4082 Series

Signal/Spectrum Analyzer

4082B/D/E/F/H/L/N/P

(2Hz to 8.4GHz/18GHz/26.5GHz/45GHz/50GHz/67GHz/90GHz/110GHz)

Ceyear Technologies Co., Ltd

Product Overview

Ceyear 4082 series signal/spectrum analyzer is the new flagship product of Ceyear company.

4082 signal/spectrum analyzer has excellent RF performance in terms of displaying average noise level, phase noise, intermodulation rejection, dynamic range, amplitude accuracy and test speed. It has powerful spectrum analysis, standard-compliant power measurement suite, I/Q analysis, transient analysis, pulse signal analysis, real-time spectrum analysis, analog modulation analysis, vector signal analysis and many other measurement functions.

Good expansion capability can build test system or secondary development through a variety of digital and analog output interfaces. Up to 4 GHz analysis bandwidth, with the corresponding analysis options, to meet the demanding needs of signal and equipment testing in mobile communications, self-driving radar, satellite communications, Internet of Things, aerospace, semiconductor areas.

Main Features

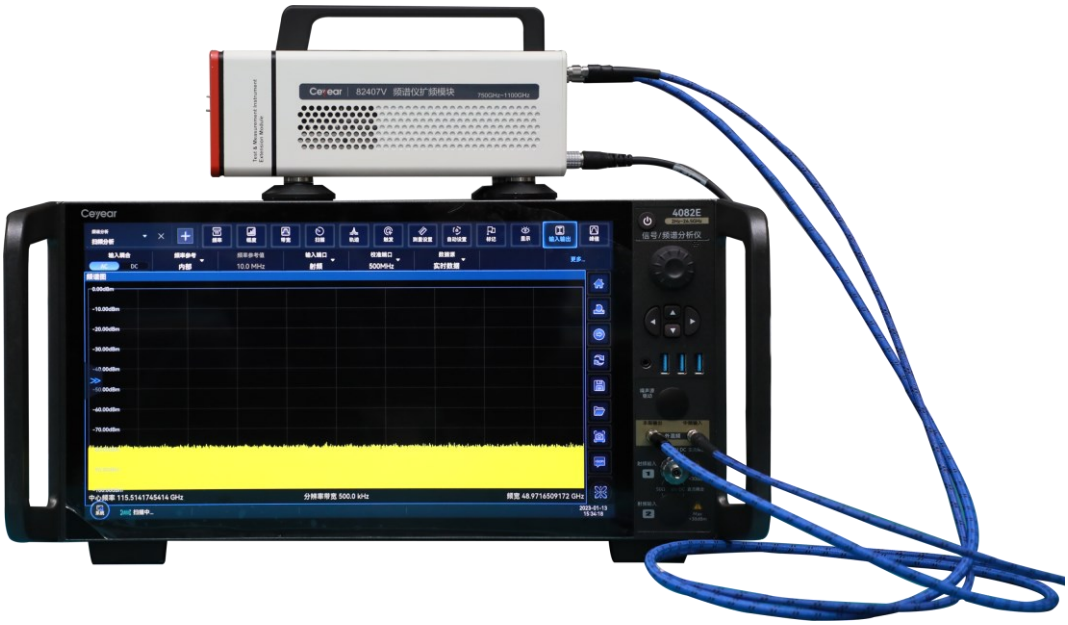
- Wide band coaxial coverage from 2Hz to 110GHz using coaxial connectors. Extendable up to 1.1THz using external waveguide THz modules
- Phase noise -135dBc/Hz @10kHz offset at 1GHz carrier
- Built-in 4GHz analysis bandwidth, 2GHz real time spectrum bandwidth
- I/Q data stream interface with 2GHz bandwidth
- Real time signal collection, record and replay with 2GHz bandwidth
- Rich wireless communication, satellite RF and pulse signal analysis functions
- Comprehensive radar signal analysis function
- 15.6-inch capacitive multi-touch screen operation

Excellent RF and Signal Reception Performance

Ceyear 4082 series signal/spectrum analyzers offer excellent RF performance in terms of displaying average noise level, phase noise, intermodulation rejection, dynamic range, amplitude accuracy, and test speed.

Ultra-wide frequency coverage

The frequency measurement range covers 2Hz to 110GHz using coaxial connectors meeting the test requirements from RF to millimeter wave. And it can also support the 82407 series and 4000 series spectrum extender modules to cover up to 1.1THz.



4082 Signal/Spectrum Analyzer + 82407 series extender modules (60GHz to 1100GHz)

4082 Signal/Spectrum Analyzer + 4000 series extender modules (60GHz to 500GHz)

110GHz full-band image suppression

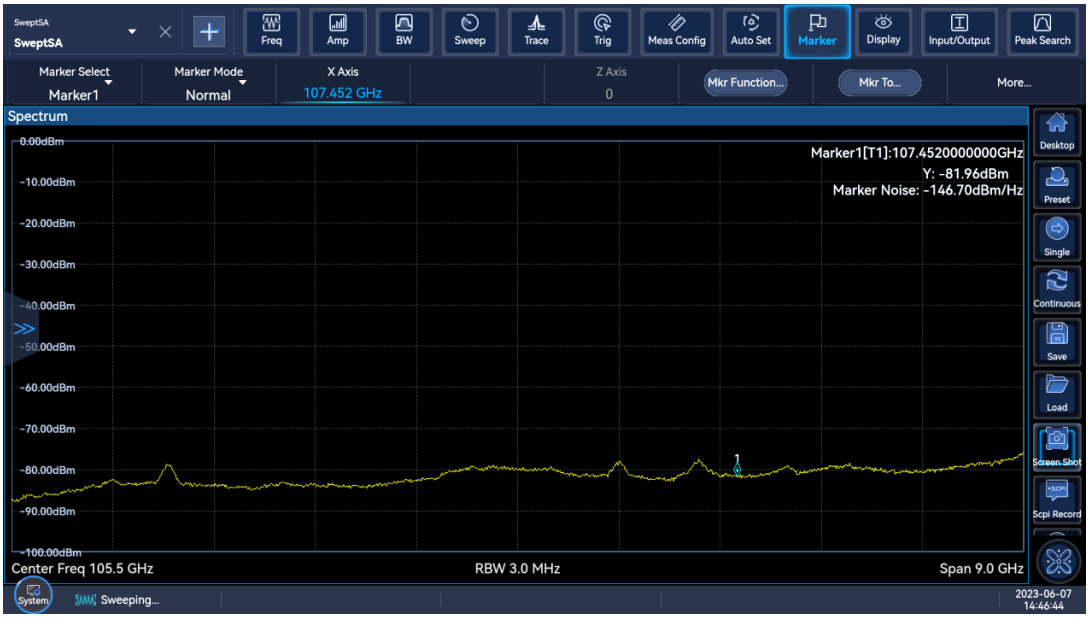
Full-band configuration preselector for effective suppression of image and interference.

Excellent low frequency signal measurement capability

The frequency band below 30MHz adopts RF direct harvesting technology, with better low-frequency signal measurement capability.

Ultra-low DANL performance

Display average noise level is -154 dBm/Hz at 1 GHz, up to -167 dBm/Hz with preamplifiers, and up to -172 dBm/Hz with noise cancellation turned on. 110 GHz display average noise level is to -140 dBm/Hz.



101GHz to 110GHz frequency band DANL specification

Excellent phase noise performance

With excellent phase noise performance, it can meet the limit requirements of users in radar and communication signal measurement. At 1GHz carrier, 1kHz frequency offset, phase noise better than -125dBc/Hz; 10kHz frequency offset, phase noise better than -135dBc/Hz.

Up to 4 GHz Analysis Bandwidth

Ceyear 4082 series signal/spectrum analyzers have an analysis bandwidth of 4 GHz and offer 8 options from 10 MHz (standard) to 4 GHz (optional) to meet the application needs of different test scenarios.

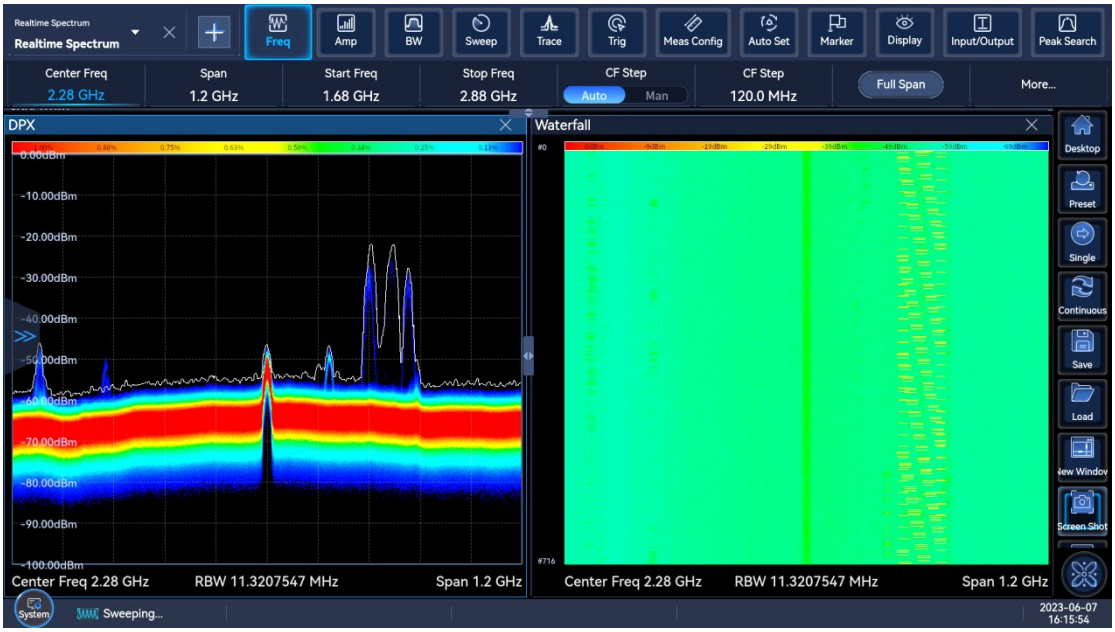
Multiple analysis bandwidth configuration options

8 types of bandwidth configurations from 10MHz/ 40MHz/ 200MHz/ 400MHz/ 600MHz/ 1.2GHz/ 2GHz/ 4GHz are available to meet the needs of different test applications such as broadband radar, 5G NR, WLAN, etc.

Excellent spurious-free dynamic range

The spurious-free dynamic range is -75dBc at 200MHz analysis bandwidth, -65dBc at 1.2GHz analysis bandwidth, and -55dBc at 2GHz analysis bandwidth.

2GHz real-time analysis bandwidth



1.2GHz Real-time Spectrum Analysis Measurement

Real-time spectrum analysis with 2GHz bandwidth is available, and the shortest duration of 100% probability of intercept (POI) signal is better than 0.27μs. This function can be used for the capture measurement of various transient burst signals such as pulsed signal, burr signal, intermittent signal, etc.

Comprehensive Spectrum Analysis Capabilities

Ceyear 4082 series signal/spectrum analyzer has a wealth of spectrum parameters test function, can provide more comprehensive and detailed analysis results.

Support frequency sweep and FFT sweep

Sweep points can be easily selected between 101 ~ 120001. The longest scan time is 16000s and the shortest scan time of zero span is 1us.

Rich traces and detector type

Support 6 traces configurations, 6 detector methods, 3 averaging types, with rich marker

measurement functions such as noise marker, bandwidth power, power spectral density, etc., and support trajectory statistics, automatic saving and recall of traces, etc.

Support waterfall chart display of historical traces

The signal/spectrum analyzer can save 10000 frames of waterfall traces, clearly show the signal spectrum changing pattern.

One-click power measurement kit

With test functions such as Occupied bandwidth, Adjacent channel power, power statistics, Burst power, Harmonic distortion, Third-order intermodulation, Spurious emission, spectrum emission mask, etc.

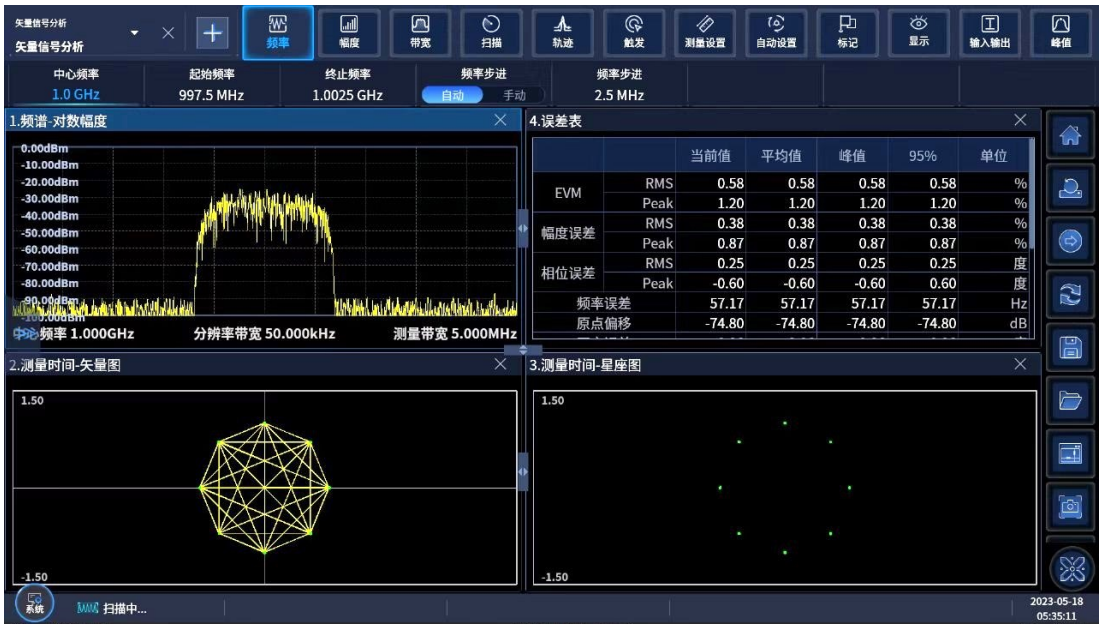
Adjacent Channel Power Measurement

Accurate Vector Modulation Signal Analysis Functions

Ceyear 4082 Series signal/spectrum analyzers feature built-in vector signal analysis, enabling demodulation of common single-carrier, single-modulation digital signals, generating symbol tables and modulation quality analysis results. This allows for joint analysis of digitally modulated signals in the time, frequency, and modulation domains, enabling precise signal quality testing and assisting in the diagnosis of signal issues such as gain imbalance, quadrature error, filtering errors, and compression.

Rich demodulation types of modulated signas

Demodulate and analyze a variety of common single-carrier, single-modulation digital modulation signals, including PSK, FSK, QAM, ASK, and APSK. It also supports demodulation and analysis of higher-order modulation signals up to 4096QAM.



Vector Signal Analysis

Comprehensive Displaying Analysis Graphs

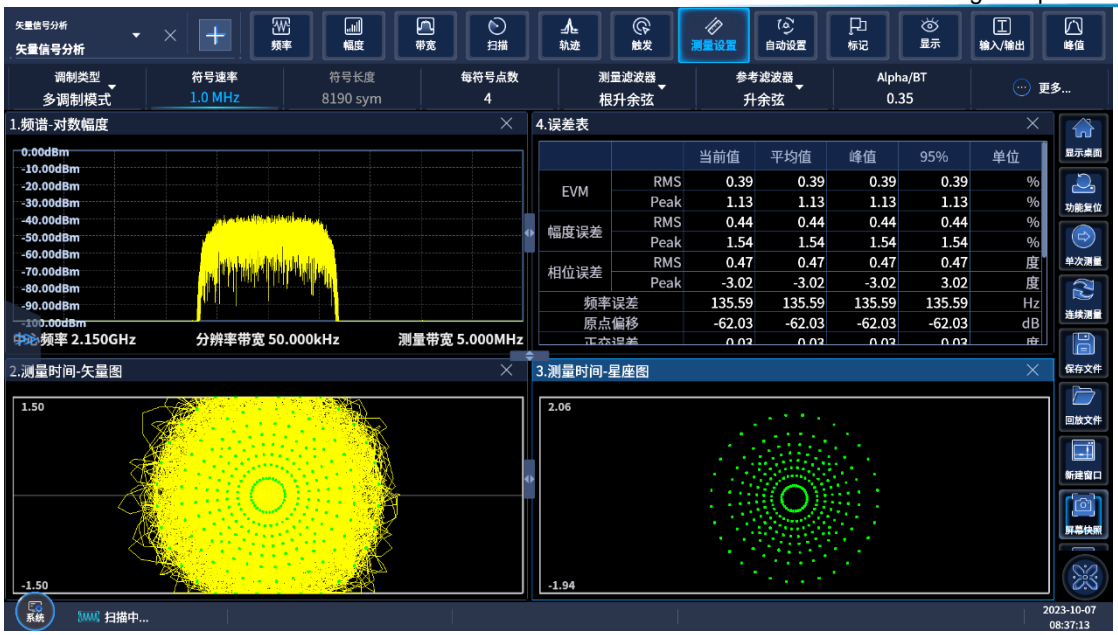
Simultaneously displays pre-demodulation, post-demodulation, reference signals, symbols, and various error results. Supports multiple display windows, including spectrum, constellation, vector diagram, phase trajectory, eye diagram, and error/symbol table, providing a rich variety of results and presentation formats.

Supports Bit Error Rate Testing

Based on the Vector Signal Analysis option, the optional S12B supports bit error rate testing based on known data imported from a file; bit error rate testing based on user-recorded known data; bit error rate testing based on PRBS; and bit error rate output.

Supports Multi-Modulation Analysis

In addition to the Vector Signal Analysis option, the optional S12M supports signal demodulation analysis compliant with the DVB-S2/X standard. It provides display windows such as constellation diagrams and symbol tables, and provides modulation quality analysis results such as EVM and origin offset.



Comprehensive Protocol Analysis for Wireless Communications

The Ceyear 4082 series signal/spectrum analyzer provides fast, intuitive testing of signal characteristics for a wide range of wireless communication standards, including 5G NR, LTE, NB-IoT, WCDMA, GSM, and etc.

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.

4082P Signal/Spectrum Analyzer

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

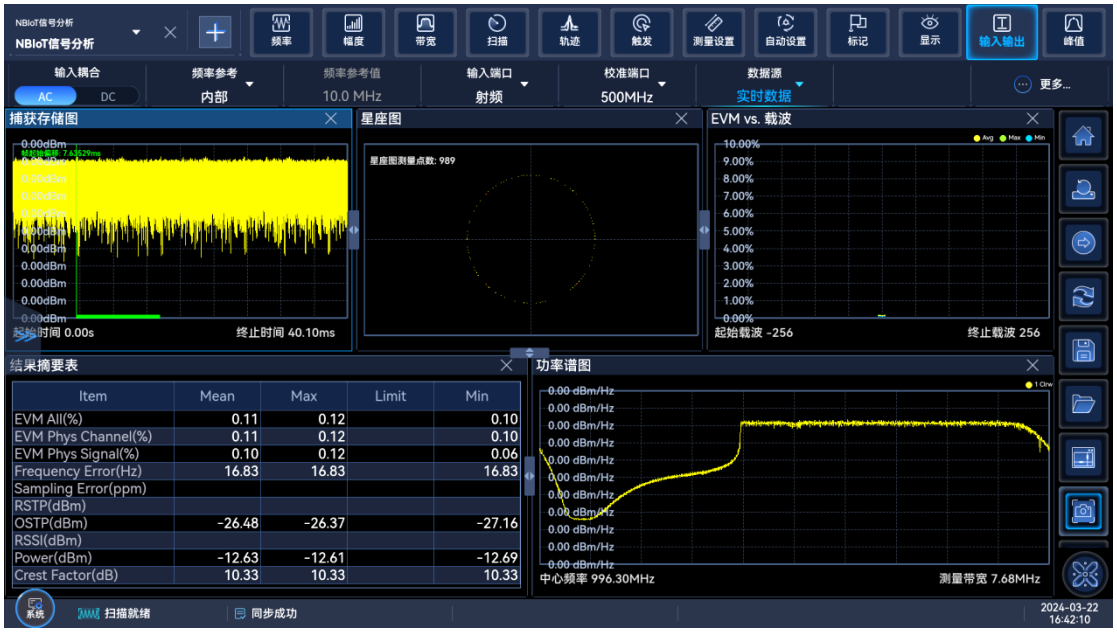
OFDM Signal Analysis

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.

ALCR Measurement

Flexible Transient Signal Analysis

The transient signal analysis function can analyze parameters such as IQ amplitude, phase, frequency, and power of captured data, as well as automatically analyze frequency hopping signals and frequency modulated continuous wave signals to obtain parameter results.

Frequency-hopping/FMCW Signal Analysis

Based on transient analysis options, the signal/spectrum analyzer can also be equipped with S10H frequency hopping signal analysis options and S10F FMCW (frequency modulated continuous wave) signal analysis options. Among them, the S10H option can conveniently analyze frequency jump signals and obtain characteristic parameters such as dwell time/switching time, frequency, and deviation of the signal. The S10F option can automatically test frequency modulated continuous wave signals to obtain parameters such as frequency modulation rate, bandwidth, and frequency nonlinearity.

Transparent Signal Analysis

Comprehensive Pulse Signal Analysis Function

The Ceyear 4082 series signal/spectrum analyzer is equipped with pulse signal measurement software, which can perform multi-level measurement and analysis of pulse modulation signals, and display them in various display modes such as spectrum, time spectrum, parameter table, etc., to assist in system performance measurement and problem localization.

Abundant Pulse Parameters Measurement

Support pulse signal spectrum and time-domain characteristic testing, and can simultaneously analyze and display pulse parameters such as pulse width, pulse period, pulse rise and fall time, power drop within the pulse, peak power, minimum power, top value, bottom value, pulse amplitude, pre pulse, overshoot, peak frequency error, effective frequency error value, frequency offset, etc.

Pulse Signal Analysis

Intra-pulse Characteristic Analysis

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

Analysis of Inter-pulse Characteristics

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

Powerful Satellite RF Testing Capabilities

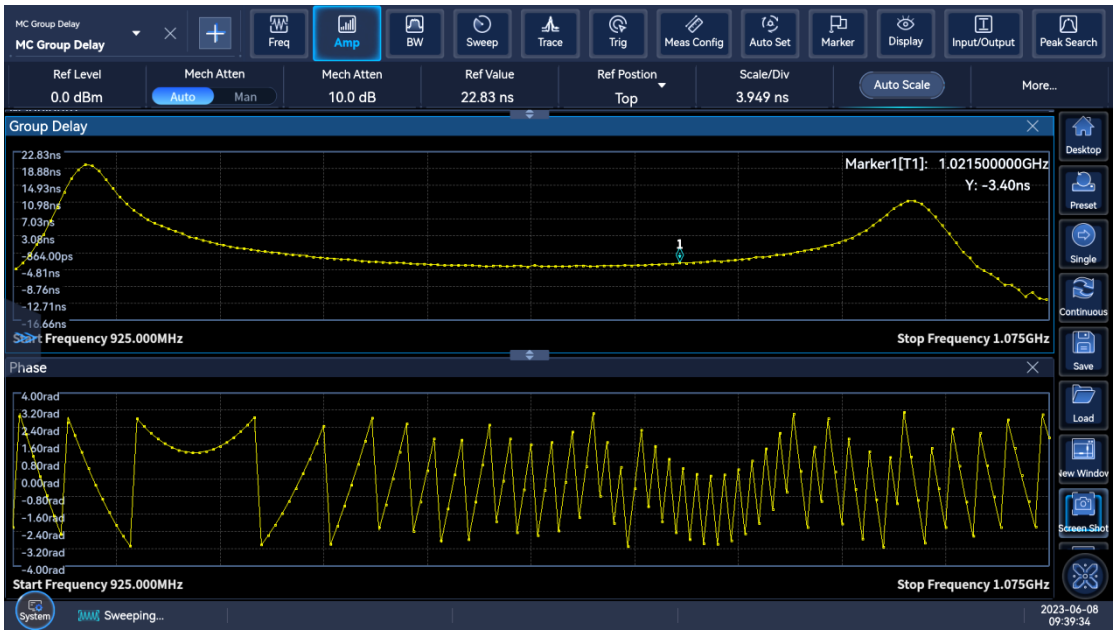
Ceyear 4082 series signal/spectrum analyzers have high-performance satellite RF test functions, which can be used for the R&D and production process testing of satellite payloads, systems, and components.

Multi-Carrier Group Delay Measurement

It can quickly measure the absolute group delay and relative group delay of components such as satellite frequency converters and transponders. Measures the frequency response of the device under test and displays amplitude, phase, and group delay versus frequency.

Noise Power Ratio Measurement

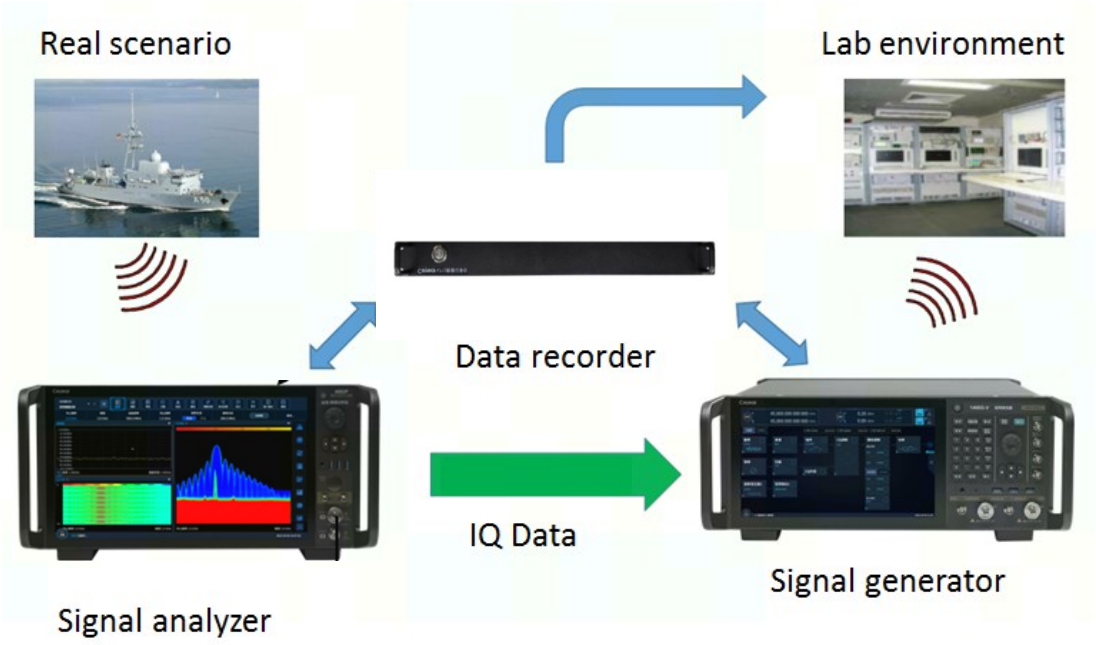
It is convenient and intuitive to measure the noise-to-power ratio of wideband systems to help measure the degree to which idle channels are affected when multiple channels are occupied.



Multi-Carrier Group Delay Measurement

Full bandwidth data real-time recording and playback

Real-time analysis of complex electromagnetic environments is extremely difficult, and it is crucial to seamlessly record electromagnetic signals in space for a long time and conduct post-analysis.



Data record and playback solution

Superior RF Performance

As a signal and spectrum analyzer with excellent performance, as the receiving front end of RF acquisition and recording, it has large dynamic range, low distortion, and high sensitivity. Combined with the powerful analysis function of Ceyear 4082, it can also provide functions such as search, analysis and playback of complex signals.

Record and Playback

The recording signal bandwidth is up to 2000MHz, with the function of starting and stopping the acquisition, and the real-time preview analysis of the spectrum analysis mode

.

Large Touch Screen, More Convenient Control

The hardware configuration of Ceyear 4082 series signal/spectrum analyzer has been improved in an all-round way. It adopts high-performance processor and large touch screen, which makes the operation of the instrument more convenient.

High-performance processor, large memory

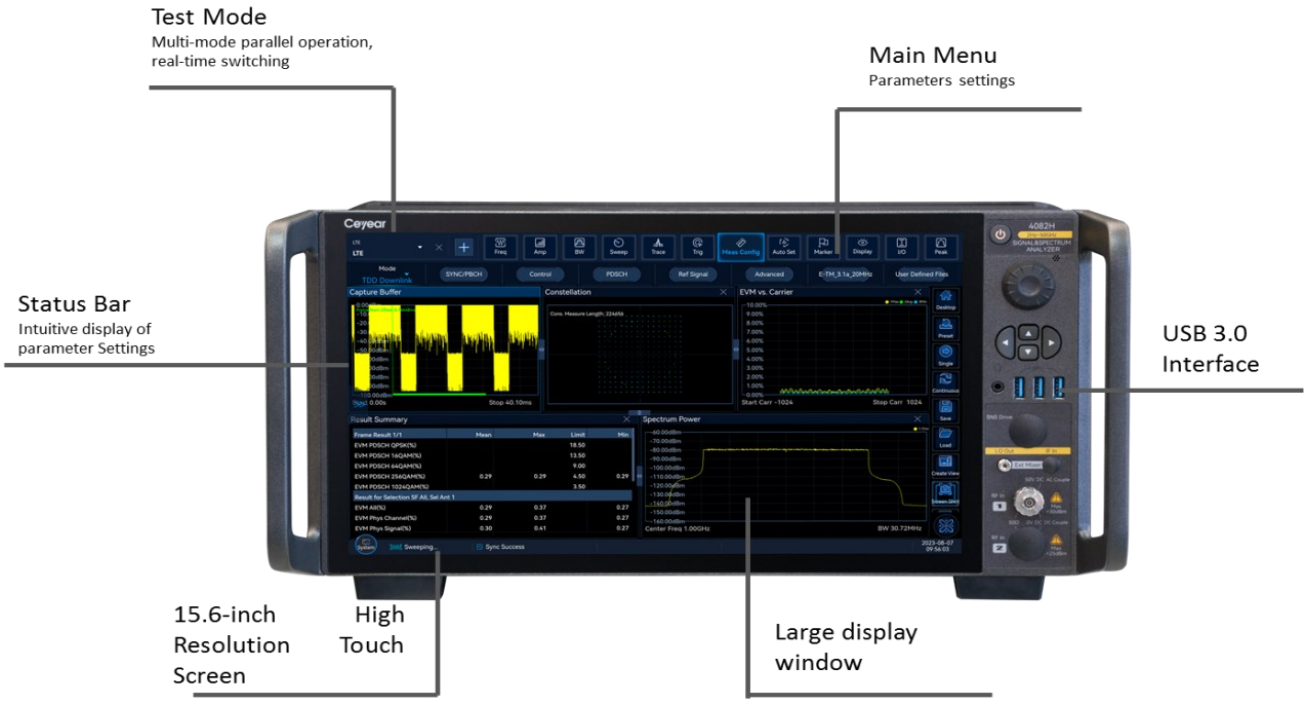
Using i7 processor and 16G memory, it runs more smoothly and ensures the efficient operation of long-term testing.

Smarter human-computer interaction

Remote control via a browser allows for real-time monitoring of test status. Automatic recording of SCPI commands makes test flow planning more efficient. User-defined shortcut menus make parameter settings more efficient and convenient.

15.6-inch large touch screen

Various measurement results can be seen at a glance, multi-touch is supported, and the operation is simple and efficient. Support interface area layout dynamic adjustment and custom menu. Parallel operation and display of multiple measurement modes, convenient and flexible mode switching.



4082P Signal/Spectrum Analyzer
(2Hz – 110GHz)

Various Forward Looking Interface Configurations

Ceyear 4082 series signal/spectrum analyzers provide abundant input and output interfaces, including RF input, trigger input and output, IF output, etc. Facing potential applications in the future, 10 Gigabit network interfaces and optical fiber interfaces with 2GHz bandwidth are proactively configured to meet various digital transformation challenges.

AC/DC coupling modes

The models that support AC/DC two coupling methods can reach 67GHz, which can provide flexible selection of RF input ports in higher frequency bands.

10 Gigabit network interface

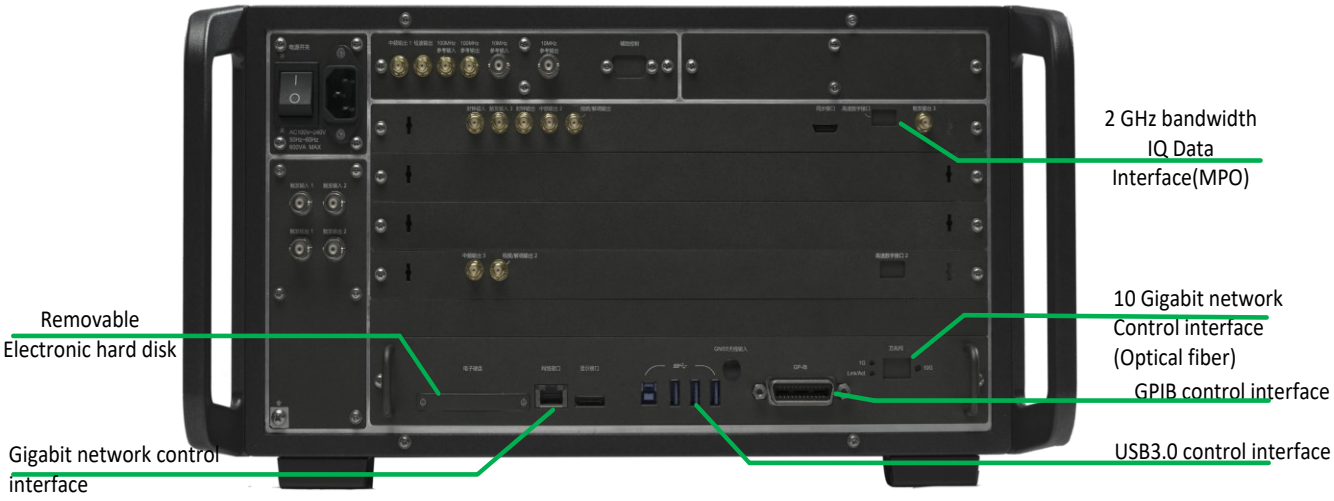
Configure a 10 Gigabit network interface to provide higher bandwidth, faster speed, and more stable data transmission.

High-speed fiber interface

Equipped with 2GHz ultra-wideband digital interface, it can realize real-time broadband data acquisition and output with 2GHz bandwidth.

4TB built-in electronic hard drive

Built-in 4TB electronic hard disk (optional) provides convenience for mass data storage during measurement.



Technical Specification

Frequency range	**Model**	**DC coupled**	**AC coupled**
	4082B	2Hz to 8.4GHz	10MHz to 8.4GHz
	4082D	2Hz to 18GHz	10MHz to 18GHz
	4082E	2Hz to 26.5GHz	10MHz to 26.5GHz
	4082F	2Hz to 45GHz	10MHz to 45GHz
	4082H	2Hz to 50GHz	10MHz to 50GHz
	4082L	2Hz to 67GHz	10MHz to 67GHz
	4082N	2Hz to 90GHz	—
	4082P	2Hz to 110GHz	—
10 MHz Precise Frequency Reference	Frequency accuracy: ± (last calibration date × aging rate + temperature stability + calibration accuracy) Aging rate: ±5 × 10^{-8}/year ±2 × 10^{-8}/year (4082-H13) Temperature stability: ± 1×10^{-8}/year Calibration Accuracy: ± 4×10^{-8}		
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)		
Sweep Points	101 to 120001		
Frequency Counting Accuracy	± (frequency readout × frequency reference accuracy+0.1Hz)		
Span	Range: 0Hz (zero frequency span),10Hz to the highest frequency of the model Accuracy: ± (0.1%× Frequency span+ Frequency span/ (sweep points-1))		
Sweep Time Range	Frequency span ≥10Hz: 3us to 16000s Frequency span =0Hz: 1us to 16000s		
Resolution Bandwidth	Range: 0.1Hz to 20MHz (1,2,3,5 steps) Conversion uncertainty: ±0.10dB 1Hz to 3MHz (1,2,3,5 steps) ±0.30dB 5MHz to 10MHz (1,2,3,5 steps) ±1.00dB 20MHz		
Analysis Bandwidth	Standard: 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 Option H38-4000: 4GHz		
Video Bandwidth	1Hz to 20MHz (1,2,3,5 steps)		
Trigger Source	Free, Line, video, external 1, external level 2, burst RF, timer		
Trace Detector	Normal, positive peak, negative peak, sample, video average, power average, voltage average		
Residual FM	≤(0.25 Hz x N) p-p, (10Hz resolution bandwidth, 10Hz video bandwidth, the rated value within 20ms N is the number of frequency multiple times of LO)		
SSB Phase Noise (1GHz carrier, 20°C ~ 30°C)	**Frequency offset**	**Specification**	**Typical**
	100Hz	-107dBc/Hz	-115dBc/Hz
	1kHz	-125dBc/Hz	-128dBc/Hz
	10kHz	-133dBc/Hz	-135dBc/Hz
	100kHz	-135dBc/Hz	-137dBc/Hz

	1MHz	-138dBc/Hz	-140dBc/Hz
	10MHz	/	-156dBc/Hz
Displayed Average Noise Level **(the input end is connected to match load, sample or average wave detection, the average type is logarithm, 0dBinput attenuation, RF gain takes the DANL as the priority, Normalized to 1Hz, 20°C ~ 30°C)**	**4082B (Without Pre-amplifier)**		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-149dBm	-158dBm
	100MHz <f ≤1.2GHz	-152dBm	-156dBm
	1.2GHz <f ≤2.2GHz	-151dBm	-155dBm
	2.2GHz <f ≤3.25GHz	-150dBm	-154dBm
	3.25GHz<f ≤ 5.25GHz	-148dBm	-153dBm
	5.25GHz <f ≤ 6.5GHz	-144dBm	-152dBm
	6.5GHz <f ≤ 8.4GHz	-142dBm	-148dBm
	4082B (Pre-amplifier ON)		
	Frequency Range	**Specification**	**Typical**
	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 (Without Pre-amplifier)		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-147dBm	-156dBm
	100MHz <f ≤1.2GHz	-151dBm	-154dBm
	1.2GHz <f ≤2.2GHz	-150dBm	-153dBm
	2.2GHz <f ≤3.25GHz	-148dBm	-151dBm
	3.25GHz <f ≤ 5.25GHz	-145dBm	-149dBm
	5.25GHz <f ≤ 6.5GHz	-142dBm	-148dBm
	6.5GHz <f ≤ 8.2GHz	-140dBm	-146dBm
	8.2GHz <f ≤18GHz	-143dBm	-144dBm
	18GHz <f ≤26.5GHz	-137dBm	-141dBm
	26.5GHz <f ≤40GHz	-130dBm	-139dBm
	40GHz <f ≤50GHz	-127dBm	-134dBm
	4082D/E/F/H (Pre-amplifier ON)		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-155dBm	-160dBm
	100MHz <f ≤ 3.25GHz	-162dBm	-164dBm
	3.25GHz < f ≤ 5.25GHz	-160dBm	-165dBm
	5.25GHz < f ≤ 8.4GHz	-156dBm	-163dBm
	8.2GHz < f ≤18GHz	-157dBm	-160dBm
	18GHz < f ≤26.5GHz	-154dBm	-158dBm
	26.5GHz < f ≤40GHz	-151dBm	-154dBm
	40GHz < f ≤50GHz	-148dBm	-151dBm
	4082L (Without Pre-amplifier)		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-147dBm	-150dBm
	100MHz <f ≤1.2GHz	-150dBm	-152dBm
	1.2GHz <f ≤2.2GHz	-149dBm	-152dBm
	2.2GHz <f ≤3.25GHz	-148dBm	-151dBm
	3.25GHz <f ≤ 5.25GHz	-145dBm	-150dBm
	5.25GHz <f ≤ 6.5GHz	-142dBm	-150dBm

	6.5GHz <f ≤ 8.2GHz	-140dBm	-147dBm
	8.2GHz <f ≤18GHz	-141dBm	-145dBm
	18GHz <f ≤26.5GHz	-137dBm	-142dBm
	26.5GHz <f ≤40GHz	-130dBm	-136dBm
	40GHz <f ≤50GHz	-127dBm	-132dBm
	50GHz <f ≤54.8GHz	-135dBm	-140dBm
	54.8GHz <f ≤63.6GHz	-133dBm	-137dBm
	63.6GHz <f ≤67GHz	-131dBm	-135dBm
	4082L (Pre-amplifier ON)		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-157dBm	-162dBm
	100MHz <f ≤ 3.25GHz	-162dBm	-165dBm
	3.25GHz <f ≤ 5.25GHz	-161dBm	-164dBm
	5.25GHz <f ≤ 8.2GHz	-154dBm	-161dBm
	8.2GHz <f ≤18GHz	-156dBm	-160dBm
	18GHz <f ≤26.5GHz	-154dBm	-158dBm
	26.5GHz <f ≤40GHz	-151dBm	-155dBm
	40GHz <f ≤48GHz	-145dBm	-151dBm
	48GHz <f ≤54.8GHz	-146dBm	-152dBm
	54.8GHz <f ≤63.6GHz	-142dBm	-148dBm
	63.6GHz <f ≤67GHz	-140dBm	-146dBm
	4082N/P (Without Pre-amplifier) RF Port 2		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-145dBm	-148dBm
	100MHz <f ≤1.2GHz	-148dBm	-152dBm
	1.2GHz <f ≤ 2.2GHz	-146dBm	-151dBm
	2.2GHz <f ≤ 3.25GHz	-144dBm	-149dBm
	3.25GHz <f ≤ 5.25GHz	-141dBm	-148dBm
	5.25GHz <f ≤ 6.5GHz	-140dBm	-146dBm
	6.5GHz <f ≤ 8.2GHz	-138dBm	-144dBm
	8.2GHz <f ≤18GHz	-138dBm	-143dBm
	18GHz <f ≤26.5GHz	-135dBm	-139dBm
	26.5GHz <f ≤40GHz	-127dBm	-133dBm
	40GHz <f ≤50GHz	-122dBm	-126dBm
	50GHz <f ≤54.8GHz	-133dBm	-136dBm
	54.8GHz <f ≤63.6GHz	-130dBm	-135dBm
	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 (Pre-amplifier ON) RF Port 1		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤100MHz	-155dBm	-160dBm
	100MHz <f ≤ 3.25GHz	-160dBm	-164dBm
	3.25GHz <f ≤ 5.25GHz	-159dBm	-164dBm
	5.25GHz <f ≤ 8.2GHz	-152dBm	-159dBm
	8.2GHz <f ≤18GHz	-154dBm	-157dBm
	18GHz <f ≤26.5GHz	-151dBm	-157dBm
	26.5GHz <f ≤40GHz	-149dBm	-153dBm

	40GHz <f ≤48GHz	-147dBm	-149dBm
	48GHz <f ≤54.8GHz	-146dBm	-149dBm
	54.8GHz <f ≤63.6GHz	-142dBm	-145dBm
	63.6GHz <f ≤67GHz	-135dBm	-143dBm

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

4082B (Without Pre-amplifier)

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	±0.50dB	±0.08dB
100MHz <f ≤ 3.25GHz	±0.40dB	±0.13dB
3.25GHz <f ≤ 5.25GHz	±0.60dB	±0.15dB
5.25GHz <f ≤ 8.4GHz	±0.80dB	±0.21dB

4082B (Pre-amplifier ON)

Frequency Range	Specification	Typical
100kHz ≤ f ≤ 100MHz	±0.80dB	±0.18dB
100MHz <f ≤ 3.25GHz	±0.70dB	±0.16dB
3.25GHz <f ≤ 5.25GHz	±0.80dB	±0.19dB
5.25GHz <f ≤ 8.4GHz	±0.90dB	±0.19dB

4082D/E/F/H (Without Pre-amplifier)

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	±0.50dB	±0.15dB
100MHz <f ≤ 3.25GHz	±0.40dB	±0.13dB
3.25GHz <f ≤ 5.25GHz	±0.60dB	±0.15dB
5.25GHz <f ≤ 8.2GHz	±0.80dB	±0.24dB
8.2GHz <f ≤18GHz	±2.00dB	±0.77dB
18GHz <f ≤26.5GHz	±2.50dB	±0.93dB
26.5GHz <f ≤40GHz	±2.80dB	±0.82dB
40GHz <f ≤50GHz	±3.00dB	±1.26dB

4082D/E/F/H (Pre-amplifier ON)

Frequency Range	Specification	Typical
100kHz ≤ f ≤ 100MHz	±0.80dB	±0.21dB
100MHz <f ≤ 3.25GHz	±0.70dB	±0.18dB
3.25GHz <f ≤ 5.25GHz	±0.80dB	±0.22dB
5.25GHz <f ≤ 8.2GHz	±0.90dB	±0.25dB
8.2GHz <f ≤18GHz	±2.00dB	±0.82dB
18GHz <f ≤26.5GHz	±2.50dB	±1.12dB
26.5GHz <f ≤40GHz	±2.80dB	±1.10dB
40GHz <f ≤50GHz	±3.00dB	±1.58dB

4082L/N/P (Without Pre-amplifier)

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	±0.50dB	±0.15dB
100MHz <f ≤ 3.25GHz	±0.40dB	±0.16dB
3.25GHz <f ≤ 5.25GHz	±0.60dB	±0.19dB
5.25GHz <f ≤ 8.2GHz	±0.80dB	±0.36dB
8.2GHz <f ≤18GHz	±2.00dB	±0.57dB
18GHz <f ≤26.5GHz	±2.50dB	±0.98dB
26.5GHz <f ≤40GHz	±2.80dB	±1.23dB

	40GHz <f ≤48GHz ±3.00dB ±0.96dB 48GHz <f ≤67GHz ±3.50dB ±1.01dB 67GHz <f ≤110GHz ±4.00 dB ±1.72dB **4082L/N/P (Pre-amplifier ON)** **Frequency Range Specification Typical** 100kHz ≤ f ≤ 100MHz ±0.50dB ±0.18dB 100MHz <f ≤ 3.25GHz ±0.70dB ±0.19dB 3.25GHz <f ≤ 5.25GHz ±0.80dB ±0.26dB 5.25GHz <f ≤ 8.2GHz ±0.90dB ±0.28dB 8.2GHz <f ≤18GHz ±2.00dB ±0.92dB 18GHz <f ≤26.5GHz ±2.50dB ±1.07dB 26.5GHz <f ≤40GHz ±2.80dB ±1.11dB 40GHz <f ≤48GHz ±3.00dB ±1.20dB 48GHz <f ≤67GHz ±3.50dB ±1.25dB
	Absolute Amplitude Accuracy Absolute amplitude accuracy (10 dB attenuation, 20°C ~ 30°C, 1 Hz ≤resolution bandwidth≤ 1 MHz, input signal -10 to -50 dBm): ±0.24dB 500MHz ± (0.24dB+frequency response) all frequency except 500MHz
1dB Gain Compression (mixer level, dual-tone test, resolution bandwidth is 5kHz, 3MHz frequency interval, 20°C ~ 30°C)	**4082B** **Frequency range Mixer Input Level Typical** 20MHz <f ≤ 8.4GHz +5dBm +10dBm **4082D/E/F/H/** **Frequency range Mixer Input Level Typical** 20MHz ≤ f ≤3.25GHz ≥+5dBm ≥+12dBm 3.25GHz <f ≤50GHz ≥+7dBm ≥+12dBm **4082L/N/P** **Frequency range Mixer Input Level Typical** 20MHz≤ f ≤5.25GHz ≥+5dBm ≥+13dBm 5.25GHz <f ≤ 8.2GHz ≥+7dBm ≥+13dBm 8.2GHz <f ≤ 67GHz ≥+6dBm ≥+13dBm 48GHz<f≤67GHz(4082N/P) ≥+3dBm /
TOI distortion (input mixer 2 -10dBm signal test, frequency interval is 50kHz, 20°C ~ 30°C)	**4082B** **Frequency Range Specification Typical** 10MHz ≤ f ≤100MHz +14dBm +26dBm 100MHz <f ≤ 3.25GHz +18dBm +29dBm 3.25GHz <f ≤ 5.25GHz +18dBm +25dBm 5.25GHz f ≤ 8.4GHz +17dBm +23dBm **4082D/E/F/H/L/N/P** **Frequency Range Specification Typical** 10MHz ≤ f ≤100MHz +14dBm +27dBm 100MHz <f ≤ 3.25GHz +18dBm +30dBm 3.25GHz <f ≤ 5.25GHz +20dBm +26dBm 5.25GHz <f ≤ 8.2GHz +21dBm +26dBm 8.2GHz <f ≤48GHz +18dBm +26dBm 48GHz <f ≤67GHz +18dBm +28dBm 48GHz <f ≤67GHz(4082N/P) +15dBm +29dBm
Attenuator	**Range: 0 – 70dB, step 2dB**
Low Noise Pre-amplifier	**Frequency Range: 100kHz to upper limit of the device (4082N/P is also 67GHz)**
Residual response (the input end is	≤-98dBm 1MHz ≤ f ≤8GHz RF Port 1

connected to match load, 0dB attenuation)	
IQ Data	Memory depth (IQ length): Analysis bandwidth≤40MHz: 500M IQ samples, IQ bits length: 32 bits I, 32 bits 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 ×(222±4) mm ×(450±4) mm(excluding handle, foot-pad, bottom feet)
Weight	About 35kg (different configuration have different weights)
Power supply	AC 100 to 240V:50 to 60Hz
Power Consumption	Maximum 500W (Standard configuration), 850W with full options
Temperature Range	Operating temperature: 0°C~+50°C Storage temperature: -40°C~+70°C
RF Input Type	4082B/D: N Type (female), 50 Ohm 4082E: 3.5mm (male), 50 Ohm 4082F/H: 2.4mm (male), 50 Ohm 4082L: 1.85mm (male), 50 Ohm 4082N/P: RF Input 1: 1.85mm(male), 50 Ohm RF Input 2: 1.0 mm(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°C ~ 30°C temperature range; typical performance excludes test uncertainty.

4082H Signal/Spectrum Analyzer

(2Hz to 50GHz)

Ording Information

- **Mainframe:**

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

- **Standard:**

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

- **Option:**

No.	Description	Functions
4082-H02	Auxiliary IF output	Outputs a second IF signal with a frequency range tied to the analysis bandwidth, a 1Hz frequency resolution, and 15dB variable gain in 1dB steps. Output frequency range: 425MHz ± 40MHz (≤ 40MHz analysis bandwidth), 750MHz ± 600MHz (200MHz to 1.2GHz analysis bandwidth), and 1.5GHz ± 1000MHz (2GHz analysis bandwidth).
4082-H08	Wideband Log detect output	Output a logarithmic detection signal reflecting the level characteristics of the input signal
4082-H11	10 Gigabit Ethernet Control and Data Interface	Optical fiber based 10 gigabit network interface
4082-H12C	Wideband digital interface	It can output broadband IQ data through optical fiber in real time, and supports IQ data output with a maximum bandwidth of 400MHz. Combined with the large capacity data Recorder (4712C data recorder), the IQ data can be recorded in real time. (Note: 4082-H12C can be selected when the analysis bandwidth is less than 400MHz).
4082-H12E	Wideband digital interface	Broadband IQ data collection can be output in real time through optical fiber, supporting IQ data output with a maximum bandwidth of 1.2GHz. Combined with a large capacity data logger (4712E data logger), it can achieve real-time large-capacity recording of IQ data. (Note: 4082-H12E can be selected when 600MHz≤ analysis bandwidth ≤1.2GHz).

4082-H12F	Wideband digital interface	Broadband IQ data collection can be output in real time through optical fiber, supporting IQ data output with a maximum bandwidth of 2GHz. Combined with a large capacity data logger (4712F data logger), it can achieve real-time large-capacity recording of IQ data. (Note: 4082-H12F can be selected when the analysis bandwidth is 2GHz).
4082-H22C-4T	4712C Data Recorder	Interconnect with a signal/spectrum analyzer equipped with a 4082-H12C broadband digital interface to achieve real-time large-capacity recording of signal data with a maximum analytical bandwidth of 400MHz. For details of the logger specifications, see the 4712 Series Data logger data.
4082-H22C-8T	4712C Data Recorder	
4082-H22C-16T	4712C Data Recorder	
4082-H22C-32T	4712C Data Recorder	
4082-H22E-8T	4712E Data Recorder	Interconnect with a signal/spectrum analyzer equipped with a 4082-H12E broadband digital interface to enable real-time large-capacity recording of signal data up to 1.2GHz analysis bandwidth. See the 4712 Series data logger for detailed specifications.
4082-H22E-16T	4712E Data Recorder	
4082-H22E-32T	4712E Data Recorder	
4082-H22E-64T	4712E Data Recorder	
4082-H13	Accurate Frequency Reference	To provide high accurate frequency reference
4082-H19-2T	Local memory expansion	Supports up to 2TB storage memory (electronic hard disk)
4082-H19-4T	Local memory expansion	Supports up to 4TB storage memory (electronic hard disk)
4082-H33-08	Electronic attenuator	Frequency range: 9kHz to 8GHz,attenuation range: 30dB,in 0.5dB steps
4082-H34-08	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer Example: 4082B frequency upper limit is 8.4GHz,Pre-amplifier need to select option H34-08
4082-H34-18	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4082D frequency upper limit is 18GHz,Pre-amplifier need to select option H34-18.
4082-H34-26	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4082E frequency upper limit is 26.5GHz,Pre-amplifier need to select option H34-26.
4082-H34-45	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4082F frequency upper limit is 45GHz,Pre-amplifier need to select option H34-45.
4082-H34-50	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4082H frequency upper limit is 50GHz,Pre-amplifier need to select option H34-50.
4082-H34-67	Low-noise preamplifier	The preamplifier is selected according to the frequency upper limit of the signal analyzer. Example: 4082L frequency upper limit is 67GHz,Pre-amplifier need to select option H34-67.
4082-H34A-08	Low-noise preamplifier	Only 4082B mainframe can be configured, and 4082-H34-08 is not optional at the same time.
4082-H36	Pre-selector Bypass	The tracking pre-selector in the bypass receiving channel.
4082-H38-40	40MHz Analysis bandwidth	Support 10Hz to 40MHz Analysis bandwidth. Except 4082B, H36 option is mandatory for this H38 option.
4082-H38-200	200MHz Analysis bandwidth	Support 10Hz to 200MHz Analysis bandwidth. Except 4082B, H36 option is mandatory for this H38 option.
4082-H38-400	400MHz Analysis bandwidth	Support 10Hz to 400MHz Analysis bandwidth. Except 4082B, H36 option is mandatory for this H38 option.. Except 4082B, H36 option is mandatory for this H38 option.
4082-H38-600	600MHz	Support 10Hz to 600MHz Analysis bandwidth. Except 4082B,

	Analysis4bandwidth	H36 option is mandatory for this H38 option.
4082-H38-1200	1.2GHz Analysis bandwidth	Support 10Hz to 1.2GHz Analysis bandwidth. Except 4082B, H36 option is mandatory for this H38 option.
4082-H38-2000	2GHz Analysis bandwidth	Support 10Hz to 2GHz Analysis bandwidth. Except 4082B, H36 option is mandatory for this H38 option.
4082-H38-4000	4GHz Analysis bandwidth	Support 10Hz to 4GHz Analysis bandwidth. 4082B doesn' t support this option. H36 option is mandatory for this H38 option.
4082-H40	External frequency extender	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 4082B: the extended frequency range depends on the selected extension modules; the frequency extension module needs to buy additionally)
4082-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.
4082-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, H38-1200
4082-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. (The H38 option must also be configured. This option is available when H38-200, H38-400, H38-600, and H38-1200 and H38-4000 are configured.
4082-H41-400	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 400MHz bandwidth. (The H38 option must also be configured. This option is available when H38-400, H38-600, and H38-1200 and H38-4000 are configured.
4082-H41-600	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 600MHz bandwidth. The H38 option must also be configured. This option is available when H38-600, and H38-1200 and H38-4000 are configured.
4082-H41-1200	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 1.2GHz bandwidth. The H38 option must also be configured. This option is available when H38-1200 and H38-4000 are configured.
4082-H41-2000	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 2GHz bandwidth. The H38 option must also be configured. This option is available when H38-4000 are configured.
4082-H48	Noise figure analysis	Provide noise source drive and noise figure measurement function. 4082N/P only support maximum 67GHz noise figure measurement.(note: the option need to select H34 low-noise pre-amplifier option and corresponding 16613/4/5 noise source to finish the noise figure measurement.
4082-H96	User manual (paper publication)	Provide a detailed user manual in hard copy

4082-H97	Mounting rack	handles and accessories for 4082 mounting on standard racks
4082-H98	English Option	English panel, English manual, English operation interface and English operating system
4082-H99-2	Aluminum transportation case	High-strength lightweight aluminum transportation case, with handle and roller, convenient for transportation
4082-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 and 87235 series power sensor is required.)
4082-S02	Noise power ratio measurement	Provide noise power ratio parameters measurement
4082-S04	Phase noise measurement	SSB phase noise curves and single-point phase noise measurement
4082-S05	EMC Pre-Compliance	Provide EMC pre-compliance measurement function
4082-S09	Analog Demodulation Option	The modulation characteristics and distortion characteristics of AM, FM and ΦM signals are analyzed
4082-S10	Transient analyzer	To realize the measurement & analysis of transient parameters, spectrum, and time-varying characteristics of signals, support playback of the recorded data.
4082-S10H	Frequency hopping signal analysis	Provides automatic measurement of frequency hopping signal residence time, switching time, frequency and error characteristics. (S10 option required).
4082-S10F	FMCW Signal Analysis	Provides automatic measurement of FMCW signal slope, deviation, power and other characteristics. (S10 option required)
4082-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.
4082-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)
4082-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)
4082-S13	Pulse signal analyzer	Automatic measurement on time, level and modulation parameters of pulse waveform and statistical analysis of pulse sequence
4082-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.
4082-S15	Amplifier Test	Support to test the ACLR, AM/AM, AM/PM, frequency response, EVM characteristic measurement. Support time-domain and frequency-domain analysis.
4082-S15D	Digital Pre-distortion measurement	Support correction of amplifier nonlinear distortion and iterative learning control of DPD memory polynomial DPD. (S15 option needs to be selected at the same time)
4082-S16	Multicarrier group delay measurement	Provides absolute and relative group delay measurement capability for wideband signals

4082-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.
4082-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)
4082-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)
4082-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)
4082-S40BE	WLAN 802.11be measurement	Broadband wireless LAN protocol physical layer testing (802.11be), covering RF, modulation analysis, modulation quality testing. (S40 option required)
4082-S41D	LTE/LTE-A : TDD downlink signal analysis	support downlink signal modulation analysis; support modulation analysis of each subframe configuration type of TDD; support custom parameter configuration modulation analysis; support downlink E-TM mask modulation analysis; support EVM, switching power, frequency error, power and other parameter measurements; provides view outputs such as capture storage, power spectral density, constellation diagrams, result summary tables, EVM vs. carriers, and more.
4082-S41U	LTE/LTE-A: TDD uplink signal analysis	support upstream signal modulation analysis, support custom parameter configuration modulation analysis; support EVM, frequency error, power and other parameter measurements; provides view outputs such as capture storage, power spectral density, constellation diagrams, result summary tables, EVM vs. carriers, and more.
4082-S42D	LTE/LTE-A: FDD downlink signal analysis	support downlink signal modulation analysis; support custom parameter configuration modulation analysis; support downlink E-TM mask modulation analysis; support EVM, frequency error, power and other parameter measurements; provides view outputs such as capture storage, power spectral density, constellation diagrams, result summary tables, EVM vs. carriers, and more.
4082-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 parameter measurements; provides view outputs such as capture storage, power spectral density, constellation diagrams, result summary tables, EVM vs. carriers, and more.
4082-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
4082-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
4082-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
4082-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.
4082-S46U	5G NR Upling 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.
4082-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)
4082-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.
4082-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
4082-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.
4082-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
4082-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
4082B-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4082D-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4082E-JL	Professional calibration	Provide metrological calibration services and provide metrological reports

	services	
4082F-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4082H-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4082L-JL	Professional calibration services	Provide metrological calibration services and provide metrological reports
4082B-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
4082D-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
4082E-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
4082F-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
4082H-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
4082L-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
4082N-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
4082P-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 Option(Requires 4082-S01 option):**

	Model and name	Descriptions	Remarks
1	87230 USB CW Power Sensor	9kHz ~ 6GHz, -60dBm ~ +20dBm	Will be discontinued soon
2	87231 USB CW Power Sensor	10MHz ~ 18GHz, -60dBm ~ +20dBm	
3	87232 USB CW Power Sensor	50MHz ~ 26.5GHz, -60dBm ~ +20dBm	
4	87233 USB CW Power Sensor	50MHz ~ 40GHz, -60dBm ~ +20dBm	
5	87233C USB CW Power Sensor	8kHz ~ 12GHz, -70dBm ~ +20dBm	
6	87233D USB CW Power Sensor	10MHz ~ 18GHz, -70dBm ~ +20dBm	
7	87233E USB CW Power Sensor	50MHz ~ 26.5GHz, -70dBm ~ +20dBm	
8	87233F USB CW Power Sensor	50MHz ~ 40GHz, -70dBm ~ +20dBm	
9	87233L USB CW Power Sensor	50MHz ~ 67GHz, -55dBm ~ +20dBm	
10	87235B USB Average Power Sensor	8kHz – 8GHz, -70dBm – +26dBm	
11	87235C USB Average Power Sensor	10MHz ~ 8GHz, -60dBm ~ +23dBm	
12	87235D USB Average Power Sensor	10MHz ~ 18GHz, -70dBm ~ +26dBm	
13	87235F USB Average Power Sensor	10MHz ~ 33GHz, -65dBm ~ +26dBm	
14	87235FA USB Average Power Sensor	10MHz ~ 40GHz, -65dBm ~ +26dBm	
15	87235H USB Average Power Sensor	10MHz ~ 50GHz, -65dBm ~ +23dBm	
16	87235L USB Average Power Sensor	50MHz ~ 67GHz,-60dBm ~ +23dBm	

- **Spectrum Analyzer Extender Module Options (Requires 4082-H40 option):**

	Model and name	Frequency Range	
1	82407NA Spectrum Analyzer Extender	50GHz ~ 75GHz	 
2	82407NC Spectrum Analyzer Extender	60GHz ~ 90GHz	
3	82407PA Spectrum Analyzer Extender	75GHz ~ 110GHz	
4	82407QA Spectrum Analyzer Extender	90GHz ~ 140GHz	
5	82407QB Spectrum Analyzer Extender	110GHz ~ 170GHz	
6	82407RA Spectrum Analyzer Extender	140GHz ~ 220GHz	
7	82407SA Spectrum Analyzer Extender	170GHz ~ 260GHz	
8	82407S Spectrum Analyzer Extender	220GHz ~ 325GHz	
9	82407TA Spectrum Analyzer Extender	260GHz ~ 400GHz	
10	82407R Spectrum Analyzer Extender	325GHz ~ 500GHz	
11	82407U Spectrum Analyzer Extender	500GHz ~ 750GHz	
12	82407V Spectrum Analyzer Extender	750GHz ~ 1100GHz	
13	4000N Spectrum Analyzer Extender	60GHz ~ 90GHz	New generation small size version 
14	4000P Spectrum Analyzer Extender	75GHz ~ 110GHz	
15	4000Q Spectrum Analyzer Extender	110GHz ~ 170GHz	
16	4000R Spectrum Analyzer Extender	140GHz ~ 220GHz	
17	4000SA Spectrum Analyzer Extender	170GHz ~ 260GHz	
18	4000S Spectrum Analyzer Extender	220GHz ~ 330GHz	
19	4000T Spectrum Analyzer Extender	330GHz ~ 500GHz	

- **Noise Source Option(Requires 4082-H48 and 4082-H43 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	

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