option H38-1200:1.2GHz		
	Option H38-2000:2GHz		
Video Bandwidth	1Hz~20MHz (1, 2, 3, 5 steps)		
Trigger Method	Freedom, Power, Video, External Trigger 1/2, Timer		
Detection Mode	Normal, Positive Peak, Negative Peak, Sampling, Video Averaging, Power Averaging, Voltage Averaging		
Phase Noise (Carrier 1GHz, 20°C to 30°C)	Frequency Offset	Nominal	Typical Value
	100Hz	-107dBc/Hz	-115dBc/Hz
	1kHz	-125dBc/Hz	-128dBc/Hz
	10kHz	-134dBc/Hz	-135dBc/Hz
	100kHz	-136dBc/Hz	-137dBc/Hz
	1MHz	-138dBc/Hz	-140dBc/Hz
	10MHz	-152dBc/Hz	-154dBc/Hz
Residual FM	≤ 0.25Hz × N (10Hz resolution bandwidth, 10Hz video bandwidth, rated value within 20 ms, specific N values refer to harmonic frequency division)		

DANL

(Input terminal matching load, trajectory average, average type is video average, detection method is video average detection, 0dB input attenuation, normalized to 1Hz RBW, 20°C~30°C)

4082B preamplifier off

Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤ 100MHz	-149dBm	-151dBm
100MHz<f ≤ 1.2GHz	-152dBm	-154dBm
1.2GHz<f ≤ 2.2GHz	-151dBm	-153dBm
2.2GHz<f ≤ 3.25GHz	-150dBm	-153dBm
3.25GHz<f ≤ 5.25GHz	-148dBm	-150dBm
5.25GHz<f ≤ 6.5GHz	-144dBm	-148dBm
6.5GHz<f ≤ 8.4GHz	-142dBm	-145dBm

4082B preamplifier on

Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤ 100MHz	-156dBm	-158dBm
100MHz<f ≤ 3.25GHz	-161dBm	-163dBm
3.25GHz<f ≤ 5.25GHz	-160dBm	-162dBm
5.25GHz<f ≤ 8.4GHz	-156dBm	-159dBm

4082D/E/F/H preamplifier off

Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤ 100MHz	-147dBm	-150dBm
100MHz<f ≤ 1.2GHz	-151dBm	-153dBm
1.2GHz<f ≤ 2.2GHz	-150dBm	-152dBm
2.2GHz<f ≤ 3.25GHz	-148dBm	-150dBm
3.25GHz<f ≤ 5.25GHz	-145dBm	-148dBm
5.25GHz<f ≤ 6.5GHz	-142dBm	-147dBm
6.5GHz<f ≤ 8.2GHz	-140dBm	-143dBm
8.2GHz<f ≤ 18GHz	-143dBm	-145dBm
18GHz<f ≤ 26.5GHz	-137dBm	-141dBm
26.5GHz<f ≤ 40GHz	-130dBm	-133dBm
40GHz<f ≤ 50GHz	-127dBm	-129dBm

4082D/E/F/H preamplifier on

Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤100MHz	-155dBm	-158dBm
100MHz<f ≤ 3.25GHz	-162dBm	-164dBm
3.25GHz<f ≤ 5.25GHz	-160dBm	-163dBm
5.25GHz<f ≤ 8.4GHz	-156dBm	-158dBm
8.2GHz<f ≤ 18GHz	-157dBm	-159dBm
18GHz<f ≤ 26.5GHz	-154dBm	-156dBm
26.5GHz<f ≤ 40GHz	-151dBm	-153dBm
40GHz<f ≤ 50GHz	-148dBm	-151dBm

4082L preamplifier off

Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤ 100MHz	-147dBm	-150dBm
100MHz<f ≤ 1.2GHz	-150dBm	-152dBm
1.2GHz<f ≤ 2.2GHz	-149dBm	-152dBm
2.2GHz<f ≤ 3.25GHz	-148dBm	-150dBm
3.25GHz<f ≤ 5.25GHz	-145dBm	-148dBm
5.25GHz<f ≤ 6.5GHz	-142dBm	-149dBm
6.5GHz<f ≤ 8.2GHz	-140dBm	-143dBm
8.2GHz<f ≤18GHz	-143dBm	-145dBm
18GHz<f ≤ 26.5GHz	-137dBm	-141dBm

DANL

(Input terminal matching load, trajectory average, average type is video average, detection method is video average detection, 0dB input attenuation, normalized to 1Hz RBW, 20°C~30°C)

4082L preamplifier off		
Frequency Range	Nominal	Typical Value
26.5GHz<f ≤ 40GHz	-130dBm	-133dBm
40GHz<f ≤ 50GHz	-127dBm	-129dBm
50GHz<f ≤ 54.8GHz	-135dBm	-139dBm
54.8GHz<f ≤ 63.6GHz	-133dBm	-137dBm
63.6GHz<f ≤ 67GHz	-131dBm	-135dBm
4082L preamplifier on		
Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤100MHz	-157dBm	-160dBm
100MHz<f ≤ 3.25GHz	-162dBm	-164dBm
3.25GHz<f ≤ 5.25GHz	-161dBm	-163dBm
5.25GHz<f ≤ 8.2GHz	-154dBm	-156dBm
8.2GHz<f ≤ 18GHz	-156dBm	-159dBm
18GHz<f ≤ 26.5GHz	-154dBm	-157dBm
26.5GHz<f ≤ 40GHz	-151dBm	-153dBm
40GHz<f ≤ 48GHz	-145dBm	-150dBm
48GHz<f ≤ 54.8GHz	-146dBm	-152dBm
54.8GHz<f ≤ 63.6GHz	-142dBm	-148dBm
63.6GHz<f ≤ 67GHz	-140dBm	-143dBm
4082N/P preamplifier off, RF Port 2		
Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤ 100MHz	-145dBm	-148dBm
100MHz<f ≤ 1.2GHz	-148dBm	-149dBm
1.2GHz<f ≤ 2.2GHz	-146dBm	-148dBm
2.2GHz<f ≤ 3.25GHz	-144dBm	-147dBm
3.25GHz<f ≤ 5.25GHz	-141dBm	-146dBm
5.25GHz<f ≤ 6.5GHz	-140dBm	-146dBm
6.5GHz<f ≤ 8.2GHz	-138dBm	-141dBm
8.2GHz<f ≤ 18GHz	-141dBm	-143dBm
18GHz<f ≤ 26.5GHz	-135dBm	-139dBm
26.5GHz<f ≤ 40GHz	-127dBm	-133dBm
40GHz<f ≤ 50GHz	-122dBm	-125dBm
50GHz<f ≤ 54.8GHz	-133dBm	-135dBm
54.8GHz<f ≤ 63.6GHz	-130dBm	-133dBm
63.6GHz<f ≤ 67.2GHz	-128dBm	-131dBm
67.2GHz<f ≤ 74GHz	-138dBm	-141dBm
73.8GHz<f ≤ 82.8GHz	-143dBm	-145dBm
82.6GHz<f ≤ 91.6GHz	-142dBm	-144dBm
91.4GHz<f ≤ 99.6GHz	-141dBm	-144dBm
99.4GHz<f ≤ 110GHz	-138dBm	-141dBm
4082N/P preamplifier on, RF Port 1		
Frequency Range	Nominal	Typical Value
10MHz ≤ f ≤100MHz	-155dBm	-158dBm
100MHz<f ≤ 3.25GHz	-160dBm	-162dBm
3.25GHz<f ≤ 5.25GHz	-159dBm	-161dBm
5.25GHz<f ≤ 8.2GHz	-152dBm	-154dBm
8.2GHz<f ≤ 18GHz	-154dBm	-157dBm
18GHz<f ≤ 26.5GHz	-151dBm	-155dBm

DANL (Input terminal matching load, trajectory average, average type is video average, detection method is video average detection, 0dB input attenuation, normalized to 1Hz RBW, 20°C~30°C)	4082N/P preamplifier on, RF Port 1		
	Frequency Range	Nominal	Typical Value
	26.5GHz<f ≤ 40GHz	-149dBm	-151dBm
	40GHz<f ≤ 48GHz	-147dBm	-149dBm
	48GHz<f ≤ 54.8GHz	-146dBm	-149dBm
	54.8GHz<f ≤ 63.6GHz	-142dBm	-145dBm
	63.6GHz<f ≤ 67GHz	-135dBm	-137dBm
Frequency response and absolute amplitude accuracy (10dB attenuation, 20°C~30°C)	4082B preamplifier off		
	Frequency Range	Nominal	Typical Value
	10MHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
	100MHz<f ≤ 3.25GHz	±0.40dB	±0.30dB
	3.25GHz<f ≤ 5.25GHz	±0.50dB	±0.31dB
	5.25GHz<f ≤ 8.4GHz	±0.50dB	±0.33dB
	4082B preamplifier on		
	Frequency Range	Nominal	Typical Value
	100kHz ≤ f ≤ 100MHz	±0.80dB	±0.50dB
	100MHz<f ≤ 3.25GHz	±0.70dB	±0.50dB
	3.25GHz<f ≤ 5.25GHz	±0.80dB	±0.60dB
	5.25GHz<f ≤ 8.4GHz	±0.90dB	±0.70dB
	4082D/E/F/H preamplifier off		
	Frequency Range	Nominal	Typical Value
	10MHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
	100MHz<f ≤ 3.25GHz	±0.40dB	±0.30dB
	3.25GHz<f ≤ 5.25GHz	±0.50dB	±0.31dB
	5.25GHz<f ≤ 8.2GHz	±0.50dB	±0.33dB
	8.2GHz<f ≤ 18GHz	±1.50dB	±0.95dB
	18GHz<f ≤ 26.5GHz	±1.80dB	±0.95dB
	26.5GHz<f ≤ 40GHz	±2.50dB	±1.50dB
	40GHz<f ≤ 50GHz	±2.80dB	±1.60dB
	4082D/E/F/H preamplifier on		
	Frequency Range	Nominal	Typical Value
	100kHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
	100MHz<f ≤ 3.25GHz	±0.70dB	±0.50dB
	3.25GHz<f ≤ 5.25GHz	±0.80dB	±0.60dB
	5.25GHz<f ≤ 8.2GHz	±0.90dB	±0.70dB
	8.2GHz<f ≤ 18GHz	±2.00dB	±1.35dB
	18GHz<f ≤ 26.5GHz	±2.30dB	±1.55dB
	26.5GHz<f ≤ 40GHz	±2.80dB	±1.86dB
	40GHz<f ≤ 50GHz	±3.00dB	±2.00dB
	4082L/N/P preamplifier off		
	Frequency Range	Nominal	Typical Value
	10MHz<f ≤ 100MHz	±0.50dB	±0.34dB
	100MHz<f ≤ 3.25GHz	±0.40dB	±0.30dB
	3.25GHz<f ≤ 5.25GHz	±0.50dB	±0.31dB
	5.25GHz<f ≤ 8.2GHz	±0.50dB	±0.33dB
	8.2GHz<f ≤ 18GHz	±1.50dB	±0.95dB
	18GHz<f ≤ 26.5GHz	±1.80dB	±0.95dB
	26.5GHz<f ≤ 40GHz	±2.50dB	±1.50dB
	40GHz<f ≤ 48GHz	±2.80dB	±1.60dB

Frequency response and absolute amplitude accuracy (10dB attenuation, 20°C~30°C)	4082L/N/P preamplifier off		
	Frequency Range	Nominal	Typical Value
	48GHz<f ≤ 67GHz	±3.0 0dB	±1.50dB
	67GHz<f ≤ 110GHz	±4.00 dB	±2.50dB
	4082L/N/P preamplifier on		
	Frequency Range	Nominal	Typical Value
	100kHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
	100MHz<f ≤ 3.25GHz	±0.70dB	±0.50dB
	3.25GHz<f ≤ 5.25GHz	±0.80dB	±0.60dB
	5.25GHz<f ≤ 8.2GHz	±0.90dB	±0.70dB
	8.2GHz<f ≤ 18GHz	±2.00dB	±1.35dB
	18GHz<f ≤ 26.5GHz	±2.30dB	±1.55dB
	26.5GHz<f ≤ 40GHz	±2.80dB	±1.86dB
	40GHz<f ≤ 48GHz	±3.00dB	±2.00dB
	48GHz<f ≤ 67GHz	±3.50dB	±2.50dB
	Absolute Amplitude Accuracy (10 dB attenuation, 20 ° C to 30 ° C, 1 Hz ≤ resolution bandwidth ≤ 1 MHz, input signal -10 to -50 dBm): ±0.24dB (500MHz calibration frequency) ±(0.24dB+frequency response) (All frequencies excluding 500MHz calibration frequency)		
1dB Gain Compression (Dual tone method test, resolution bandwidth 5kHz, 3MHz frequency interval, 20 ° C~30 ° C)	4082B		
	Frequency Range	Input Mixer Level	Typical Value
	20MHz ≤ f ≤ 8.4GHz	≥+5dBm	≥+10dBm
	4082D/E/F/H		
	Frequency Range	Input Mixer Level	Typical Value
	20MHz ≤ f ≤ 3.25GHz	≥+5dBm	≥+10dBm
	3.25GHz < f ≤ 50GHz	≥+7dBm	≥+11dBm
	4082L/N/P		
	Frequency Range	Input Mixer Level	Typical Value
	20MHz < f ≤ 5.25GHz	≥+5dBm	≥+10dBm
	5.25GHz < f ≤ 8.2GHz	≥+7dBm	≥+11dBm
	8.2GHz < f ≤ 67GHz	≥+6dBm	≥+11dBm
	67GHz < f ≤ 90GHz	≥-3dBm	/
	90GHz < f ≤ 110GHz	≥-1dBm	/
Third Order Interception Point (TOI) (input two -10dBm signals to the mixer for testing, with a frequency interval of 50kHz, 20 ° C~30 ° C)	4082B		
	Frequency Range	Nominal	Typical Value
	10MHz ≤ f ≤ 100MHz	+14dBm	+16dBm
	100MHz<f ≤ 3.25GHz	+18dBm	+20dBm
	3.25GHz<f ≤ 5.25GHz	+18dBm	+20dBm
	5.25GHz<f ≤ 8.4GHz	+17dBm	+19dBm
	4082D/E/F/H/L/N/P		
	Frequency Range	Nominal	Typical Value
	10MHz ≤ f ≤ 100MHz	+14dBm	+16dBm
	100MHz<f ≤ 3.25GHz	+18dBm	+20dBm
	3.25GHz<f ≤ 5.25GHz	+20dBm	+23dBm
	5.25GHz<f ≤ 8.2GHz	+21dBm	+23dBm
	8.2GHz<f ≤ 50GHz	+18dBm	+20dBm
	50GHz<f ≤ 67GHz	+18dBm	+20dBm
Residual Response (Input terminal matching load, 0dB attenuation)	≤-98dBm (1MHz ≤ f ≤ 8GHz RF input 1)		

IQ Data	Storage Depth (IQ length): Analysis bandwidth ≤ 40MHz: 500M IQ samples, IQ byte length: 32-bit I, 32-bit Q Analysis bandwidth>40MHz: 1000M IQ samples, IQ byte length: 16 bit I, 16 bit Q
Dimensions(Width×Height×Depth)	(426 ± 4) mm × (222 ± 4) mm × (450 ± 4) mm (excluding handles, feet, pads, and side straps)
Max. Weight	Approximately 35kg (with different options and weights)
Power	AC 100~240V, 50~60Hz
Consumption	Max. power consumption 450W (standard) Max. power consumption 850W (fully configured option)
Temperature	Working temperature: 0 ° C~+50 ° C Storage temperature: -40 ° C to+70 ° C
RF Interface	B/D type: N type (female), 50 Ω E type: 3.5mm (male), 50 Ω F/H type: 2.4mm (male), 50 Ω L type: 1.85mm (male), 50 Ω N/P type: 1.85mm (male), 50 Ω (RF input 1) 1.00mm (male), 50 Ω (RF input 2)

Ordering Information

Model

Model	Name	Description
4082B	Signal/ Spectrum Analyzer	2Hz~8.4GHz
4082D	Signal/ Spectrum Analyzer	2Hz~18GHz
4082E	Signal/ Spectrum Analyzer	2Hz~26.5GHz
4082F	Signal/ Spectrum Analyzer	2Hz~45GHz
4082H	Signal/ Spectrum Analyzer	2Hz~50GHz
4082L	Signal/ Spectrum Analyzer	2Hz~67GHz
4082N	Signal/ Spectrum Analyzer	2Hz~90GHz
4082P	Signal/ Spectrum Analyzer	2Hz~110GHz

Standard

No.	Name	Description
1	Power Cord Components	Standard three core power cord
2	Qualification Certificate	/

Options

Option Model	Name	Description
4082-H02	Auxiliary intermediate frequency output	Output the second intermediate frequency signal, with a frequency range related to the analysis bandwidth, a frequency resolution of 1Hz, and a variable gain of 15dB in 1dB steps. Output frequency range: 425MHz ± 40MHz (≤ 40MHz analysis bandwidth) 750MHz ± 600MHz (200MHz~1.2GHz analysis bandwidth) 1.5GHz ± 1000MHz (2GHz analysis bandwidth).
4082-H08	Broadband logarithmic detection output	Output a logarithmic detection signal that reflects the level characteristics of the input signal.
4082-H11	10 Gigabit Network Control and Data Interface	A 10 Gigabit Ethernet interface based on optical fiber, with a transmission rate of 10Gbit/s, used for fast remote control.
4082-H19-2T	Local storage space expansion	Support up to 2TB of storage space (electronic hard drive).
4082-H19-4T	Local storage space expansion	Support up to 4TB of storage space (electronic hard drive).

Option Model	Name	Description
4082-H33-08	Electronic attenuator	Frequency range: 9kHz~8GHz, attenuation range: 30dB, in 0.5dB steps.
4082-H34-08	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as the 4082B preamplifier, please select H34-08.
4082-H34-18	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host. For example, for 4082D preamplifier, please choose H34-18.
4082-H34-26	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host. For example, for the 4082E preamplifier, please choose H34-26.
4082-H34-45	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as the 4082F preamplifier, please choose H34-45.
4082-H34-50	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as the 4082H preamplifier, please choose H34-50.
4082-H34-67	Low noise preamplifier	The preamplifier is selected based on the upper frequency limit of the selected signal analyzer host, such as 4082L/N/P. Please select H34-67 for the preamplifier.
4082-H34A-08	Low noise preamplifier	Only the 4082B host can be configured, and cannot be selected at the same time as the 4082-H34-08.
4082-H36	Preselector bypass	Bypass the tracking preselector in the receiving channel. (Note: Except for 4082B, other models are equipped with the H38 series analysis bandwidth option, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H38-40	40MHz analysis bandwidth	Supports 10Hz to 40MHz analysis bandwidth. (Note: In addition to 4082B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H38-200	200MHz analysis bandwidth	Support 10Hz~200MHz analysis bandwidth. (Note: In addition to 4082B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H38-400	400MHz analysis bandwidth	Supports 10Hz to 400MHz analysis bandwidth. (Note: In addition to 4082B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H38-600	600MHz analysis bandwidth	Support 10Hz~600MHz analysis bandwidth. (Note: In addition to 4082B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H38-1200	1.2GHz analysis bandwidth	Supports 10Hz to 1.2GHz analysis bandwidth. (Note: In addition to 4082B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H38-2000	2GHz analysis bandwidth	Supports 10Hz to 2GHz analysis bandwidth. (Note: In addition to 4082B, the H38 series option is optional, and the H36 preselector bypass option is required to provide the best broadband signal reception characteristics.)
4082-H40	External frequency extension function	Provide the ability to extend the frequency testing range using external mixing methods. This option will provide local oscillator output and intermediate frequency input interface functions, as well as signal recognition capability. (This option is only available when the host model is not 4082B; the extended frequency range depends on the selected spread spectrum module; the spread spectrum module needs to be purchased separately.)
4082-H41-200	Real time spectrum analysis function	It provides digital fluorescence spectrum with a maximum bandwidth of 200MHz and seamless waterfall map function, including frequency template trigger and broadband real-time spectrum analysis. (H38 option needs to be selected at the same time. When configuring H38-200, H38-400, H38-600, H38-1200, H38-2000, this option is optional.)
4082-H41-400	Real time spectrum analysis function	It provides digital fluorescence spectrum with a maximum bandwidth of 400MHz and seamless waterfall map function, including frequency template trigger and broadband real-time spectrum analysis. (H38 option needs to be selected at the same time. When equipped with H38-400, H38-600, H38-1200, H38-2000, this option is optional.)

Option Model	Name	Description
4082-H41-600	Real time spectrum analysis function	It provides digital fluorescence spectrum with a maximum bandwidth of 600MHz and seamless waterfall map function, including frequency template trigger and broadband real-time spectrum analysis. (H38 option needs to be selected at the same time. When equipped with H38-600, H38-1200, and H38-2000, this option is optional.)
4082-H41-1200	Real time spectrum analysis function	It provides the maximum 1.2GHz bandwidth digital fluorescence spectrum and seamless waterfall map functions, including frequency template triggering and broadband real-time spectrum analysis. (H38 option needs to be selected at the same time. When configuring H38-1200 and H38-2000, this option is optional.)
4082-H48	Noise coefficient testing function	Provide noise source driving and noise coefficient testing functions. 4082N/P only supports noise figure testing up to the highest frequency of 67GH. (Note: To select this option, it is necessary to simultaneously purchase the H34 low noise preamplifier option corresponding to the frequency band of the entire machine, as well as the corresponding 1660X noise source probe, to jointly complete the noise coefficient testing function.).
4082-H96	User manual (paper version)	Provide a detailed user manual in hard copy.
4082-H97	Shelf Kit	Shelf mounting handle and accessories, used for mounting 4082 in standard cabinets.
4082-H98	English kit	English panel, English manual, English operation interface, and English operating system.
4082-H99	Aluminum alloy transport box	High strength and lightweight aluminum alloy transport box with handles and rollers for easy transportation.
4082-S01	Absolute power measurement	High precision measurement of RF signal power is achieved by connecting an external USB power probe. (Corresponding 8723X series power probes need to be configured.)
4082-S02	Noise power ratio testing function	Provide noise power ratio testing capability.
4082-S04	Phase noise testing function	Provide single sideband phase noise curve and single point phase noise testing capability.
4082-S05	EMC pre compatibility testing function	Provide EMC pre compatibility testing capabilities.
4082-S09	Analog demodulation	AM, FM, ΦM Analysis of modulation and distortion characteristics
4082-S10	Transient analysis function	Realize the testing and analysis of the instantaneous parameter spectrum, spectrum, and time-varying characteristics of the signal, and support the playback of recorded data.
4082-S10H	Frequency hopping signal analysis	Provide automatic measurement of characteristics such as dwell time, switching time, frequency, and error of frequency hopping signals. (S10 option needs to be selected at the same time)
4082-S10F	FMCW signal analysis	Provide automatic measurement of FMCW signal slope, deviation, power, and other characteristics. (S10 option needs to be selected at the same time)
4082-S12	Vector signal analysis function	Provide flexible demodulation functions for various single carrier digital modulation signals, which can provide rich graphs such as vector maps, constellation maps, eye maps, spectrum maps, etc. to analyze the characteristics of modulation signals. Through demodulation, the modulation error of the signal can be obtained, helping to determine the cause of signal error.
4082-S13	Pulse signal analysis function	Realize automatic measurement of time, level, and modulation parameters of pulse waveforms, as well as statistical analysis of pulse sequences.
4082-S16	Multi carrier group delay measurement function	Provide absolute and relative group delay measurement capabilities for broadband signals.
4082-S40	WLAN 802.11a/b/g measurement function	Broadband wireless LAN protocol physical layer testing (802.11a/b/g), covering RF, modulation analysis, and modulation quality testing.
4082-S40N	WLAN 802.11n measurement function	Broadband Wireless LAN Protocol Physical Layer Testing (802.11n), covering RF, modulation analysis, and modulation quality testing. (S40 option needs to be selected at the same time)
4082-S40AC	WLAN 802.11ac measurement function	Broadband Wireless LAN Protocol Physical Layer Testing (802.11ac), covering RF, modulation analysis, and modulation quality testing. (S40 option needs to be selected at the same time)

Option Model	Name	Description
4082-S40AX	WLAN 802.11ax measurement function	Broadband Wireless LAN Protocol Physical Layer Testing (802.11ax), covering RF, modulation analysis, and modulation quality testing. (S40 option needs to be selected at the same time)
4082-S46D	5G NR downlink signal measurement function	Supporting 5G NR downlink signal demodulation, providing measurements such as EVM and spectral flatness; Support power measurement functions such as ACP, spectrum transmission template, CCDF, etc; Supports multiple bandwidth and multiple TM.
4082-S46U	5G NR uplink signal measurement function	Support 5G NR uplink signal demodulation, provide EVM, spectrum flatness and other measurements; Support power measurement functions such as ACP, spectrum transmission template, CCDF, etc; Supports multiple bandwidth levels.

Power Probes (requires 4082-S01 option)

Option Model	Name	Description
87230	USB continuous wave power probe	9kHz~6GHz power probe
87231	USB continuous wave power probe	10MHz~18GHz power probe
87232	USB continuous wave power probe	50MHz~26.5GHz power probe
87233	USB continuous wave power probe	50MHz~40GHz power probe

Millimeter Wave Spread Spectrum Module (requires 4082-H40 option)

Option Model	Name	Description
82407NA	Spectrum Analyzer Spread Spectrum Module	50GHz~75GHz
82407NC	Spectrum Analyzer Spread Spectrum Module	60GHz~90GHz
82407PA	Spectrum Analyzer Spread Spectrum Module	75GHz~110GHz
82407QA	Spectrum Analyzer Spread Spectrum Module	90GHz~140GHz
82407QB	Spectrum Analyzer Spread Spectrum Module	110GHz~170GHz
82407RA	Spectrum Analyzer Spread Spectrum Module	140GHz~220GHz
82407SA	Spectrum Analyzer Spread Spectrum Module	170GHz~260GHz
82407S	Spectrum Analyzer Spread Spectrum Module	220GHz~325GHz
82407TA	Spectrum Analyzer Spread Spectrum Module	260GHz~400GHz
82407R	Spectrum Analyzer Spread Spectrum Module	325GHz~500GHz
82407U	Spectrum Analyzer Spread Spectrum Module	500GHz~750GHz

Noise Source (requires TW4082-H48 option, TW4082-H34 option)

Option Model	Name	Description
16603DB	Noise Source	10MHz~18GHz
16603EB	Noise Source	10MHz~26.5GHz
16603FB	Noise Source	10MHz~40GHz
16603HB	Noise Source	10MHz~50GHz
16604DB	Intelligent Noise Source	10MHz~18GHz
16604EB	Intelligent Noise Source	10MHz~26.5GHz
16604FB	Intelligent Noise Source	10MHz~40GHz
16604HB	Intelligent Noise Source	10MHz~50GHz

Quality&**Precise**

MAXWELLON MSA800

9kHz~1.8GHz/3.6GHz/7.5GHz

Spectrum Analyzer Module

2023

Maxwellon

Maxwellon MSA800 series spectrum analyzer module is the perfect choice for system integration with excellent performance, small size and high cost performance. Users can connect it with a PC to display the test screen, just click the mouse on the PC to enjoy the convenience and speed of the desktop spectrum analyzer. It can also be integrated into your system to develop related functions of spectrum analysis. The modular design of MSA800 will bring great convenience to user testing and save costs at the same time. The PC host computer directly obtains the measurement results through the USB or LAN interface. Users can flexibly carry out secondary development according to their needs, and can quickly build and upgrade the integrated test system.

Key Feature

- Frequency range: 9kHz - 1.8GHz/3.6GHz / 7.5GHz
- Resolution bandwidth: 1Hz -3MHz
- Sensitive, DANL < -158dBm
- Adopt USB, LAN interface, easy to control connection
- Standard and complete SCPI
- Small size, ultra-light weight, easy system integration

Specification

Model		MSA820A	MSA830	MSA870
Frequency Range		9kHz~1.8GHz	9kHz~3.6GHz	9kHz~7.5GHz
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)		Standard: Aging rate:<1ppm/year, Temperature drift:<0.5ppm (15℃ to 35℃)		
Resolution Bandwidth(RBW)				
Range		1Hz to 500kHz (in continuous steps of 1 to 10), 1MHz, 3MHz		
Selectivity (60db/3db)	RBW≤500kHz	<5:1 typical value (digital implementation, close to Gaussian shape)		
Accuracy	RBW≤500kHz	<10% (<5% typical value)		
Video Bandwidth (VBW)		1Hz ~ 3MHz		
DANL (1Hz resolution bandwidth, RF attenuator 0dB)				
Pre Amplifier Off		1MHz~10MHz <-130dBm 10MHz~1GHz <-135dBm 1GHz~1.8GHz<-134dBm	1MHz~10MHz <-130dBm 10MHz~1GHz <-135dBm 1GHz~3.6GHz<-130dBm	1MHz~10MHz <-125dBm 10MHz~2GHz <-133dBm 2GHz~3.4GHz<-130dBm 3.4GHz~5GHz<-133dBm 5GHz~7.5GHz<-127dBm
Pre Amplifier On		1MHz~10MHz <-150dBm 10MHz~1GHz <-155dBm 1GHz~1.8GHz<-153dBm	1MHz~10MHz <-150dBm 10MHz~1GHz <-155dBm 1GHz~3.6GHz<-148dBm	1MHz~10MHz <-140dBm 10MHz~2GHz <-147dBm 2GHz~3.4GHz<-143dBm 3.4GHz~5GHz<-145dBm 5GHz~7.5GHz<-140dBm
Phase Noise				
fc=500MHz (sampling detection, average number of traces ≥ 10)		-90dBc/Hz at 30kHz frequency offset		-80dBc/Hz at 30kHz frequency offset
		-100dBc/Hz at 100kHz frequency offset		-90dBc/Hz at 100kHz frequency offset
		-115dBc/Hz at 1MHz frequency offset		-110dBc/Hz at 1MHz frequency offset
Sweep Time				
Non Zero Sweep Width		3ms to 3000s		
Zero Sweep Width		1ms to 3000s		
Sweep Mode		Continuous, Single		
Frequency Counter				
Counting Resolution		1Hz, 10Hz, 100Hz, 1kHz		
Counter Uncertainty		Frequency Reading × Frequency Reference Accuracy+Counting Resolution		

Model		MSA820A	MSA830	MSA870
Amplitude Accuracy (20℃ to 30℃)		±1.5dB		
Amplitude				
Measurement Range (fc≥10MHz)		DANL to +20dBm	DANL to +27dBm	DANL to +20dBm
Max. Safe Input Level(Average continuous power)		+23dBm	+27dBm	+23dBm
Max. DC Input Voltage		50Vdc		
Input Attenuator Range		0 - 30dB, Steps of 1 dB	0 - 39dB, Steps of 3 dB	0 - 30dB, Steps of 1 dB
Stray and Residual Response				
TOI (third order distortion)	>30MHz	+7dBm		+10dBm
SHI (second-order distortion)	>10MHz	+40dBm		
Input related spurious signal		<-60dBc		
Remaining Response		<-85dBm		
Tracking Signal Source (option)				
Frequency Range		100kHz to 1.8GHz	100kHz to 1.5GHz	100kHz to 3.2GHz
Output Power		-30dBm to 0dBm in 1dB steps		
Flatness Output		± 3 dB		
Input/Output				
RF Input/Output		SMA female (50 Ω)		
USB		USB 2.0 B connector		
LAN		10/100 Base-T, RJ-45 connector		
Reference Input/Output		10MHz, BNC female; Input power: 0dBm to+10dBm; Output power: 0dBm ± 2dB		
FM/AM Audio Demodulation		Speaker and Headphone Jack		
General				
Weight		800g		1.1kg
Working Temperature		0 ℃ to 40 ℃		
Storage Temperature		-40℃ to+70℃		
Core module Dimensions (width×high×deep)		120mm×145mm×28mm		
Standard Dimensions (width×high×deep)		245mm×190mm×44mm		
Power	Single Power Supply	+5.2VDC~+5.4VDC		
	Current	1.5A	1.6A	1.8A

Ordering Information

Model

Model	Name	Description
MSA820A	Spectrum Analyzer Module	9kHz - 1.8GHz
MSA830	Spectrum Analyzer Module	9kHz - 3.6GHz
MSA870	Spectrum Analyzer Module	9kHz - 7.5GHz

Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	+5V power adapter, LAN connection cable

Options

Option Model	Name
MSA830-TG15	100kHz to 1.5GHz tracking source
MSA820A-TG18	100kHz to 1.8GHz tracking signal source
MSA830-TG36	100kHz to 3.6GHz tracking signal source
MSA870-TG32	100kHz to 3.2GHz tracking source
OA750/DA800	Omnidirectional antenna/directional antenna
MSA800-WK	Standard Housing

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

Quality&**Precise**

MAXWELLON 82407

5kHz~8GHz/9kHz~20GHz

Spectrum Analyzer Frequency Extension Module2023

Maxwellon

Maxwellon 82407 series Spectrum Analyzer Frequency Extension Module are designed mainly for millimeter-wave frequency extension of spectrum analysis, adopts standard waveguide interface which corresponding to its frequency range as its input interface. LO input adopts 2.4mmfemale coaxial connector and IF output adopts 3.5mm female coaxial connector, it can be used as the front-end of millimeter-wave signal receiver.

Key Feature

- Wide frequency range cover from 50GHz to 750GHz
- Low displayed average noise level up to -150dBm @ 1Hz RBW (typical)
- Intelligent USB interface is used to interconnect with the main instrument to realize automatic recognition of frequency extension module and automatic allocation of frequency conversion loss.
- 82407/NB/A/B/C/D size: 72 ×26 ×112mm
- 82407NC/QA/TA/R size: 120×85×240 mm

Specification

Model	82407	82407NB	82407A	82407B	82407C	82407D
Frequency Range	50-75	60-90	75-110	110-170	170-220	220-325
Harmonics	5	6	7	9	7	9
Conversion Loss	24	24	28	36	40	48
Noise Level (dBm/Hz)	-132	-132	-130	-120	-115	-110
LO Power Range	8-12(dBm)					
RF Max. Input Level (dBm)	20(dBm)					
Dimension	W×H×D ≤110×75×25.2mm					

Model	82407NC	82407QA	82407SA	82407TA	82407R	82407U
Frequency Range	60-90	90-140	170-260	260-400	325-500	500-750
Harmonics	6	6	2	18	24	48
Conversion Loss	12	16	16	18	30	25
Noise Level (dBm/Hz)	-150	-150	-140	-150	-140	-140
LO Power Range	8-12(dBm)					
RF Max. Input Level (dBm)	15(dBm)					
Dimension	W×H×D ≤120×85×240mm					

Model	82407/NB/A/B/C/D	82407NC/QA/TA/R
Power Consumption	≤5W	≤30W
Interface	RF Interface: Standard Rectangular Waveguide Interface; IF Interface: SMA (F), 50Ω; LO Interface: 2.4mm Coaxial (F), 50Ω; Communication Interface: Mini USB (F, USB2.0)	RF Interface: Standard Rectangular Waveguide Interface; IF Interface: SMA (F), 50Ω; LO Interface: 3.5mm Coaxial (F), 50Ω; Communication Interface: Mini USB (F, USB2.0)
Working Temp.	0℃ - +50℃	
Storage Temp.	-40℃ - +70℃	
Dimension	W×H×D=72mm×26mm×112mm	W×H×D=120mm×85mm×240mm
Weight	≤400g	≤5kg

Ordering Information

Model

Model	Name	Description
82407	Frequency Extension Module	50GHz to 75 GHz
82407NB	Frequency Extension Module	60GHz to 90 GHz
82407NC	Frequency Extension Module	60GHz to 90 GHz
82407A	Frequency Extension Module	75GHz to 110 GHz
82407QA	Frequency Extension Module	90 GHz to 140 GHz
82407B	Frequency Extension Module	110GHz to 170 GHz
82407C	Frequency Extension Module	220GHz to 325 GHz
82407D	Frequency Extension Module	260GHz to 400 GHz
82407TA	Frequency Extension Module	325GHz to 500 GHz
82407R	Frequency Extension Module	500GHz to 750GHz

Standard

No.	Name	Qty
1	USB 2.0 cable	1pc
2	User Manual	1pc
3	Certification of Conformity	1pc

Options

Part No.	Name	Description
82407-H01	2.4mm RF Cable	Connect the spectrum LO output port to frequency extension Module LO inout port
82407-H02	SMA RF Cable	Connect the Spectrum Analyzer IF Input Port to Frequency Extension Module IF Output Port
82407-H03	Adaper	2.4mm(f)-3.5mm(m) used in 82407 NC/QA/TA/R

Maxwellon Electronic Instruments Co.,LTD.

Factory: No.6 XiangJiang Road, Qingdao 266000, China
Tel: 0086 13816527810

Sales Office: NO.153 Zhuzhou Rd.,Laoshan District, Qingdao 266100, China.
Tel: 0086-532-80977508
Fax: 0086-532-80977508

Sales: Sales@Maxwellon.com
Web: www.maxwellon.com