Ceyear

4082 Series Signal/Spectrum Analyzer

Superior RF Performance, Fearless Testing Challenges

4TECT

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Ceyear


Ceyear
LTE
Freq
Amp
BW
Sweep
Trace
Trig
Meas Config
Auto Set
Marker
Display
I/O
Peak
Mode
TDD Downlink
SYNC/PBCH
Control
PDSCH
Ref Signal
Advanced
E-TM_3.1a_20MHz
User Defined Files
Capture Buffer
Start 0.00s
Stop 40.10ms
Constellation
Cons. Measure Length: 224656
EVM vs. Carrier
10.00%
9.00%
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
Start Carr -1024
Stop Carr 1024
Desktop
Preset
Single
Continuous
Save
Load
Create View
Screen Shot
Result Summary
Frame Result 1/1 | Mean | Max | Limit | Min
EVM PDSCH QPSK(%) | | | 18.50 |
EVM PDSCH 16QAM(%) | | | 13.50 |
EVM PDSCH 64QAM(%) | | | 9.00 |
EVM PDSCH 256QAM(%) | 0.29 | 0.29 | 4.50 | 0.29
EVM PDSCH 1024QAM(%) | | | 3.50 |
Result for Selection SF All, Sel Ant 1
EVM All(%) | 0.29 | 0.37 | | 0.27
EVM Phys Channel(%) | 0.29 | 0.37 | | 0.27
EVM Phys Signal(%) | 0.30 | 0.41 | | 0.27
Spectrum Power
-60.00dBm
-70.00dBm
-80.00dBm
-90.00dBm
-100.00dBm
-110.00dBm
-120.00dBm
-130.00dBm
-140.00dBm
-150.00dBm
-160.00dBm
Center Freq 1.00GHz
BW 30.72MHz
System
Sweeping...
Sync Success
2023-08-07
09:56:03
4082H
2Hz~50GHz
SIGNAL&SPECTRUM ANALYZER
SNS Drive
LO Out
IF In
Ext Mixer
50V DC AC Couple
RF In
Max +30dBm
50Ω 0V DC DC Couple
RF In
Max +25dBm

4082 Product Overview

Ceyear 4082 series signal/spectrum analyzer is the new flagship product of Ceyear company. It 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 2GHz 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 and defense, etc.

Main Features

- Wide band coaxial coverage from 2Hz to 110GHz (external spread spectrum up to 750GHz)
- Phase noise -134dBc/Hz @10kHz offset at 1GHz carrier
- Built-in 2GHz analysis bandwidth
- I/Q data stream interface with 2GHz bandwidth
- Rich wireless communication signal analysis function
- Powerful satellite RF test function
- Comprehensive radar signal analysis function
- 15.6-inch multi-mode co-display with multi-touch operation


Ceyear
Pulse Analyzer
Pulse Analyzer
Freq
Amp
BW
Sweep
Trace
Trig
Meas Config
Auto Set
Marker
Display
I/O
Peak
Trigger Mode
Power
Trigger Level
-25.0 dBm
Trigger Slope
Pos
Neg
Trigger Delay
On
Off
Trigger Delay
1.04 µs
Trigger Holdoff
On
Off
Trigger Holdoff
100.0 ms
More...
Time OverView
Marker1[T1]: 13.803µs
Y: -5.09dBm
Threshold: -10.00 dBm
Start 0.0s
Stop 10.00ms
Desktop
Preset
Single
Continuous
Save
Load
Create View
Screen Shot
Pulse Table
ID
Peak Power
Average Power
Pulse Width
PRI
Duty Cycle
Base Power
Pulse Ampl
OverShoot
PreShoot
1 -5.09 dBm -15.63 dBm 100.00µs 1000.00µs 10.00 % -72.35 dBm -5.63 dBm 6.38 % 5.04 %
2 -5.09 dBm -15.63 dBm 100.00µs 1.00ms 10.00 % -72.37 dBm -5.63 dBm 6.38 % 5.12 %
3 -5.09 dBm -15.63 dBm 100.00µs 1000.00µs 10.00 % -72.26 dBm -5.63 dBm 6.41 % 5.07 %
4 -5.10 dBm -15.63 dBm 100.00µs 1.00ms 10.00 % -72.23 dBm -5.63 dBm 6.36 % 5.05 %
5 -5.10 dBm -15.63 dBm 100.00µs 1000.00µs 10.00 % -72.13 dBm -5.63 dBm 6.33 % 5.07 %
6 -5.09 dBm -15.63 dBm 100.00µs 1.00ms 10.00 % -72.29 dBm -5.63 dBm 6.41 % 5.08 %
7 -5.09 dBm -15.63 dBm 100.00µs 1000.00µs 10.00 % -72.28 dBm -5.63 dBm 6.44 % 5.08 %
8 -5.10 dBm -15.63 dBm 100.00µs 1.00ms 10.00 % -72.31 dBm -5.63 dBm 6.36 % 5.04 %
9 -5.10 dBm -15.63 dBm 100.00µs 1000.00µs 10.00 % -72.32 dBm -5.63 dBm 6.36 % 5.12 %
10 -5.09 dBm ... 100.00µs ... ... -72.18 dBm -5.63 dBm 6.37 % 5.12 %
System
Ready
2023-08-07
10:05:36
4082H
2Hz~50GHz
SIGNAL&SPECTRUM
ANALYZER
SNS Drive
LO Out
IF In
Ext Mixer
50V DC AC Couple
RF In
1
Max
+30dBm
50Ω 0V DC DC Couple
RF In
2
Max
+25dBm

Ceyear

CONTENT

CEYEAR TECHNOLOGIES CO.,LTD

Excellent RF & Reception Performance

The 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, meeting the test requirements from RF to millimeter wave.

110GHz full-band image suppression

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

Excellent low frequency signal measurement capability

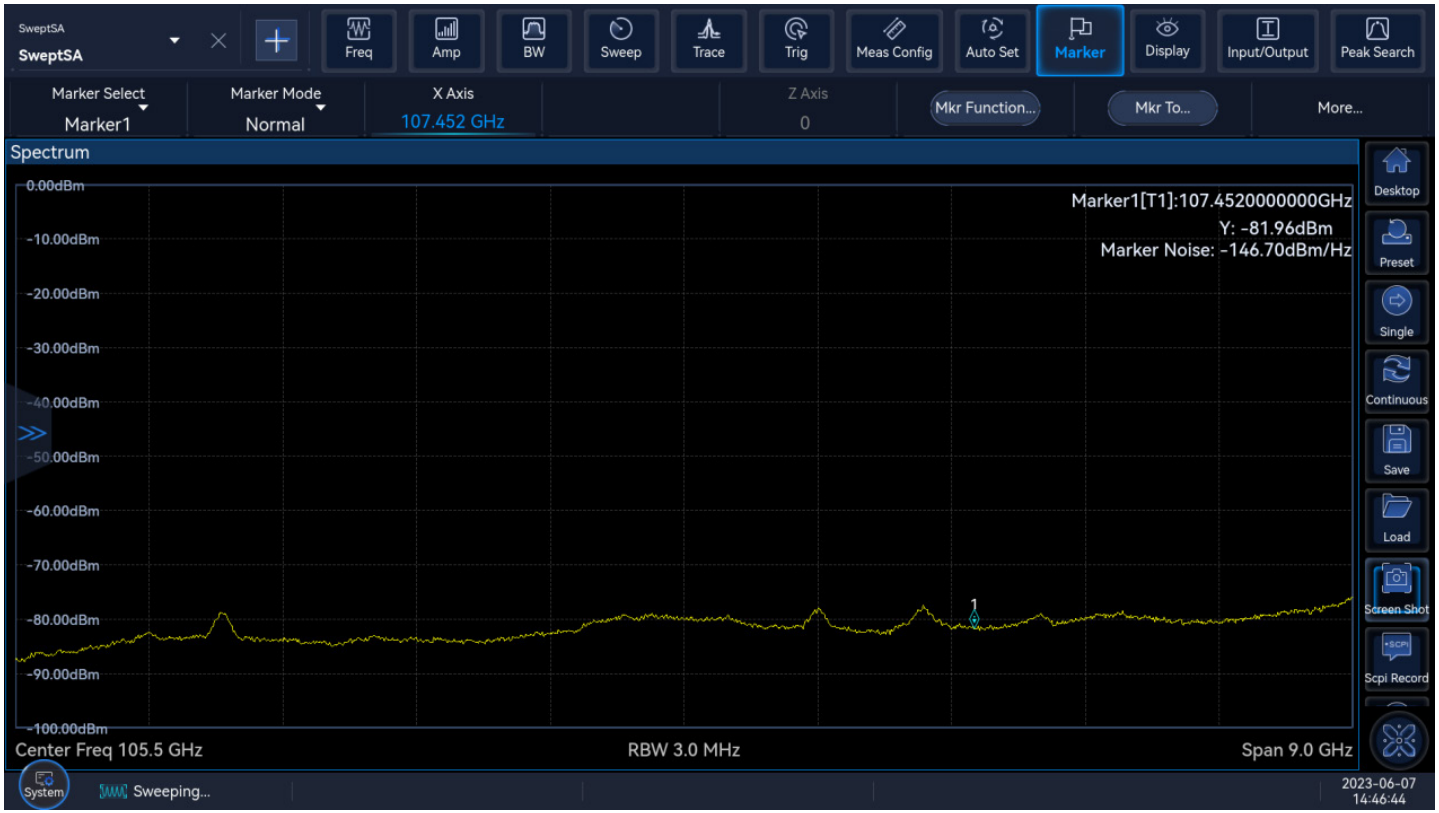
The frequency band below 30MHz adopts RF direct harvesting technology, with better low-frequency signal measurement capability.

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 up to -140 dBm/Hz.

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 -134dBc/Hz.



101GHz to 110GHz frequency band DANL specification

Up to 2GHz Analysis Bandwidth

Ceyear 4082 series signal/spectrum analyzers have an analysis bandwidth of 2 GHz and offer seven options from 10 MHz (standard) to 2 GHz (optional) to meet the application needs of different test scenarios.

Multiple analysis bandwidth configuration options

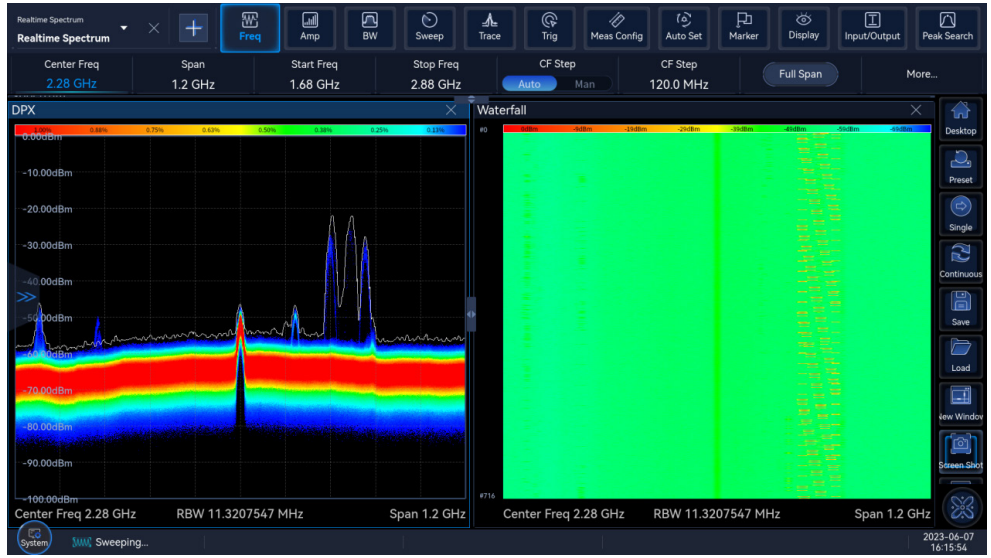
7 types of bandwidth configurations from 10MHz/40MHz/200MHz/400MHz/600MHz/1.2GHz/2GHz are available to meet the needs of different test applications such as broadband radar, 5G NR, WLAN, etc.

Arbitrary sampling rate IQ data stream

The signal/spectrum analyzer can provide 100Hz~1.5GHz arbitrary sample rate IQ data stream, sample rate setting resolution better than 0.1Hz, full bandwidth frequency response real-time compensation, can support a variety of rates of signal measurement and analysis.

1.2GHz real-time analysis bandwidth

Real-time spectrum analysis with 1.2GHz bandwidth is available, and the shortest duration of 100% probability of intercept (POI) signal is better than 0.28μs, which can be used for the capture measurement of various transient burst signals such as pulse signal, burr signal, intermitten t signal, etc.



1.2GHz Real-time Spectrum Analysis Measurement

Up to 2GHz Analysis Bandwidth

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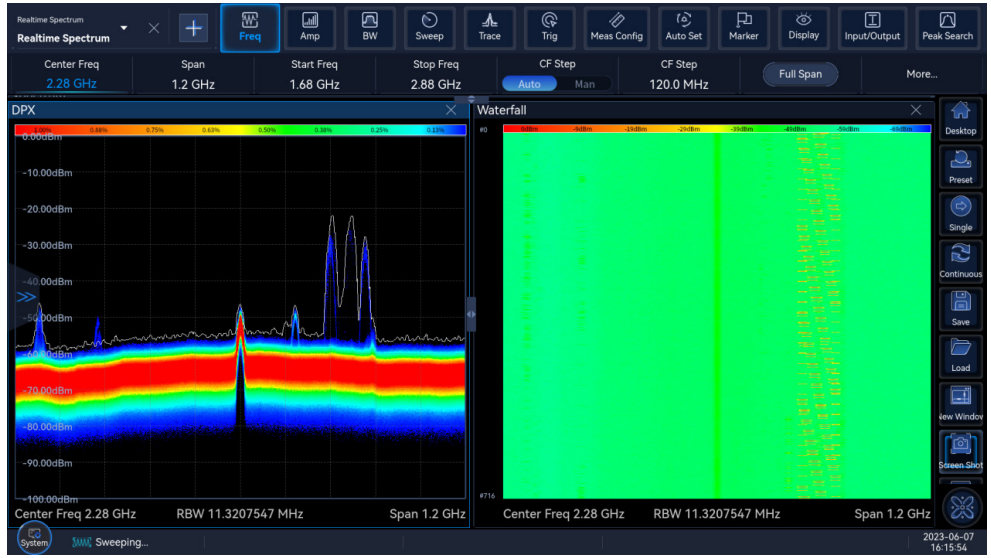


1.2GHz Real-time Spectrum Analysis Measurement

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 between 101 ~ 120001 arbitrary selection, the longest scan time of 16000s, zero frequency width of the shortest scan time of 1us.

Rich trace 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 change pattern.

Adjacent Channel Power Measurement

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.

Rich Signal Analysis Capabilities 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 more.

5G NR Signal Analysis

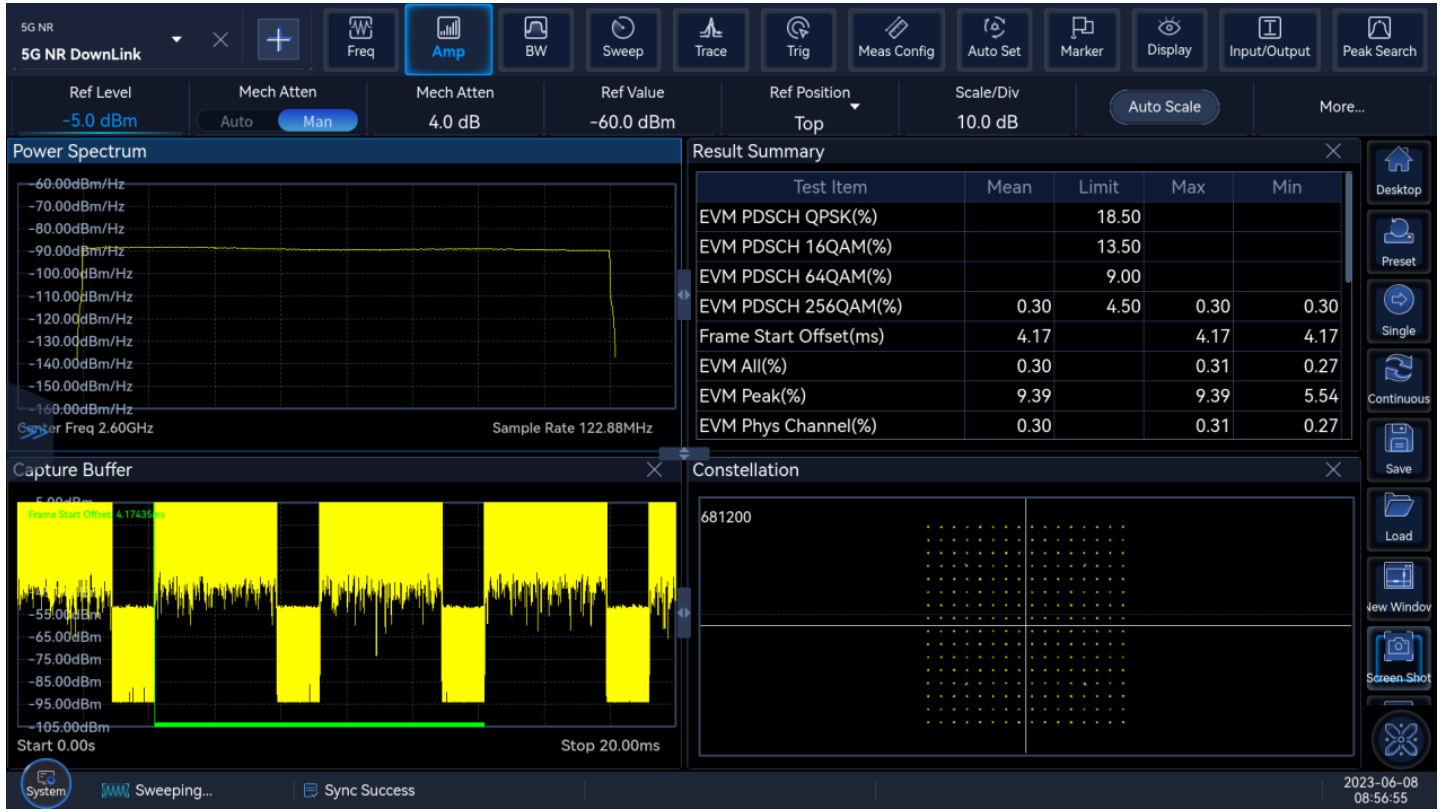
The 5G NR measurement function can perform in-band demodulation analysis of 5G NR uplink and downlink signals of 3GPP Rel 15 and Rel 16 versions, supports FDD and TDD duplex modes, supports QPSK to 256QAM modulation formats, supports Test Model and custom Parameter setting, support to provide measurement 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.

LTE, NB-IoT, WCDMA, GSM signal analysis

With Ceyear's dedicated protocol analysis software, it can perform in-band modulation analysis on LTE, LTE-Advanced, NB-IoT, WCDMA, GSM, EDGE communication signals, and provide various measurement results such as EVM, constellation diagram, and frequency error.

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.



5G NR Signal Analysis Measurement

Ceyear

Comprehensive Radar Signal Analysis Capabilities

Ceyear 4082 series signal/spectrum analyzers have built-in radar signal measurement software, which can perform multi-level measurement and analysis of pulse modulated signals, and display them in various display methods such as spectrum, time map, parameter table, etc., to assist in the performance measurement of radar systems and problems.

Abundant pulse parameter measurements

Support pulse signal spectrum, time domain characteristic test, can simultaneously measure pulse width, pulse period, pulse rise and fall time, power drop in pulse, peak power, minimum power, top value, bottom value, pulse amplitude, preshoot, overshoot , frequency error peak value, frequency error RMS, frequency offset and other pulse parameters are analyzed and displayed.

Intra-pulse characteristics analysis

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

Inter-pulse characteristics analysis

With pulse parameter trend analysis and statistical analysis functions, it can analyze the variation trend and distribution characteristics of inter-pulse characteristic parameters.

Pulse Signal Analysis Measurement

Powerful Satellite RF Testing Capabilities

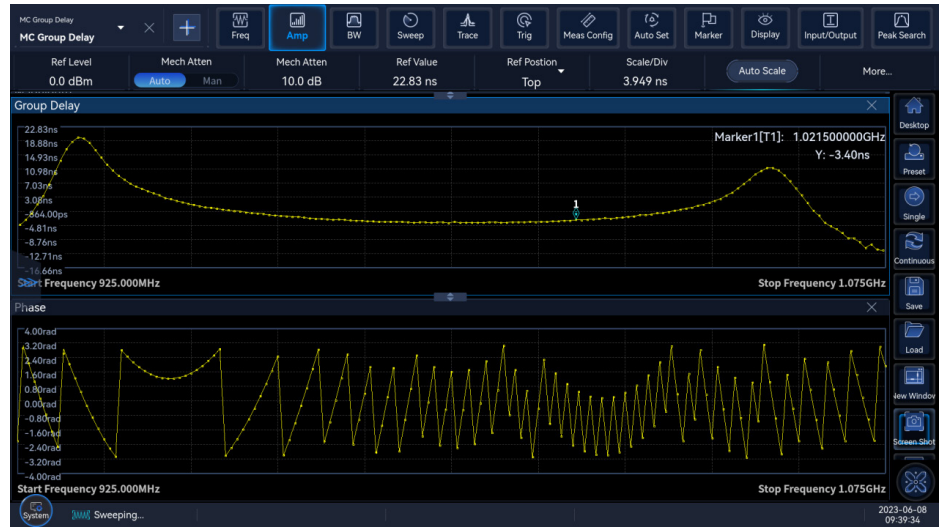
Ceyear 4082 series signal/spectrum analyzers have high-performance satellite RF test functions, which can be used for the R&D and production process testing of satellite payloads, systems, and components.

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

Large Touch Screen, More Convenient Control

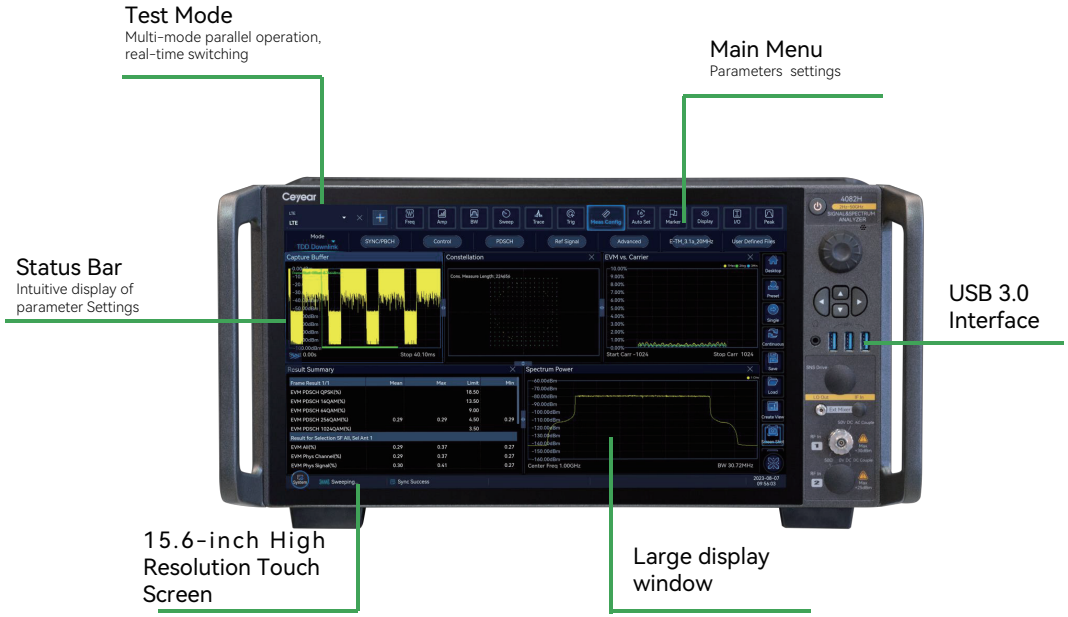
The hardware configuration of Ceyear 4082 series signal/spectrum analyzer has been improved in an all-round way. It adopts high-performance processor and large touch screen, which makes the operation of the instrument more convenient.

High-performance processor, large memory

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

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.



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

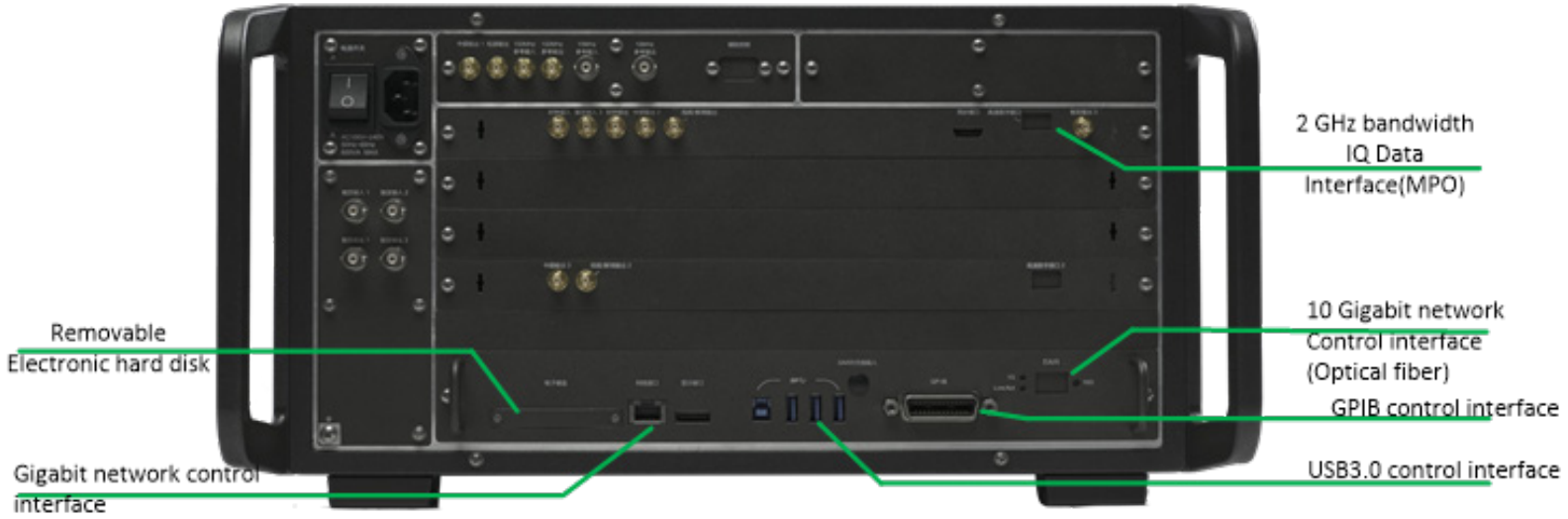
Configure a 10 Gigabit network interface to provide higher bandwidth, faster speed, and more stable data transmission.

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.


2 GHz bandwidth
IQ Data
Interface(MPO)
10 Gigabit network
Control interface
(Optical fiber)
GPIB control interface
USB3.0 control interface
Removable
Electronic hard disk
Gigabit network control
interface

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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: $\pm 5\times10^{-10}$/day Temperature stability: $\pm 1.51\times10^{-8}$		
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 20MHz (1,2,3,5 steps)	
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		
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		
SSB Phase Noise (1GHz carrier,20℃ ~ 30℃)	**Frequency offset**	**Spectfication**	**Typical**
	100Hz	-107dBc/Hz	-115dBc/Hz
	1kHz	-125dBc/Hz	-128dBc/Hz
	10kHz	-134dBc/Hz	-135dBc/Hz
	100kHz	-136dBc/Hz	-137dBc/Hz
	1MHz	-140dBc/Hz	-140dBc/Hz
	10MHz	-152dBc/Hz	-154dBc/Hz
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)		

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℃ ~ 30℃)

4082B (Without Pre-amplifier)

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

4082B (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	-150dBm
100MHz < f ≤ 1.2GHz	-151dBm	-153dBm
1.2GHz < f ≤ 2.2GHz	-150dBm	-152dBm
2.2GHz < f ≤ 3.25GHz	-148dBm	-150dBm
3.25GHz < f ≤ 5.25GHz	-145dBm	-148dBm
5.25GHz < f ≤ 6.5GHz	-142dBm	-147dBm
6.5GHz < f ≤ 8.2GHz	-140dBm	-143dBm
8.2GHz < f ≤ 18GHz	-143dBm	-145dBm
18GHz < f ≤ 26.5GHz	-137dBm	-141dBm
26.5GHz < f ≤ 40GHz	-130dBm	-133dBm
40GHz < f ≤ 50GHz	-127dBm	-129dBm

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℃ ~ 30℃)

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

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

4082L (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	-150dBm
3.25GHz < f ≤ 5.25GHz	-145dBm	-148dBm
5.25GHz < f ≤ 6.5GHz	-142dBm	-149dBm
6.5GHz < f ≤ 8.2GHz	-140dBm	-143dBm
8.2GHz < f ≤ 18GHz	-143dBm	-145dBm
18GHz < f ≤ 26.5GHz	-137dBm	-141dBm
26.5GHz < f ≤ 40GHz	-130dBm	-133dBm
40GHz < f ≤ 50GHz	-127dBm	-129dBm
50GHz < f ≤ 54.8GHz	-135dBm	-139dBm
54.8GHz < f ≤ 63.6GHz	-133dBm	-137dBm
63.6GHz < f ≤ 67GHz	-131dBm	-135dBm

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℃ ~ 30℃)

4082L (Pre-amplifier ON)

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	-157dBm	-160dBm
100MHz < f ≤ 3.25GHz	-162dBm	-164dBm
3.25GHz < f ≤ 5.25GHz	-161dBm	-163dBm
5.25GHz < f ≤ 8.2GHz	-154dBm	-156dBm
8.2GHz < f ≤ 18GHz	-156dBm	-159dBm
18GHz < f ≤ 26.5GHz	-154dBm	-157dBm
26.5GHz < f ≤ 40GHz	-151dBm	-153dBm
40GHz < f ≤ 48GHz	-145dBm	-150dBm
48GHz < f ≤ 54.8GHz	-146dBm	-152dBm
54.8GHz < f ≤ 63.6GHz	-142dBm	-148dBm
63.6GHz < f ≤ 67GHz	-140dBm	-143dBm

4082N/P (Without Pre-amplifier) RF Port 2

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	-145dBm	-148dBm
100MHz < f ≤ 1.2GHz	-148dBm	-149dBm
1.2GHz < f ≤ 2.2GHz	-146dBm	-148dBm
2.2GHz < f ≤ 3.25GHz	-144dBm	-147dBm
3.25GHz < f ≤ 5.25GHz	-141dBm	-146dBm
5.25GHz < f ≤ 6.5GHz	-140dBm	-146dBm
6.5GHz < f ≤ 8.2GHz	-138dBm	-141dBm
8.2GHz < f ≤ 18GHz	-141dBm	-143dBm
18GHz < f ≤ 26.5GHz	-135dBm	-139dBm
26.5GHz < f ≤ 40GHz	-127dBm	-133dBm
40GHz < f ≤ 50GHz	-122dBm	-125dBm
50GHz < f ≤ 54.8GHz	-133dBm	-135dBm
54.8GHz < f ≤ 63.6GHz	-130dBm	-133dBm
63.6GHz < f ≤ 67.2GHz	-128dBm	-131dBm

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℃ ~ 30℃)	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	-158dBm
	100MHz < f ≤ 3.25GHz	-160dBm	-162dBm
	3.25GHz < f ≤ 5.25GHz	-159dBm	-161dBm
	5.25GHz < f ≤ 8.2GHz	-152dBm	-154dBm
	8.2GHz < f ≤ 18GHz	-154dBm	-157dBm
	18GHz < f ≤ 26.5GHz	-151dBm	-155dBm
	26.5GHz < f ≤ 40GHz	-149dBm	-151dBm
	40GHz < f ≤ 48GHz	-147dBm	-149dBm
	48GHz < f ≤ 54.8GHz	-146dBm	-149dBm
	54.8GHz < f ≤ 63.6GHz	-142dBm	-145dBm
	63.6GHz < f ≤ 67GHz	-135dBm	-137dBm
	4082B (Without Pre-amplifier)		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
	100MHz < f ≤ 3.25GHz	±0.40dB	±0.30dB
	3.25GHz < f ≤ 5.25GHz	±0.50dB	±0.31dB
	5.25GHz < f ≤ 8.4GHz	±0.50dB	±0.33dB

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℃ ~ 30℃)

4082B (Pre-amplifier ON)

Frequency Range	Specification	Typical
100kHz ≤ f ≤ 100MHz	±0.80dB	±0.50dB
100MHz < f ≤ 3.25GHz	±0.70dB	±0.50dB
3.25GHz < f ≤ 5.25GHz	±0.80dB	±0.60dB
5.25GHz < f ≤ 8.4GHz	±0.90dB	±0.70dB

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

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
100MHz < f ≤ 3.25GHz	±0.40dB	±0.30dB
3.25GHz < f ≤ 5.25GHz	±0.50dB	±0.31dB
5.25GHz < f ≤ 8.2GHz	±0.50dB	±0.33dB
8.2GHz < f ≤ 18GHz	±1.50dB	±0.95dB
18GHz < f ≤ 26.5GHz	±1.80dB	±0.95dB
26.5GHz < f ≤ 40GHz	±2.50dB	±1.50dB
40GHz < f ≤ 50GHz	±2.80dB	±1.60dB

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

Frequency Range	Specification	Typical
100kHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
100MHz < f ≤ 3.25GHz	±0.70dB	±0.50dB
3.25GHz < f ≤ 5.25GHz	±0.80dB	±0.60dB
5.25GHz < f ≤ 8.2GHz	±0.90dB	±0.70dB
8.2GHz < f ≤ 18GHz	±2.00dB	±1.35dB
18GHz < f ≤ 26.5GHz	±2.30dB	±1.55dB
26.5GHz < f ≤ 40GHz	±2.80dB	±1.86dB
40GHz < f ≤ 50GHz	±3.00dB	±2.00dB

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℃ ~ 30℃)

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

Frequency Range	Specification	Typical
10MHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
100MHz < f ≤ 3.25GHz	±0.40dB	±0.30dB
3.25GHz < f ≤ 5.25GHz	±0.50dB	±0.31dB
5.25GHz < f ≤ 8.2GHz	±0.50dB	±0.33dB
8.2GHz < f ≤ 18GHz	±1.50dB	±0.95dB
18GHz < f ≤ 26.5GHz	±1.80dB	±0.95dB
26.5GHz < f ≤ 40GHz	±2.50dB	±1.50dB
40GHz < f ≤ 48GHz	±2.80dB	±1.60dB
48GHz < f ≤ 67GHz	±3.0 0dB	±1.50dB
67GHz < f ≤ 110GHz	±4.00 dB	±2.50dB

4082L/N/P (Pre-amplifier ON)

Frequency Range	Specification	Typical
100kHz ≤ f ≤ 100MHz	±0.50dB	±0.34dB
100MHz < f ≤ 3.25GHz	±0.70dB	±0.50dB
3.25GHz < f ≤ 5.25GHz	±0.80dB	±0.60dB
5.25GHz < f ≤ 8.2GHz	±0.90dB	±0.70dB
8.2GHz < f ≤ 18GHz	±2.00dB	±1.35dB
18GHz < f ≤ 26.5GHz	±2.30dB	±1.55dB
26.5GHz < f ≤ 40GHz	±2.80dB	±1.86dB
40GHz < f ≤ 48GHz	±3.00dB	±2.00dB
48GHz < f ≤ 67GHz	±3.50dB	±2.50dB

Absolute Amplitude Accuracy

Absolute amplitude accuracy (10 dB attenuation, 20℃ ~ 30℃, 1 Hz ≤resolution bandwidth≤ 1 MHz, input signal -10 to -50 dBm):

±0.24dB 500MHz

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

Ceyear

1dB Gain Compression (mixer level, dual-tone test, resolution bandwidth is 5kHz, 3MHz frequency interval, 20℃ ~ 30℃)	**4082B**		
	Frequency Range	**Mixer Input Level**	**Typical**
	10MHz ≤ f ≤ 100MHz	±0.80dB	±0.50dB
	100MHz < f ≤ 3.25GHz	±0.70dB	±0.50dB
	3.25GHz < f ≤ 5.25GHz	±0.80dB	±0.60dB
	5.25GHz < f ≤ 8.4GHz	±0.90dB	±0.70dB
	4082D/E/F/H/		
	Frequency Range	**Mixer Input Level**	**Typical**
	20MHz ≤ f ≤ 3.25GHz	≥+5dBm	≥+10dBm
	3.25GHz < f ≤ 50GHz	≥+7dBm	≥+11dBm
	4082L/N/P		
	Frequency Range	**Mixer Input Level**	**Typical**
	20MHz ≤ f ≤ 5.25GHz	≥+5dBm	≥+10dBm
	5.25GHz < f ≤ 8.2GHz	≥+7dBm	≥+11dBm
	8.2GHz < f ≤ 67GHz	≥+6dBm	≥+11dBm
	67GHz < f ≤ 90GHz	≥-3dBm	/
	90GHz < f ≤ 110GHz	≥-1dBm	/
TOI distortion (input mixer 2 -10dBm signal test, frequency interval is 50kHz, 20℃ ~ 30℃)	**4082B**		
	Frequency Range	**Specification**	**Typical**
	10MHz ≤ f ≤ 100MHz	+14dBm	+16dBm
	100MHz < f ≤ 3.25GHz	+18dBm	+20dBm
	3.25GHz < f ≤ 5.25GHz	+18dBm	+20dBm
	5.25GHz < f ≤ 8.4GHz	+17dBm	+19dBm

	4082D/E/F/H/L/N/P		
TOI distortion (input mixer 2 -10dBm signal test, frequency interval is 50kHz, 20℃ ~ 30℃)	**Frequency Range**	**Specification**	**Typical**
	10MHz ≤ f ≤ 100MHz	+14dBm	+16dBm
	100MHz < f ≤ 3.25GHz	+18dBm	+20dBm
	3.25GHz < f ≤ 5.25GHz	+20dBm	+23dBm
	5.25GHz < f ≤ 8.2GHz	+21dBm	+23dBm
	8.2GHz < f ≤ 50GHz	+18dBm	+20dBm
	50GHz < f ≤ 67GHz	+18dBm	+20dBm
Residual response (the input end is connected to match load, 0dB attenuation)	≤-98dBm 1MHz ≤ f ≤8GHz RF Port 1		
IQ Data	Memory depth (IQ length): 500M IQ samples IQ bits length: 32 bit I,32 bit Q(Analysis bandwidth ≤40MHz) Memory depth (IQ length): 1000M IQ samples IQ bits length: 16 bit I, 16 bit Q(Analysis bandwidth>40MHz)		
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 450W(Standard configureation)		
Temperature Range	Operating temperature:0℃~+50℃ Storage temperature:-40℃~+70℃		

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

•Option:

No.	Description	Functions
4082-H02	Auxiliary IF output	Output second IF signal, the frequency is 425MHz,750MHz,1.5GHz
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-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 50GHz,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
4082-H38-200	200MHz Analysis bandwidth	Support 10Hz to 200MHz Analysis bandwidth
4082-H38-400	400MHz Analysis bandwidth	Support 10Hz to 400MHz Analysis bandwidth
4082-H38-600	600MHz Analysis bandwidth	Support 10Hz to 600MHz Analysis bandwidth
4082-H38-1200	1.2GHz Analysis bandwidth	Support 10Hz to 1.2GHz Analysis bandwidth
4082-H38-2000	2GHz Analysis bandwidth	Support 10Hz to 2GHz Analysis bandwidth
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 4052B: the extended frequency range depends on the selected extension modules; the frequency extension module needs to buy additionally)
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.
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.
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.

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.
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 1660X 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 4052 mounting on standard racks
4082-H99	Aluminum transportation case	High-strength lightweight aluminum transportation case, with handle and roller, convenient for transportation
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-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-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-S13	Pulse signal analyzer	Automatic measurement on time, level and modulation parameters of pulse waveform and statistical analysis of pulse sequence
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.

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.
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.
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.

•USB Power Sensor Option(Requires 4082-S01 option):

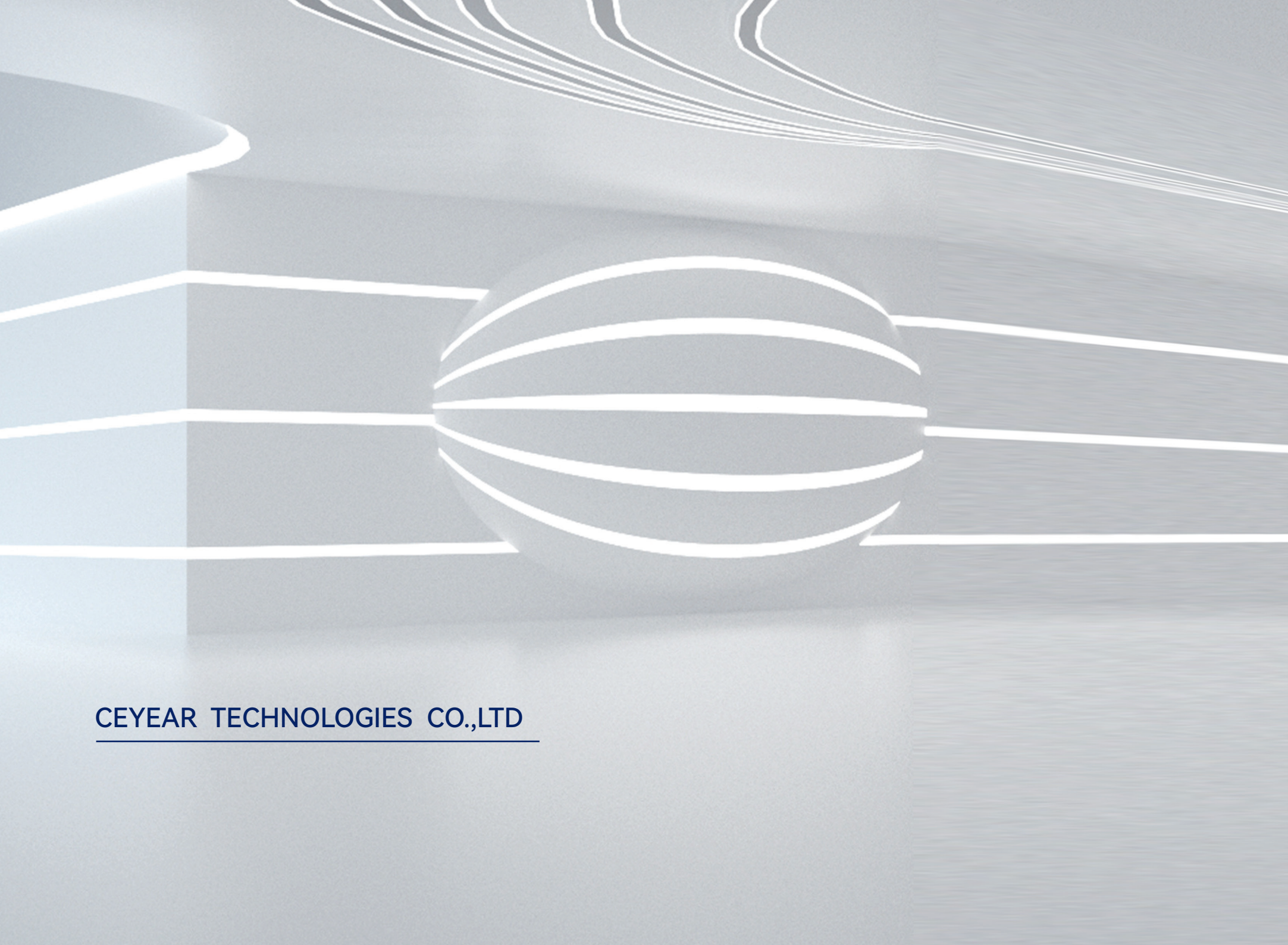
Model	Frequency Range
87230 USB CW Power Sensor	9kHz ~ 6GHz Power Sensor
87231 USB CW Power Sensor	10MHz ~ 18GHz Power Sensor
87232 USB CW Power Sensor	50MHz ~ 26.5GHz Power Sensor
87233 USB CW Power Sensor	50MHz ~ 40GHz Power Sensor

•Spectrum Analyzer Extender Option(Requires 4082-H40 option):

Model	Frequency Range
82407NA Spectrum Analyzer Extender	50GHz ~ 75GHz
82407NC Spectrum Analyzer Extender	60GHz ~ 90GHz
82407PA Spectrum Analyzer Extender	75GHz ~ 110GHz
82407QA Spectrum Analyzer Extender	90GHz ~ 140GHz
82407QB Spectrum Analyzer Extender	110GHz ~ 170GHz
82407RA Spectrum Analyzer Extender	140GHz ~ 220GHz
82407SA Spectrum Analyzer Extender	170GHz ~ 260GHz
82407S Spectrum Analyzer Extender	220GHz ~ 325GHz
82407TA Spectrum Analyzer Extender	260GHz ~ 400GHz
82407R Spectrum Analyzer Extender	325GHz ~ 500GHz
82407U Spectrum Analyzer Extender	500GHz ~ 750GHz

·Noise Source Option(Requires 4082-H48 and 4082-H43 option):

Model	Frequency Range
16603DB Noise Source	10MHz ~ 18GHz
16603EB Noise Source	10MHz ~ 26.5GHz
16603FB Noise Source	10MHz ~ 40GHz
16603HB Noise Source	10MHz ~ 50GHz
16604DB Smart Noise Source	10MHz ~ 18GHz
16604EB Smart Noise Source	10MHz ~ 26.5GHz
16604FB Smart Noise Source	10MHz ~ 40GHz
16604HB Smart Noise Source	10MHz ~ 50GHz



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