

MAXWELLON 4052

2Hz~4GHz/8GHz/13.6GHz/18GHz/26.5GHz/40GHz/45GHz/50GHz
Signal/ Spectrum Analyzer
2023



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/400MHz/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

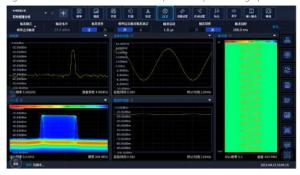
Powerful Real-time Spectrum Analysis Function

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.

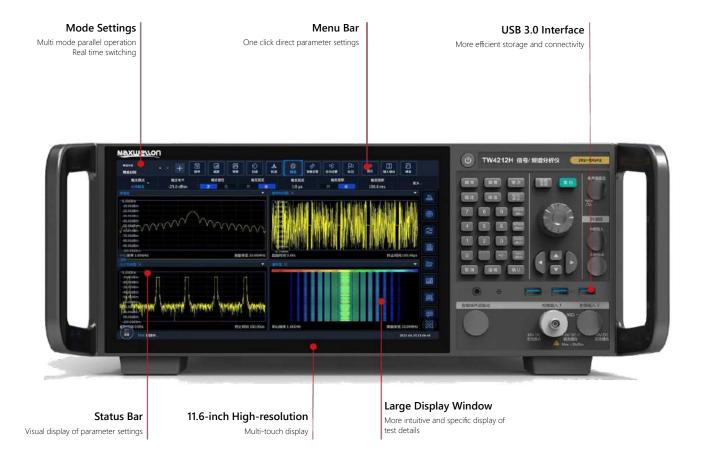
Recording and Playback

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.



Forward-looking Interface Configuration

10 Gigabit Network Control Interface

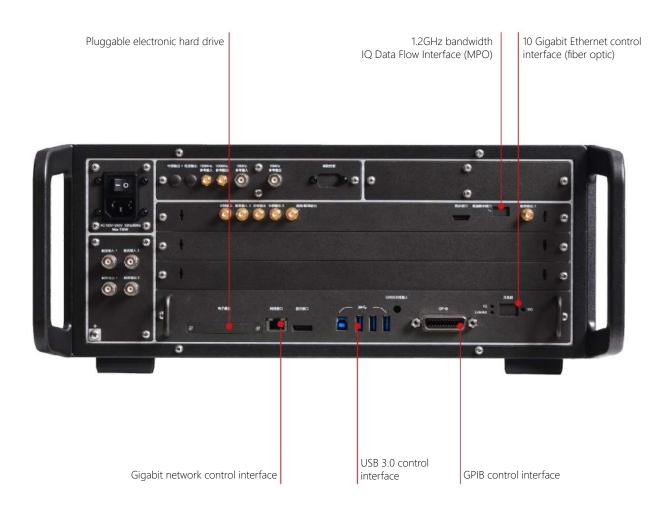
Configurable 10 Gigabit Ethernet interface, providing you with higher bandwidth, faster rate, and more stable data transmission.

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

	Model	DC Coupling	AC Coupling
	4052A	2Hz~4GHz	10MHz~4GHz
	4052B	2Hz~8GHz	10MHz~8GHz
	4052C	2Hz~13.6GHz	10MHz~13.6GHz
Frequency Range	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
	Frequency Accuracy: ±(up to the last calibration date × aging rate+temperature stability+calibration accuracy		
	Aging Rate: ±5×10 ¹⁰ /day		
10MHz Frequency Reference	Temperature Stability: ±5×10 [®]		
	Calibration Accuracy: ±4×1	D [®]	
Frequency Reading Accuracy	±(frequency reading × freq horizontal resolution*) *Horizontal resolution=bandwid	,	6 bandwidth+5% resolution bandwidth+2Hz+0.5
Frequency Counting Accuracy	±(frequency reading × Fred	uency reference accuracy+0.1	Hz)
	Range: 0Hz (zero bandwidt	h), 10Hz to the highest frequen	cy range of this model
Bandwidth	Accuracy: ± (0.1%) × Bandwidth+Bandwidth/(Scan Points -1)		
	Bandwidth ≥ 10Hz: 1ms~16000s		
Sweep Time Range	Bandwidth=0Hz: 1µS~16000s		
Sweep Points	101~120001		
	Range: 0.1Hz~20MHz (1, 2, 3, 5 steps)		
	Conversion Uncertainty:		
Resolution Bandwidth	± 0.10dB 1Hz~1MHz (1, 2, 3,		
	± 0.30dB 2MHz~10MHz (1, 2, 3, 5 steps) ± 1.00dB 20MHz		
	± 1.00dB 20MH2 Standard configuration: 10N		
	Option H38-40: 40MHz		
	Option H38-200:200MHz		
Analyze Bandwidth	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, Ext	ornal Trigger 1/2 Timer	
Detection Mode			eraging, Power Averaging, Voltage Averaging
Detection wode	Frequency Offset		eraging, Power Averaging, Voltage Averaging /alue
	100Hz		95dBc/Hz
			<u> </u>
Phase Noise (Carrier 1GHz, 20°C to 30°C)	1kHz		112dBc/Hz
(Carrier 10112, 20 C to 30 C)	10kHz		122dBc/Hz
	100kHz		122dBc/Hz
	1MHz	-	135dBc/Hz

4052A/B preamplifier of	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 of	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	
Frequency Range				
10MHz~1GHz		-149dBm	-153dBm	
			-152dBm	
			-149dBm	
			-146dBm	
			-147dBm	
			-143dBm	
			-148dBm	
			-144dBm	
			-140dBm	
			-139dBm	
			-136dBm	
	4052C/D/E/F/G/H preamplifier on		Водын	
Frequency Range Nominal Typical Value(H34-XX)				
. , ,	10MHz~50MHz		-160dBm	
			-164dBm	
			-165dBm	
			-163dBm	
			-160dBm	
			-158dBm -157dBm	
, , ,		<u>'</u>		
	8GHz~18GHz			
18GHz~26.5GHz			±2.00dB	
26.5GHz~45GHz				
45GHz~50GHz		±3.00dB		
Frequency Range		Preamplifier on		
	10MHz~4GHz		±1.00dB	
10MHz~4GHz 4GHz~8GHz 8GHz~18GHz		±1.00dB ±1.50dB ±2.50dB		
	Frequency Range 10MHz~1GHz 1GHz~2GHz 2GHz~3GHz 3GHz~4GHz 4GHz~6GHz 6GHz~8GHz 4052A/B preamplifier of Frequency Range 10MHz~50MHz 50MHz~4GHz 4GHz~6GHz 6GHz~8GHz 4052C/D/E/F/G/H preader Frequency Range 10MHz~1GHz 1GHz~2GHz 2GHz~3GHz 3GHz~4GHz 4GHz~6GHz 6GHz~8GHz 4GHz~6GHz 6GHz~8GHz 4GHz~6GHz 6GHz~8GHz 4GHz~4GHz 4GHz~6GHz 6GHz~8GHz 8GHz~18GHz 18GHz~26.5GHz 26.5GHz~40GHz 4052C/D/E/F/G/H preader Frequency Range 10MHz~50MHz 40GHz~45GHz 40GHz~6GHz 6GHz~8GHz 40GHz~6GHz 40GHz~6GHz 40GHz~40GHz 40GHz~6GHz 50MHz~4GHz 4GHz~6GHz 6GHz~8GHz 8GHz~18GHz 18GHz~26.5GHz 26.5GHz~40GHz 40GHz~40GHz 40GHz~50GHz 8GHz~18GHz 18GHz~26.5GHz 26.5GHz~40GHz 40GHz~50GHz 40GHz~50GHz 40GHz~4GHz 40GHz~4GHz	10MHz~1GHz 1GHz~2GHz 2GHz~3GHz 3GHz~4GHz 4GHz~6GHz 6GHz~8GHz 4052A/B preamplifier on Frequency Range 10MHz~50MHz 4GHz~6GHz 6GHz—8GHz 4052C/D/E/F/G/H preamplifier off Frequency Range 10MHz~1GHz 1GHz~2GHz 2GHz~3GHz 3GHz~4GHz 4GHz~6GHz 6GHz~8GHz 1GHz~2GHz 2GHz~3GHz 3GHz~4GHz 4GHz~6GHz 6GHz~8GHz 4GHz~6GHz 6GHz~8GHz 4GHz~6GHz 6GHz~8GHz 4GHz~6GHz 6GHz~8GHz 40GHz~45GHz 40GHz~45GHz 40GHz~6GHz 50MHz~4GHz 40GHz~6GHz 6GHz~8GHz 4052C/D/E/F/G/H preamplifier on Frequency Range 10MHz~50MHz 50MHz~4GHz 4GHz~6GHz 6GHz~8GHz 8GHz~8GHz	Frequency Range	

	Frequency Range	Preamplifier on	
Frequency Response And Absolute	45GHz~50GHz	±3.50dB	
Amplitude Accuracy (10dB attenuation, 20°C~30°C)	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)		
	Frequency Range	Value	
1dB Gain Compression	10MHz~100MHz	0dBm	
(Dual tone method test, resolution bandwidth 5kHz,	100MHz~1GHz	0dBm	
3MHz frequency interval, 20°C~30°C)	1GHz~8GHz	+5dBm	
	8GHz~50GHz	+5dBm	
	Frequency Range	Value	
TOI	10MHz~200MHz	+12dBm	
(Test two -10dBm signals into the mixer, with a frequency interval of 50kHz and a temperature	200MHz~4GHz	+17dBm	
range of 20°C to 30°C)	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 signal
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



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