

# MAXWELLON 4051

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

Signal/ Spectrum Analyzer  
2023

Maxwellon 4051 series signal / spectrum analyzer has excellent performance in dynamic range, phase noise, amplitude accuracy, and measurement speed. It has 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 Noise measurement 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 extension option)

## 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

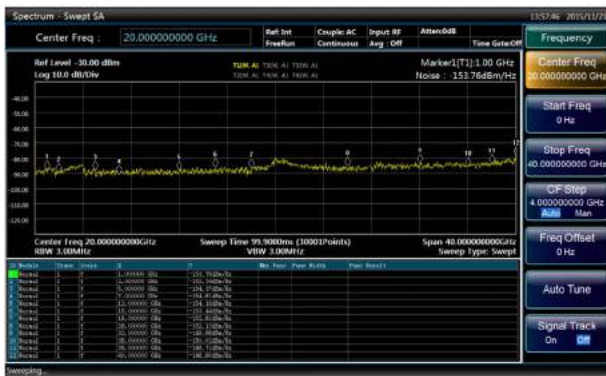
1GHz measurement DANL is -156dBm/Hz; with preamplifier on, the typical value is -167dBm/Hz

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 measurements are helpful for understanding and deeply analyzing transient signal events.

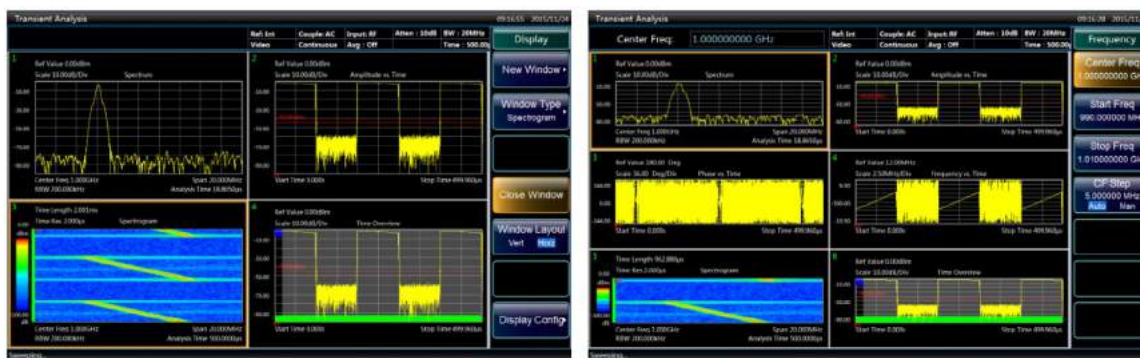
Waterfall diagram display, analyzing the macroscopic law of analysis signal spectrum changing over time.

Simultaneously analyze the changes of analysis signal frequency, amplitude, and phase over time, to assist the measurement in the process of power control and frequency locking.

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

Support multiple storage formats of signal files: CSV, DAT etc.

Support the playback analysis of signal files



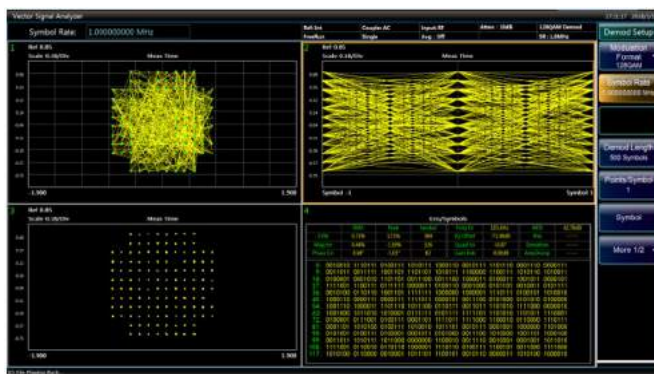
## Vector Signal Analysis Function

With comprehensive time domain, frequency domain, modulation domain signal analysis and viewing function, it supports more than 20 modulation system demodulation analysis.

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, eye diagram, 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 adaptive equalization function, it can be used to separate the linear error from the nonlinear modulation error, and display the system amplitude-frequency response and group delay.



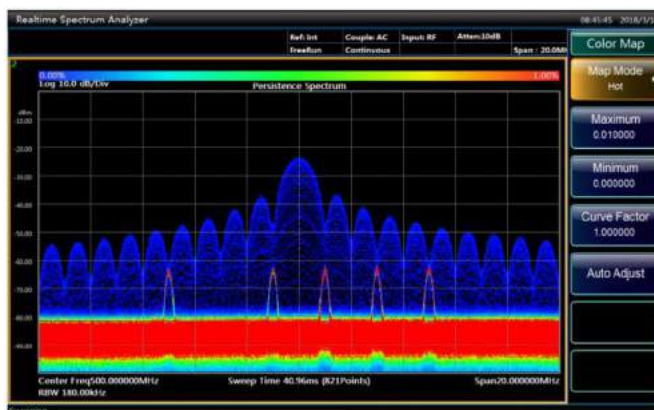
## Real-time Spectrum Analysis Function

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 trigger which can 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 measurements support more than 20 kinds of pulse parameters measurement (including time, amplitude, frequency and phase).

perform detailed analysis of amplitude, 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 measurement relies on the excellent phase noise of the signal analyzer and provides one-button automatic measurement to meet the daily signal source phase noise measurement applications.

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

Analog Demodulation Analyzer is used to simulate terminal, radio, and general analog modulation source measurement. Demodulate the AM/FM/PM signal and measure parameters such as modulation index, modulation distortion, residual FM, and FM linearity and 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.

The measurement 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

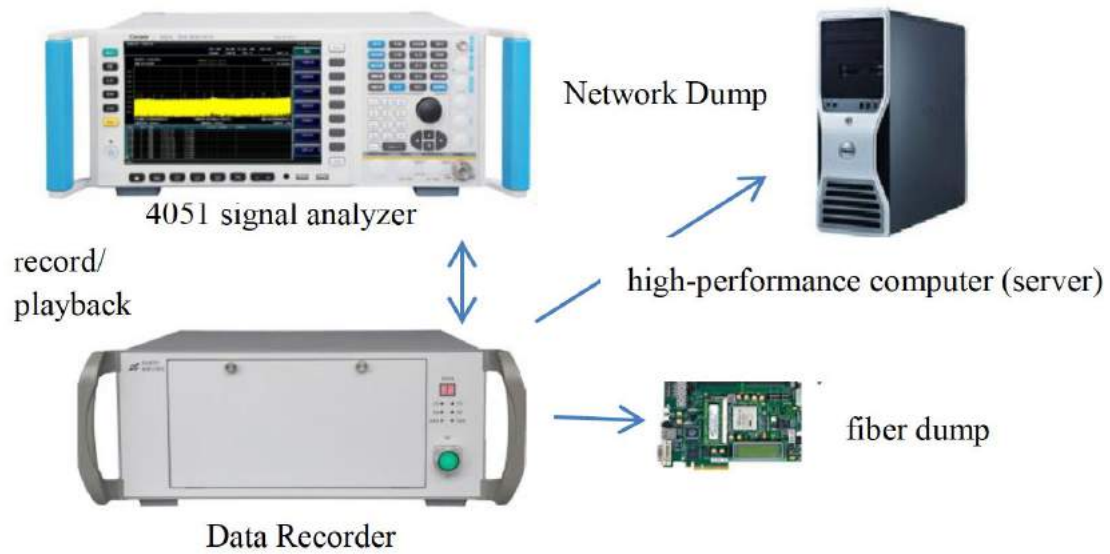
The performance is equivalent to high-precision power meter



## Powerful RF Signal Streaming and Playback Analysis Function

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

Data Recorder, both SSD and HDD can be selected

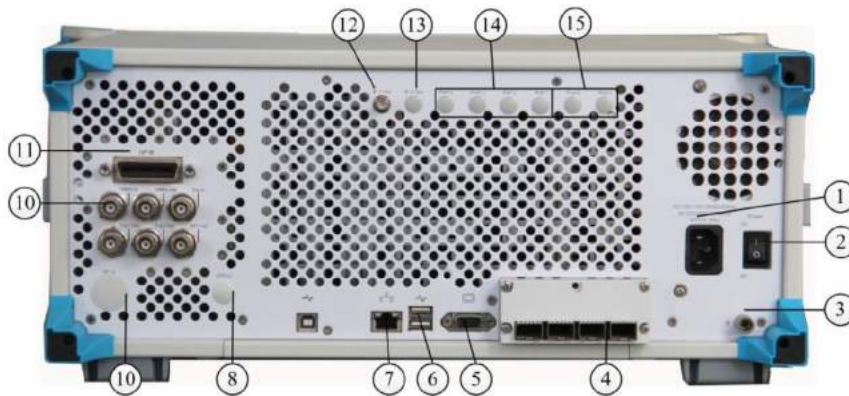


## Flexible Analog Signal Output Interfaces

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

## 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

	Model	DC Coupling	AC Coupling
Frequency Range	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: $\pm$ (up to the last calibration date $\times$ aging rate+temperature stability+calibration accuracy)		
	Aging Rate: $\pm 1 \times 10^{-7}$ /year		
	Temperature Stability: $\pm 1.5 \times 10^{-8}$ (20°C~30°C); $\pm 5 \times 10^{-8}$ (0°C~55°C)		
	Calibration Accuracy: $\pm 4 \times 10^{-8}$		
Frequency Reading Accuracy	$\pm$ (frequency reading $\times$ frequency reference accuracy+0.1% bandwidth+5% resolution bandwidth+2Hz+0.5 horizontal resolution*) *Horizontal resolution=bandwidth/(scan points -1)		
Frequency Counting Accuracy	$\pm$ (frequency reading $\times$ Frequency reference accuracy+0.1Hz)		
Span	Range: 0Hz (zero span), 10Hz~ the highest frequency of the model		
	Accuracy: $\pm$ (0.1% $\times$ span+span/(sweep points number-1))		
Sweep Time Range	span $\geq$ 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, sample or average wave detection, the average type is logarithm, 0dB input 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

<div>DANL</div> <div>(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)</div>	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	
<div>Frequency Response &amp; Absolute Amplitude Accuracy</div> <div>(10dB attenuation, 20°C ~ 30°C)</div>	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				
	<div>1dB Gain Compression</div> <div>(mixer level, dual-tone test, resolution bandwidth is 5kHz, 3MHzfrequency interval, 20°C ~ 30°C)</div>	Frequency range		Feature	
		20MHz~40MHz		-3dBm	
		40MHz~200MHz		+1dBm	
200MHz~4GHz		+3dBm			
4GHz~9GHz		-1dBm			
9GHz~50GHz		+1dBm			
50GHz~85GHz		-1dBm			
<div>TOI Distortion</div> <div>(input mixer 2 -10 dBm signal test, frequency interval is 50kHz, 20°C ~ 30°C)</div>	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

<b>Residual Response</b> (the input end is connected to match load, 0 dB attenuation)	-100dBm                      200kHz~9GHz
	-100dBm(rated value)    other frequency
<b>Dimensions</b>	W × H × D 510mm×190mm ×534mm (including handle, foot pad, bottom feet)
	W × H × D = 426mm×177mm×460mm (excluding handle, foot pad, bottom feet)
<b>Weight</b>	About 25kg (different configuration cause different)
<b>Power Supply</b>	Standard: AC 220~240V,50~60Hz
	4051 H98: AC 100~240V,50~60Hz
<b>Power Consumption</b>	Standby: less than 20W; Operating: less than 400W
<b>Temperature Range</b>	Operating temperature: 0°C ~ +50°C; Storage temperature: 40°C ~ +70°C
<b>Input Connector</b>	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 values refer to the estimated performance, or the performance which is useful for the product beyond the warrant range.
2. Typical value refers to other performance information beyond the product guarantee range; when the performance is over the technical index, 80% of the samples will present 95% confidence within 20°C ~ 30°C temperature 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 4712 recorder 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 analysis bandwidth. (Notes: option H38C 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)
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



**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](mailto:Sales@Maxwellon.com)  
Web: [www.maxwellon.com](http://www.maxwellon.com)