4071 Series

Signal/Spectrum Analyzer

4071A/B/C/D/E/G/H

(2Hz – 4/8/13.6/18/26.5/45/50GHz)

Ceyear Technologies Co., Ltd

Product Overview

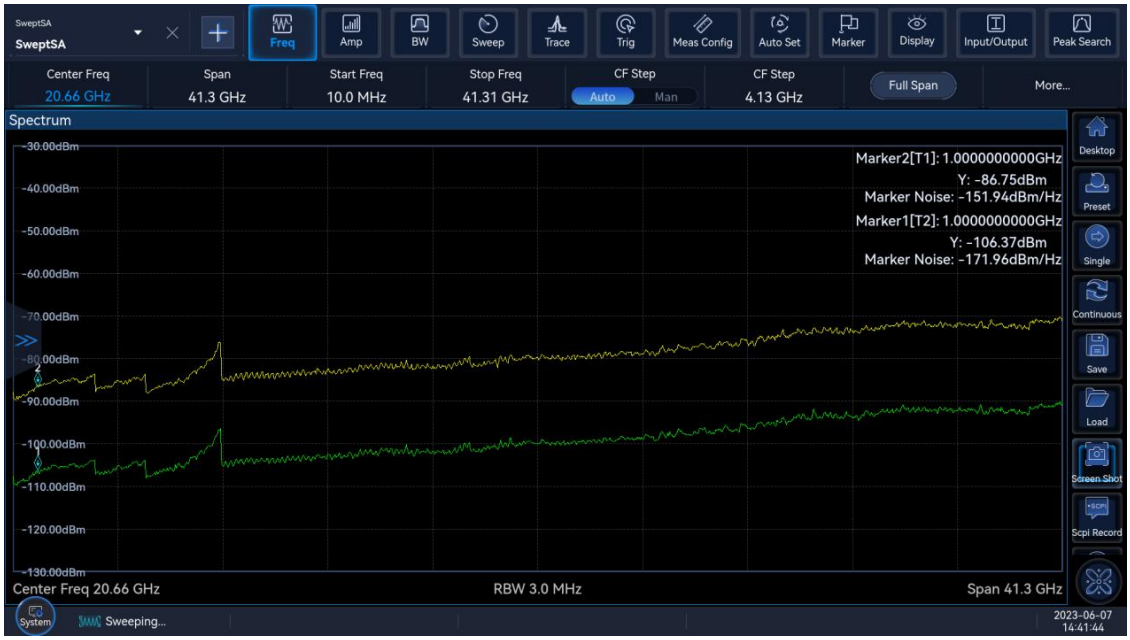
4071 series signal/spectrum analyzer is a new economical series of signal analyzers launched by Ceyear Technologies. The analyzer features excellent test dynamic range, phase noise, amplitude accuracy, and test speed, and offers a wide range of test functions, including spectrum analysis, I/Q analysis, real-time spectrum analysis, transient analysis, vector signal analysis, and pulse analysis. It can meet the rapid testing needs in research and development and production in fields such as wireless communications, automotive electronics, low-earth orbit satellites, and the IoT.

Main Features

- Coaxial frequency coverage: 2H~4GHz/8GHz/13.6GHz/18GHz/26.5GHz/45GHz/50GHz
- Maximum 200MHz analysis bandwidth, optional analysis bandwidth 10 MHz/40MHz/200MHz
- Display average noise level (1GHz, preamp on): -165dBm/Hz (typical)
- Phase noise (with H16 option, 1GHz carrier): better than -120 dBc/Hz @100kHz offset, better than -116 dBc/Hz @10kHz offset
- Third-order intermodulation distortion (1GHz): 19dBm (typical).
- 11.6-inch LCD, full touch operation, 2K resolution; supports SCPI command recording
- Supports analysis of analog modulated signals, pulse modulated signals, complex transient signals, digital modulated signals, and wireless communication protocol signals

Comprehensive Spectrum Analysis Capabilities

- **Supports both frequency sweep and FFT sweep types**
- **Zero frequency bandwidth rapid scan, fastest scan time 1 μs**
- **Supports 101 to 120,001 sweep points**
- **Configurable with 6 traces and 12 markers. Features NdB markers, noise markers, bandwidth power/density markers, carrier-to-noise ratio, modulation depth, and other marker functions**
- **Supports normal, positive peak, negative peak, sample, and average (video/power/voltage) parallel detection**
- **Supports various trigger modes including free, power, video, external, timer, and burst signals, as well as functions such as time gate measurement and field strength testing**
- **Includes test functions for occupied bandwidth, adjacent channel power (including channel power), power statistics (APD/CCDF), burst power, spectrum emission templates, harmonic distortion, third-order intermodulation, and more**



DANL Specification with Pre-amplifier ON and OFF

200MHz Analysis Bandwidth

Ceyear 4071 has an instantaneous analysis bandwidth of 200MHz, and provides 3 options from 10MHz (standard)/40MHz/200MHz to meet the application requirements of different test scenarios.

Multiple Analysis Bandwidth Configuration Options

Provide a total of 6 bandwidth configuration options of 10MHz/ 40MHz/ 200MHz to meet flexible configuration in different test application scenarios such as broadband radar, 5G NR, and WLAN.

Superior Spurious Free Dynamic Range

The spurious-free dynamic range under the 200MHz analysis bandwidth is -75dBc

200MHz Analysis Bandwidth Measurement

Comprehensive wireless communication protocol analysis capabilities

The mobile communication protocol analysis option of Ceyear 4071 can quickly and intuitively test the signal characteristics of various wireless communication standards such as 5G NR, LTE, NB-IoT, WCDMA, and GSM.

5G NR Signal Analysis

The 5G NR measurement function can perform in-band demodulation analysis of 5G NR uplink and downlink signals of 3GPP Rel-15, Rel-16, Rel-17, Rel-18, supports FDD and TDD duplex modes, supports QPSK to 1024QAM modulation formats, supports Test Model and custom Parameter setting, support to provide measurement results such as error vector magnitude (EVM), frequency error and power of different channels and signals, with constellation diagram, error summary table, resource allocation and other display maps.

5G NR Signal Analysis Measurement

LTE Signal Analysis

The LTE signal analysis function can perform modulation analysis on both uplink and downlink signals, supporting both FDD and TDD duplex modes, and modulation schemes from QPSK to 256QAM. It supports one-click E-TM testing and flexible configuration analysis with customizable parameters. It displays measurement results such as error vector magnitude (EVM), frequency error, and power for different

modulation schemes, physical channels, and physical signals. It provides various views including constellation diagrams, result summary tables, and EVM vs carrier.

LTE Signal Analysis

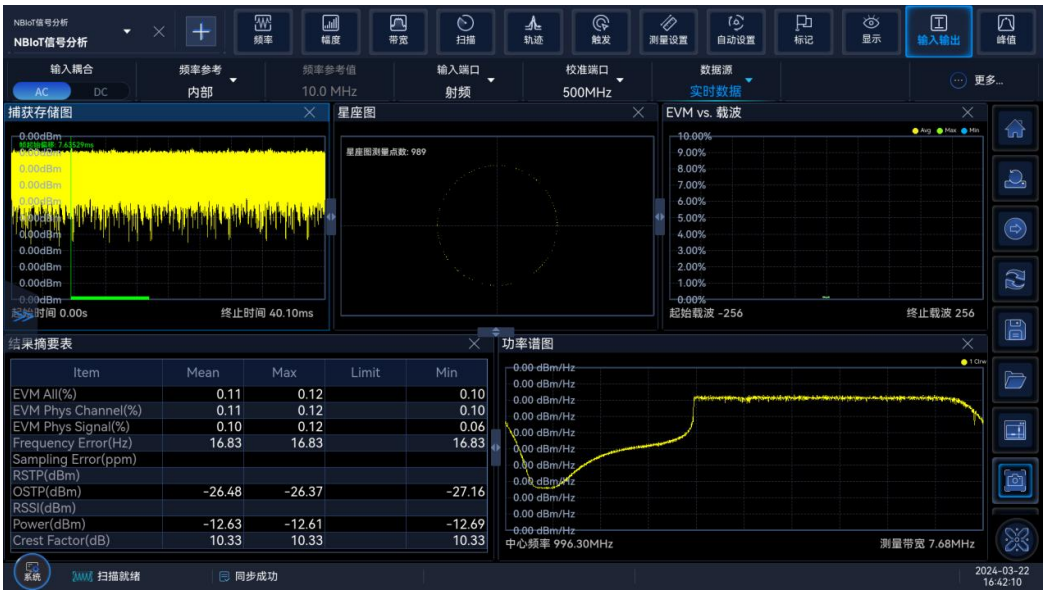
OFDM Signal Analysis

The OFDM signal analysis function can perform modulation analysis on custom OFDM signals, supporting flexible configuration of multiple parameters such as preamble, pilot, CP, subcarriers, and symbol count. It supports various modulation schemes from BPSK to 1024QAM and provides views such as capture and storage, power spectral density, and constellation diagram summary table.

OFDM Measurement

NB-IoT Signal Analysis

The NB-IOT signal analysis function can perform modulation analysis on narrowband IoT downlink signals based on FDD LTE standard, supporting three deployment modes: Stand alone, In band, and Guard band. It also supports one click testing of N-Test Model and flexible parameter settings, displaying measurement results such as error vector amplitude (EVM), frequency error, and power of different physical channels and signals, providing constellation diagrams, result summary tables, EVM vs carrier views, etc.



NB-IoT Signal Analysis

Analysis of Out-of-Band Characteristics of Wireless Communication Signals

In terms of out-of-band measurement, it can provide a wide range of standard and limit line one-key setting capabilities, and efficiently perform adjacent channel leakage ratio (ACLR), spectrum emission mask (SEM) and other measurements.

Powerful Real-time Spectrum Analysis Function

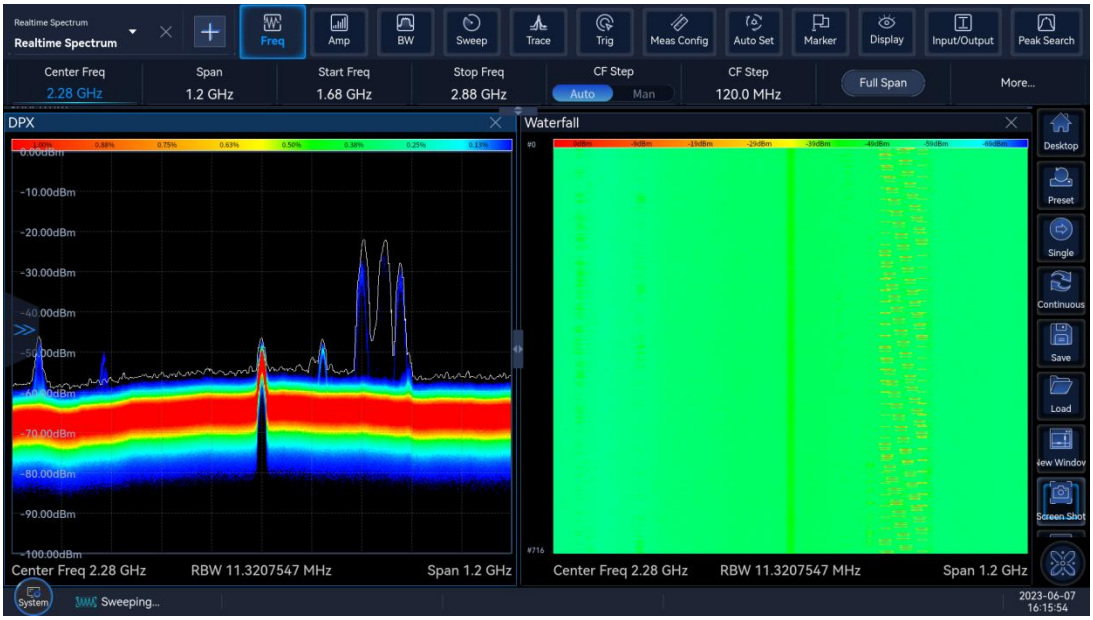
The real-time spectrum analysis function is an excellent test tool for time-varying signals such as bursting, agile, and frequency-hopping signals.

Burst Signal Capture

The real-time spectrum analysis function supports the discovery of transient and burst interference signals, the triggering and interception of transient signal data, and the time-domain and frequency-domain analysis of transient signal events.

Powerful High Bandwidth Realtime Processing Performance

The real-time analysis bandwidth is up to 400MHz (1.2GHz real-time analysis bandwidth is also available for special customization). The 100% frequency domain intercepted signal duration is less than 0.6us. And the spectrum processing speed is as high as 1,950,000 times/second.



Real-time Spectrum Analysis

Accurate Vector Modulation Signal Analysis Function

Ceyear 4071 series signal/spectrum analyzer has built-in vector signal analysis function, which can demodulate universal single carrier and single modulation digital modulation signals to obtain the original modulation symbol array and modulation quality analysis results. It can perform joint analysis of digital modulation signals in time domain, frequency domain, and modulation domain, accurately test signal quality, and assist in diagnosing signal problems such as gain imbalance, orthogonal error, filtering error, and compression.

Rich modulation signal type demodulation

It can perform demodulation analysis on various universal single carrier and single modulation digital modulation signals such as PSK, FSK, QAM, ASK, APSK, etc. Analysis of demodulation of high-order modulation signals that can support up to 4096QAM.

Comprehensive Analysis Format

It can simultaneously display pre demodulation, post demodulation, reference signal, symbols, and various error results, supporting multiple display windows such as spectrogram, constellation diagram, vector diagram, phase trajectory diagram, eye diagram, error/symbol table, etc., with rich results and presentation forms.

Vector Signal Analysis

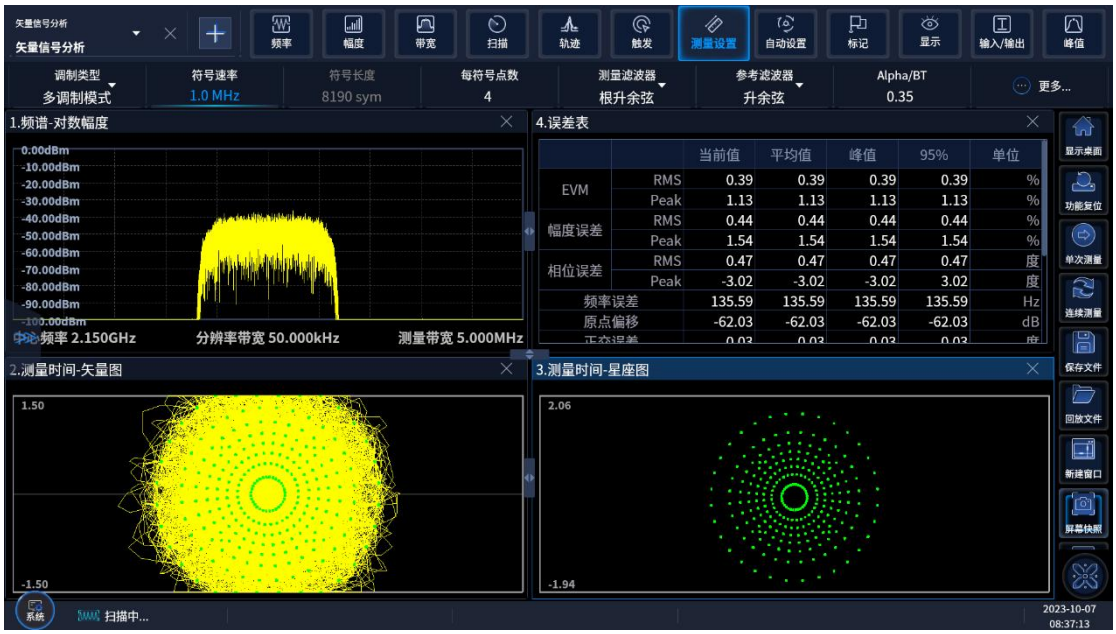
Support bit error rate testing.

Based on vector signal analysis options, the S12B option can be selected to support bit error rate testing based on importing known data from files: support bit error rate testing based on user recorded known data; support bit error rate testing based on PRBS: provide bit error rate result output.

Support multi modulation analysis

Based on the vector signal analysis option, the S12M option can be selected to support signal demodulation analysis that complies with the DVB-S2/X standard: providing display windows such as constellation diagrams and

symbol tables; providing modulation quality analysis results such as EVM and origin offset.



DVB-S2/X Analysis

Advanced user interface, new interactive experience

Ceyear 4071 adopts an 11.6-inch touch screen, and the test details are displayed more comprehensively and intuitively. The parameter setting menu is concise, one-key direct parameter setting. Parallel operation and display of multiple measurement modes, convenient and efficient mode switching.

Support user-defined menus

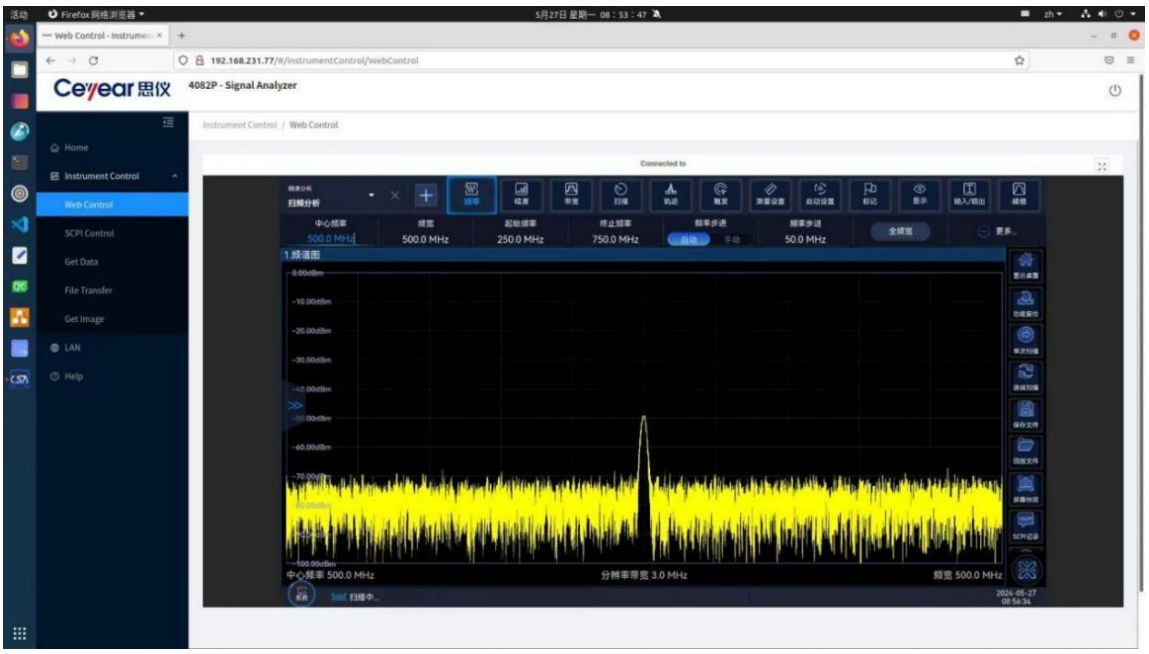
According to testing habits, customize a personalized user control interface, achieving multi-functional operations within a single window, avoiding the trouble of deep menus and repeated searching.

SCPI command recording

Equipped with an SCPI command record button, it can record manual operation processes into SCPI commands, export them in text format, and also save them as files in C, Python, Matlab, C#, and other languages, accelerating the speed of control script programming.

Remote access via browser

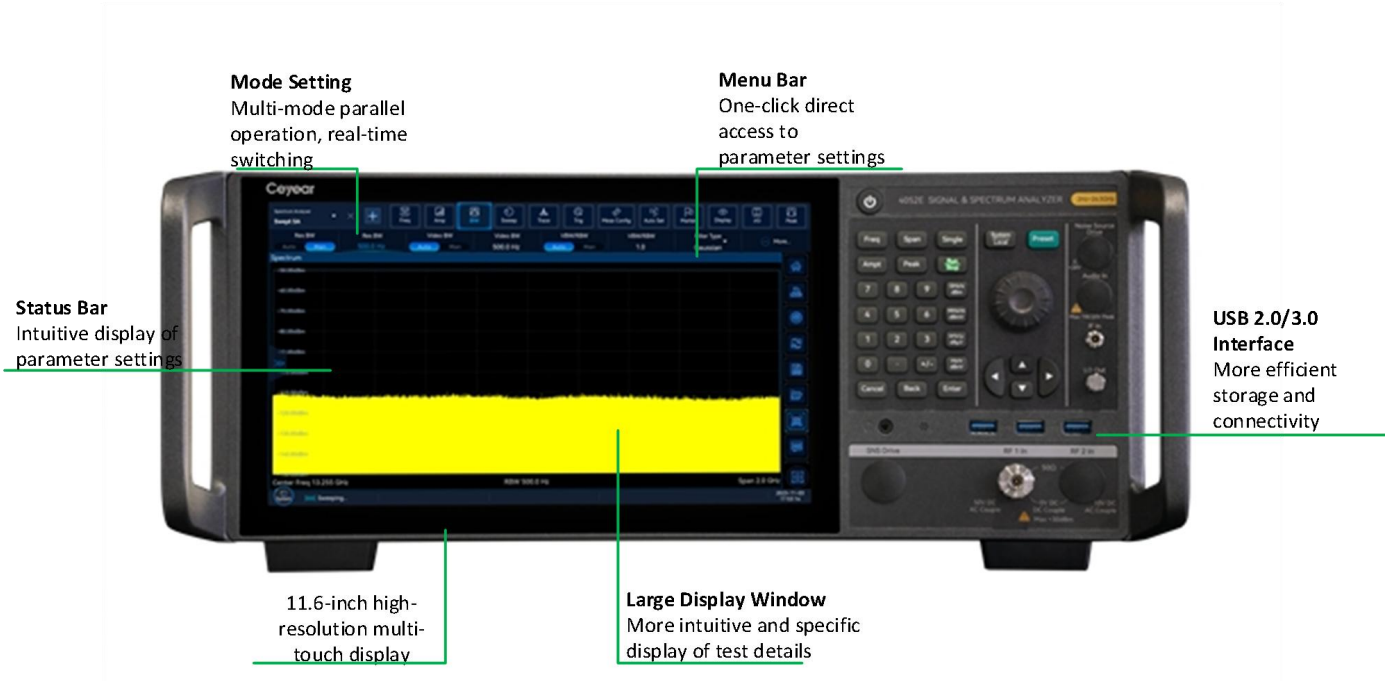
The instrument has a built-in web service, allowing users to access the instrument on a host computer via a browser. While remotely monitoring the instrument, users can also perform program-controlled operations, capture interface screenshots, obtain data, and transfer files.



Interface of remote access via browser

Convenient Interface Configuration

Communication Interface USB Interface: Type A, 3 on front/rear panels each LAN Interface: RJ45, 10/100/1000M Adaptive GPIB Interface (option)	**Time Base Interface** 10 MHz Reference Input: 50 Ω impedance, BNC female connector 10 MHz Reference Output: 50 Ω impedance, BNC female connector
Audio and Video Interfaces Headphone Jack: Standard 3.5mm Video Interface: DP Port	**Trigger Interface** Trigger Input: BNC female connector, 2 Trigger Output: BNC female connector, 2




Reference input/output
and IF output interface
Trigger input/output
interface
Gigabit network
control interface
USB-TARGET interface (option)
GPIB control interface (option)
USB3.0 control interface

Technical Specification

Frequency range	**Model**	**DC coupled**	**AC coupled**
	4071A	2Hz to 4GHz	10MHz to 4GHz
	4071B	2Hz to 8GHz	10MHz to 8GHz
	4071C	2Hz to 13.2GHz	10MHz to 13.6GHz
	4071D	2Hz to 18GHz	10MHz to 18GHz
	4071E	2Hz to 26.5GHz	10MHz to 26.5GHz
	4071G	2Hz to 45GHz	10MHz to 45GHz
	4071H	2Hz to 50GHz	10MHz to 50GHz
10 MHz Precise frequency reference	Frequency accuracy: ± (last calibration date × aging rate + temperature stability + calibration accuracy) Aging rate: ±5 × 10^{-8}/year (with 4071-H13 option) Temperature stability: ± 5×10^{-8} (20℃ ~ 30℃, with 4071-H13 option) Calibration accuracy: ± 4×10^{-8} (with 4071-H13 option)		
Frequency readout accuracy	± (frequency readout × frequency reference accuracy+0.1% frequency band+5% resolution bandwidth+2Hz+0.5 horizontal resolution*) *: horizontal resolution = span/ (sweep points − 1)		
Frequency counting accuracy	± (frequency readout × frequency reference accuracy+0.1Hz)		
Frequency Span	Range: 0Hz (zero frequency span), 10Hz to the highest frequency of the model		
Sweep time range	Frequency span ≥10Hz: 1ms to 16000s Frequency span =0Hz: 1us to 16000s		
Sweeping points	101 - 120001		
Resolution Bandwidth	Range: 0.1Hz to 10MHz (10% steps), 20MHz		
Attenuator	Range: 0-72dBm, step: 2dB		
Low Noise Pre-amplifier	Frequency Range: 100kHz to Highest frequency of current model Gain: 30dB (nominal value)		
Analysis bandwidth	Standard: 10MHz Option H38-40: 40MHz Option H38-200: 200MHz		
Video bandwidth	0.1Hz to 10MHz (10% steps), 20MHz		

<table>
<tr><td>Trigger Type</td><td>Free, Power Line, video, external level 1/2, timer, burst signal trigger</td></tr>
<tr><td>Detector Type</td><td>Normal, positive peak, negative peak, sampling, video average, power average, voltage average</td></tr>
<tr><td>Phase noise (carrier 1 GHz, 20℃ ~ 30℃)</td><td>
<table>
<tr><th></th><th colspan="2">Standard Configuration</th></tr>
<tr><th>Frequency offset</th><th>Specification</th><th>Typical</th></tr>
<tr><td>100Hz</td><td>-93dBc/Hz</td><td>-97dBc/Hz</td></tr>
<tr><td>1kHz</td><td>-110dBc/Hz</td><td>-114dBc/Hz</td></tr>
<tr><td>10kHz</td><td>-116dBc/Hz</td><td>-120dBc/Hz</td></tr>
<tr><td>100kHz</td><td>-120dBc/Hz</td><td>-123dBc/Hz</td></tr>
<tr><td>1MHz</td><td>-135dBc/Hz</td><td>-137dBc/Hz</td></tr>
</table>
</td></tr>
<tr><td>Residual FM</td><td>≤(0.25 Hz x N) , (10Hz resolution bandwidth, 10Hz video bandwidth, the rated value within 20ms. N is the number of frequency multiple times of LO)</td></tr>
<tr><td>Displayed average noise level (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℃ ~ 30℃)</td><td>
4071A/B With preamplifier (OFF)
<table>
<tr><th>Frequency range</th><th>Specification</th><th>Typical</th></tr>
<tr><td>10MHz to 1GHz</td><td>-150dBm</td><td>-153dBm</td></tr>
<tr><td>1GHz to 2GHz</td><td>-148dBm</td><td>-152dBm</td></tr>
<tr><td>2GHz to 3GHz</td><td>-146dBm</td><td>-151dBm</td></tr>
<tr><td>3GHz to 4GHz</td><td>-143dBm</td><td>-147dBm</td></tr>
<tr><td>4GHz to 6GHz</td><td>-145dBm</td><td>-149dBm</td></tr>
<tr><td>6GHz to 8GHz</td><td>-143dBm</td><td>-147dBm</td></tr>
</table>
4071A/B With preamplifier (ON)
<table>
<tr><th>Frequency range</th><th>Specification</th><th>Typical(H34A-XX)</th></tr>
<tr><td>10MHz to 50MHz</td><td>-165dBm</td><td>-169dBm</td></tr>
<tr><td>50MHz to 4GHz</td><td>-161dBm</td><td>-166dBm</td></tr>
<tr><td>4GHz to 6GHz</td><td>-160dBm</td><td>-163dBm</td></tr>
<tr><td>6GHz to 8GHz</td><td>-155dBm</td><td>-159dBm</td></tr>
</table>
4071C/D/E/G/H With preamplifier (OFF)
<table>
<tr><th>Frequency range</th><th>Specification</th><th>Typical</th></tr>
<tr><td>10MHz to 1GHz</td><td>-148dBm</td><td>-152dBm</td></tr>
<tr><td>1GHz to 2GHz</td><td>-147dBm</td><td>-150dBm</td></tr>
<tr><td>2GHz to 3GHz</td><td>-144dBm</td><td>-147dBm</td></tr>
<tr><td>3GHz to 4GHz</td><td>-141dBm</td><td>-144dBm</td></tr>
<tr><td>4GHz to 6GHz</td><td>-143dBm</td><td>-146dBm</td></tr>
<tr><td>6GHz to 8GHz</td><td>-139dBm</td><td>-143dBm</td></tr>
<tr><td>8GHz to 18GHz</td><td>-144dBm</td><td>-147dBm</td></tr>
<tr><td>18GHz to 26.5GHz</td><td>-141dBm</td><td>-145dBm</td></tr>
<tr><td>26.5GHz to 40GHz</td><td>-137dBm</td><td>-142dBm</td></tr>
</table>
</td></tr>
</table>

	40GHz to 45GHz	-133dBm	-139dBm
	45GHz to 50GHz	-129dBm	-133dBm
	4071C/D/E/G/H	**With preamplifier (ON)**	
	Frequency range	**Specification**	**Typical(4071-H34-XX)**
	10MHz to 50MHz	-158dBm	-161dBm
	50MHz to 4GHz	-161dBm	-165dBm
	4GHz to 6GHz	-161dBm	-164dBm
	6GHz to 8GHz	-160dBm	-163dBm
	8GHz to 18GHz	-157dBm	-161dBm
	18GHz to 26.5GHz	-155dBm	-159dBm
	26.5GHz to 40GHz	-152dBm	-157dBm
	45GHz to 50GHz	-150dBm	-154dBm
Frequency response & absolute amplitude accuracy (10dB attenuation, 20℃ ~ 30℃)	**Preamplifier (OFF)**		
	Frequency range	**Specifications**	**Typical**
	9kHz to 10MHz	±0.70dB	±0.40dB
	10MHz to 4GHz	±0.50dB	±0.30dB
	4GHz to 8GHz	±0.80dB	±0.50dB
	8GHz to 18GHz	±1.70dB	±1.00dB
	18GHz to 26.5GHz	±2.20dB	±1.40dB
	26.5GHz to 40GHz	±3.00dB	±1.80dB
	40GHz to 50GHz	±3.50dB	±2.40dB
	Frequency range	**Preamplifier (ON) Specifications**	**Typical**
	10MHz to 4GHz	±1.00dB	±0.60dB
	4GHz to 8GHz	±1.50dB	±0.90dB
	8GHz to 18GHz	±2.50dB	±1.20dB
	18GHz to 40GHz	±3.00dB	±2.00dB
	18GHz to 26.5GHz	±3.50dB	±2.20dB
	40GHz to 50GHz	±4.00dB	±2.40dB
	Absolute amplitude accuracy (10 dB attenuation, 20℃ ~ 30℃, 1 Hz ≤resolution bandwidth≤ 1 MHz, input signal -10 to -50 dBm): ±0.30dB @ 500MHz calibration frequency ± (0.30dB+frequency response) @all frequency except 500MHz frequency point		
1dB gain compression (mixer level, dual-tone test, resolution bandwidth is 5kHz,	**Frequency range**	**Specification**	**Typical**
	10MHz to 100MHz	0dBm	+3dBm
	100MHz to 1GHz	0dBm	+3dBm
	1GHz to 8GHz	+3dBm	+6dBm

3MHz frequency interval, 20℃ ~ 30℃)	8GHz to 50GHz	+3dBm	+6dBm
TOI distortion (input mixer 2 -10dBm signal test, frequency interval is 50kHz, 20℃ ~ 30℃)	**Frequency range** 10MHz to 200MHz 200MHz to 4GHz 4GHz to 8GHz 8GHz to 50GHz	**Specification** +12dBm +15dBm +15dBm +15dBm	**Typical** +17dBm +19dBm +20dBm +18dBm
Residual response (the input end is connected to match load, 0dB attenuation)	≤ -90dBm	200kHz to 8GHz	
IQ Data	Memory depth (IQ length): Analysis bandwidth≤40MHz: 500M IQ samples, IQ bits length: 32 bit I, 32 bit Q Analysis bandwidth>40MHz: 1000M IQ samples,IQ bits length: 16 bit I, 16 bit Q		
Dimensions	W (mm)×H (mm)×D (mm): (426±4)mm × (177±2.5)mm × (450±4)mm (excluding handle, foot-pad, bottom feet) (475±4)mm × (193±2.5)mm × (533±4)mm (including handle, foot-pad, bottom feet)		
Weight	About 23kg (different configuration have different weights)		
Power supply	AC 110~240V, 50~60Hz		
Power consumption	Maximum 300W (Standard)		
Temperature range	Operating temperature: 0℃ ~ +50℃ Storage temperature: -40℃ ~ +70℃		
RF connectors	4071A/B/C/D: N Type (female), 50 Ohm 4071E: 3.5mm (male), 50 Ohm 4071G/H: 2.4mm (male), 50 Ohm		

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℃ ~ 30℃ temperature range; typical performance excludes test uncertainty.

Ordering Information

- **Mainframe:**

Model	Description	Frequency range
4071A	Signal/Spectrum Analyzer	2Hz to 4GHz
4071B	Signal/Spectrum Analyzer	2Hz to 8GHz
4071C	Signal/Spectrum Analyzer	2Hz to 13.6GHz
4071D	Signal/Spectrum Analyzer	2Hz to 18GHz
4071E	Signal/Spectrum Analyzer	2Hz to 26.5GHz
4071G	Signal/Spectrum Analyzer	2Hz to 45GHz
4071H	Signal/Spectrum Analyzer	2Hz to 50GHz

- **Standard:**

No.	Name	Quantity	Description
1	Power cord	1	Standard three-core power cord
2	Quick User Guide	1	
3	Product qualification certificate	1	

- **Options:**

No.	Description	Functions
4071-H01	Rear panel RF input	
4071-H02	Auxiliary High IF output	Output second IF signal, the frequency is 425MHz
4071-H13	Precision frequency reference	Provide high-precision frequency reference
4071-H16	Enhanced Phase Noise	To enhance the phase noise to -129 dBc/Hz (1 GHz carrier, 10kHz offset typical).
4071-H18	Enhanced processor (CPU)	Update to I7 series processor, Enhanced CPU computing and processing capabilities to improve measurement speed.
4071-H33-08	Electronic attenuator	Frequency range: 9kHz to 8GHz,attenuation range: 30dB,in 0.5dB steps
4071-H34A-04	Low-noise preamplifier	Only 4071A mainframe can be configured, and 4071-H34-04 is not optional at the same time.
4071-H34A-08	Low-noise preamplifier	Only 4071B mainframe can be configured, and 4071-H34-08 is not optional at the same time.
4071-H34-13	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4071C frequency upper limit is 13.2GHz,Pre-amplifier need to select option H34-13.

4071-H34-18	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4071D frequency upper limit is 18GHz,Pre-amplifier need to select option H34-18.
4071-H34-26	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example:4071E frequency upper limit is 26.5GHz,Pre-amplifier need to select option H34-26.
4071-H34-45	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4071G frequency upper limit is 45GHz, Pre-amplifier need to select option H34-45.
4071-H34-50	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4071H frequency upper limit is 50GHz, Pre-amplifier need to select option H34-50.
4071-H36	Pre-selector Bypass	The tracking pre-selector in the bypass receiving channel. All models with H38 options need to select this option, except 4071A/B.
4071-H38-40	40MHz Analysis bandwidth	Support 10Hz to 40MHz Analysis bandwidth
4071-H38-200	200MHz Analysis bandwidth	Support10Hz to 200MHz Analysis bandwidth
4071-H41-10	Real-time spectrum analysis	This option provides digital phosphor spectrum and seamless waterfall, including frequency template trigger, which can support real-time spectrum analysis of 10MHz bandwidth.
4071-H41-40	Real-time spectrum analysis	This option provides digital phosphor spectrum and seamless waterfall, including frequency template trigger, which can support real-time spectrum analysis of 40MHz bandwidth. (The H38 option must also be configured. This option is available when H38-40, H38-200, H38-400, H38-600, and H38-1200 are configured.
4071-H41-200	Real-time spectrum analysis	This option provides digital phosphor spectrum and seamless waterfall, including frequency template trigger, which can support real-time spectrum analysis of 200MHz bandwidth. Advised to configure the 4071-H17-E option. (The H38 option must also be configured. This option is available when H38-200, H38-400, H38-600, and H38-1200 are configured.
4071-H48	Noise figure analysis	Provide noise source drive and noise figure measurement function.(note: need to select H34 low-noise pre-amplifier option and corresponding 16613/4/5 series noise source to finish the noise figure measurement. This Option and H39 audio analysis cannot be selected simultaneously)
4071-H96	User manual (paper publication)	Provide a detailed user manual in hard copy
4071-H97	Mounting rack	handles and accessories for 4071 mounting on standard racks
4071-H98	English Option	English panel, English manual, English operation interface and English operating system
4071-H99-1	Aluminum transportation case	High-strength lightweight aluminum transportation case, with handle and roller, convenient for transportation
4071-H99-2	Plastic safety rod pulley packing case	High strength plastic safety tie rod with wheel packing box, with handle and roller, easy to transport.
4071-S01	Absolute Power Measurement	The RF signal power is measured with high precision by means of an external USB power sensor. (The corresponding 87230/1/2/3 , 87233 series and 87235 series power sensor is required.)

4071-S02	Noise power ratio Measurement	Provide noise power ratio parameters measurement
4071-S04	Phase noise measurement	SSB phase noise curves and single-point phase noise measurement
4071-S05	EMC Pre-Compliance	Provide EMC pre-compliance measurement function
4071-S09	Analog Demodulation Option	The modulation characteristics and distortion characteristics of AM, FM and ΦM signals are analyzed
4071-S10	Transient analyzer	To realize the measurement & analysis of transient parameters, spectrum, and time-varying characteristics of signals, support playback of the recorded data.
4071-S10H	Frequency hopping signal analysis	Provides automatic measurement of frequency hopping signal residence time, switching time, frequency and error characteristics. (S10 option required).
4071-S10F	FMCW Signal Analysis	Provides automatic measurement of FMCW signal slope, deviation, power and other characteristics. (S10 option required)
4071-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.
4071-S12B	Bit error rate test	Support for bit-error rate testing based on file import of known data; Support for bit-error rate testing based on user recorded known data; Support bit error rate test based on PRBS; Provides output of bit-error rate results. (S12 option required)
4071-S12M	Multi-modulation analysis	Support signal demodulation analysis in line with DVB-S2/X standards; Provide display Windows such as constellation chart and symbol table; The modulation quality analysis results such as EVM and origin migration are provided. (S12 option required)
4071-S13	Pulse signal analyzer	Automatic measurement on time, level and modulation parameters of pulse waveform and statistical analysis of pulse sequence
4071-S14	OFDM signal analysis	Support custom OFDM signal modulation analysis; Support multi-parameter custom configuration such as lead, pilot, CP, subcarrier, symbol number, etc. It has the view window of capture storage, power spectral density, constellation chart, result summary table and so on.
4071-S16	Multicarrier group delay measurement	Provides absolute and relative group delay measurement capability for wideband signals
4071-S40	WLAN 802.11a/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.
4071-S40N	WLAN 802.11n measurement	Broadband wireless local area network protocol physical layer test (802.11n), covering radio frequency, modulation analysis, and modulation quality testing. (S40 option required)
4071-S40AC	WLAN 802.11ac measurement	Broadband wireless local area network protocol physical layer test (802.11ac), covering radio frequency, modulation analysis, and modulation quality testing. (S40 option required)
4071-S40AX	WLAN 802.11ax measurement	Broadband wireless local area network protocol physical layer test (802.11ax), covering radio frequency, modulation analysis, and modulation quality testing. (S40 option required)
4071-S40BE	WLAN 802.11be measurement	Broadband wireless LAN protocol physical layer testing (802.11be), covering RF, modulation analysis, modulation quality testing. (S40 option required)
4071-S41D	LTE/LTE-A TDD Downlink signal analysis	Support downlink signal modulation analysis; Support TDD sub-frame configuration type modulation analysis; Support custom parameter

		configuration modulation analysis; Support downlink E-TM template modulation analysis; Support EVM, switching power, frequency error, power and other parameters measurement; Provides capture storage, power spectral density, constellation chart, results summary table, EVM Vs. Carrier and other view output.
4071-S41U	LTE/LTE-A TDD Uplink signal analysis	Support uplink signal modulation analysis; Support custom parameter configuration modulation analysis; Support EVM, frequency error, power and other parameters measurement; Provides capture storage, power spectral density, constellation chart, results summary table, EVM Vs. Carrier and other view output.
4071-S42D	LTE/LTE-A FDD Downlink signal analysis	Support downlink signal modulation analysis; Support custom parameter configuration modulation analysis; Support downlink E-TM template modulation analysis; Support EVM, frequency error, power and other parameters measurement; Provides capture storage, power spectral density, constellation chart, results summary table, EVM Vs. Carrier and other view output.
4071-S42U	LTE/LTE-A FDD Uplink signal analysis	Support uplink signal modulation analysis; Support custom parameter configuration modulation analysis; Support EVM, frequency error, power and other parameters measurement; Provides capture storage, power spectral density, constellation chart, results summary table, EVM Vs. Carrier and other view output.
4071-S43D	NB-IoT Downlink signal analysis	Support modulation analysis of narrowband IoT downlink signals based on FDD LTE standard; Supports three deployment modes: independent, in band, and protected frequency band. Supports N-Test Model with one click testing and flexible parameter configuration analysis. Supports EVM, frequency error, power, and other parameter measurements. Provides constellation diagram, result summary table, EVM vs carrier and other views
4071-S43U	NB-IoT Uplink signal analysis	Support narrowband IoT uplink signal modulation analysis based on FDD LTE standard: support flexible configuration analysis of custom parameters; Support measurement of EVM, frequency error, power and other parameters: provide constellation diagram, result summary table, EVM Vs carrier and other views
4071-S45	V2X Signal Analysis	Support modulation analysis of vehicle networking lateral link signals based on 5G NR standard: support measurement of EVM, frequency error, power and other parameters, provide constellation diagram, result summary table, EVM vs carrier and other views
4071-S46D	5G NR Downlink signal measurement	Support 5G NR DOWNlink signal demodulation, EVM, spectrum flatness, time alignment error; Support ACP, spectrum emission template, transmit on/off, CCDF and other power measurement; Support multiple bandwidth and multiple TM.
4071-S46U	5G NR Uplink signal measurement	Support 5G NR UPlink signal demodulation, EVM, spectrum flatness, time alignment error; Support ACP, spectrum emission template, transmit on/off, CCDF and other power measurement; Support multiple bandwidth and multiple TM.
4071-S47D	5G NR Downlink Singal Combined measurement	Support modulation analysis of vehicle networking lateral link signals based on 5G NR standard: support measurement of parameters such as EVM, frequency error, power, etc., provide constellation diagram, result summary table, EVM vs carrier and other views to support one measurement, while displaying EVM, ACLR and SEM measurement results of 5G downlink signals. (S46D option needs to be selected at the same time)
4071-S48	Bluetooth signal analysis	Bluetooth signal analysis supporting BR, EDR, and LE modes: supports measurement of output power, frequency drift, and other parameters: provides result summary tables, constellation diagrams, and other views.
4071-S49D	WCDMA Downlink Singal Analysis	Support WCDMA downlink signal demodulation, support code domain power EVM、 Measurement of frequency error, symbol rate error, Q offset and other parameters: supports automatic detection of active channels, providing views such as code domain power, result

		summary table, constellation diagram, channel list, etc
4071-S49U	WCDMA Uplink Singal Analysis	Support WCDMA uplink signal demodulation, support code domain power EVM、 Measurement of parameters such as frequency error, symbol rate error, and 1Q offset; Support automatic detection of active channels, providing views such as code domain power, result summary table, constellation diagram, channel list, etc.
4071-S50	GSM Signal analysis	Supports GSM signal demodulation, supports time-domain power EVM 、 Frequency error and parameter measurement: provide amplitude capture, result summary table, constellation diagram and other views. Support UWB signal analysis based on IEEE 802.15.4 and IEEE 802.15.4z
4071-S51	UWB Signal Analysis	Support measurement of parameters such as PPDU power, SHR power, NRMSE.STS, etc; Supports all UWB channels and bandwidths: provides amplitude capture, result summary table, pulse and other views
4071A-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071B-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071C-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071D-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071E-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071F-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071G-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071H-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4071A-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy
4071B-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy
4071C-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy
4071D-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy
4071E-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy
4071F-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy

4071G-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy
4071H-EWT1	Extended warranty for 1 year	Beyond the warranty period, the warranty is extended for 1 year, and the two-year extended warranty is optional for 2 items, and so on. Calibration services are not included in this warranty extension policy

- **USB Power Sensor Options (Requires 4071-S01 option):**

	Model and name	Descriptions	Remarks
1	87233C USB CW Power Sensor	8kHz ~ 12GHz, -70dBm ~ +20dBm	
2	87233D USB CW Power Sensor	10MHz ~ 18GHz, -70dBm ~ +20dBm	
3	87233E USB CW Power Sensor	50MHz ~ 26.5GHz, -70dBm ~ +20dBm	
4	87233F USB CW Power Sensor	50MHz ~ 40GHz, -70dBm ~ +20dBm	
5	87233L USB CW Power Sensor	50MHz ~ 67GHz, -55dBm ~ +20dBm	
6	87235B USB Average Power Sensor	8kHz – 8GHz, -70dBm – +26dBm	
7	87235C USB Average Power Sensor	10MHz ~ 8GHz, -60dBm ~ +23dBm	
8	87235D USB Average Power Sensor	10MHz ~ 18GHz, -70dBm ~ +26dBm	
9	87235F USB Average Power Sensor	10MHz ~ 33GHz, -65dBm ~ +26dBm	
10	87235FA USB Average Power Sensor	10MHz ~ 40GHz, -65dBm ~ +26dBm	
11	87235H USB Average Power Sensor	10MHz ~ 50GHz, -65dBm ~ +23dBm	
12	87235L USB Average Power Sensor	50MHz ~ 67GHz,-60dBm ~ +23dBm	

- **Noise Source Option (Requires 4071-H48 and 4071-H34 option):**

	Model and name	Frequency Range	
1	16613DA Noise Source	10MHz ~ 18GHz, ENR 5dB ~ 8dB	BNC interface traditional noise source 
2	16613DB Noise Source	10MHz ~ 18GHz, ENR 14dB ~ 17dB	
3	16613EA Noise Source	10MHz ~ 26.5GHz, ENR 5dB ~ 8dB	
4	16613EB Noise Source	10MHz ~ 26.5GHz, ENR 12dB ~ 17dB	
5	16613FB Noise Source	10MHz ~ 40GHz, ENR 12dB ~ 19dB	
6	16613HB Noise Source	10MHz ~ 50GHz, ENR 10dB ~ 19dB	
7	16613LC Noise Source	10MHz ~ 67GHz, ENR 7dB ~ 23dB	
8	16614DA Smart Noise Source	10MHz ~ 18GHz, ENR 5dB ~ 8dB	I2C interface smart noise source 
9	16614DB Smart Noise Source	10MHz ~ 18GHz, ENR 14dB ~ 17dB	
10	16614EA Smart Noise Source	10MHz ~ 26.5GHz, ENR 5dB ~ 8dB	
11	16614EB Smart Noise Source	10MHz ~ 26.5GHz, ENR 12dB ~ 17dB	
12	16614FB Smart Noise Source	10MHz ~ 40GHz, ENR 12dB ~ 19dB	
13	16614HB Smart Noise Source	10MHz ~ 50GHz, ENR 10dB ~ 19dB	
14	16614LC Smart Noise Source	10MHz ~ 67GHz, ENR 7dB ~ 23dB	
15	16615DA Noise Source	10MHz ~ 18GHz, ENR 5dB ~ 8dB	USB noise source 
16	16615DB Noise Source	10MHz ~ 18GHz, ENR 14dB ~ 17dB	
17	16615EA Noise Source	10MHz ~ 26.5GHz, ENR 5dB ~ 8dB	
18	16615EB Noise Source	10MHz ~ 26.5GHz, ENR 12dB ~ 17dB	
19	16615FB Noise Source	10MHz ~ 40GHz, ENR 12dB ~ 19dB	
20	16615HB Noise Source	10MHz ~ 50GHz, ENR 10dB ~ 19dB	
21	16615LC Noise Source	10MHz ~ 67GHz, ENR 7dB ~ 23dB	

Ceyear

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Explore the Future

Ceyear Technologies Co., Ltd
Add: No. 98, Xiangjiang Road, Qingdao (266555), China
Tel: +86 532 86896691
http://www.ceyear.com
Email: sales@ceyear.com, zhaohao@ceyear.com