

Product Overview

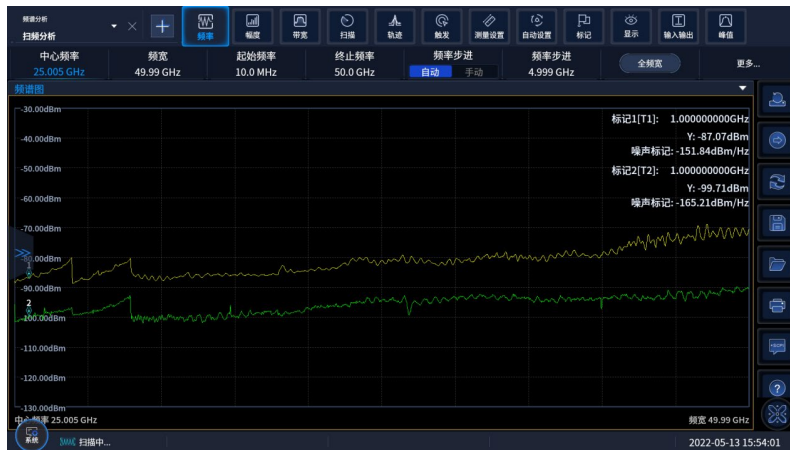
Ceyear 4052 series signal/spectrum analyzer is a brand-new signal/spectrum analyzer product launched by DECISION.

Ceyear 4052 has excellent test dynamic range, phase noise, amplitude accuracy and test speed, and has rich test functions such as spectrum analysis, I/Q analysis, real-time spectrum analysis, transient analysis, vector signal analysis, pulse analysis, and audio analysis.

As a multi-functional general-purpose signal/spectrum analyzer, Ceyear 4052 has good expansion capabilities and can be used to build a test system or carry out secondary development through a variety of digital and analog output interfaces. With the perfect match of excellent performance and flexible applications, it can meet your testing needs for rapid production of signals and equipment in the fields of wireless communications, automotive electronics, low-orbit satellites, Internet of Things, aerospace and defense, etc.

Features

Best-in-class spectral performance and features



Ceyear 4052 has excellent test dynamic range, phase noise, amplitude accuracy and test speed.

Ultra Wide Frequency Coverage

The frequency measurement range covers 2Hz to 50GHz, with 8 optional frequency band configurations to meet the test requirements from low frequency to millimeter wave.

Excellent displayed average noise level

The average noise level displayed at 1GHz is -154dBm/Hz, and it can reach -167dBm/Hz after configuring the preamplifier, and it can reach -170dBm/Hz after the noise cancellation function is turned on. (all typical)

Excellent Phase Noise Performance

With excellent phase noise performance, it can meet the extreme requirements of users in radar and communication signal measurement. Under the conditions of 1GHz carrier and 10kHz frequency deviation, the phase noise is better than -122dBc/Hz.

High precision amplitude measurement error

With excellent amplitude measurement accuracy, the signal amplitude measurement accuracy in the frequency band below 8GHz is better than ± 0.5 dB.



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1.2GHz analysis bandwidth



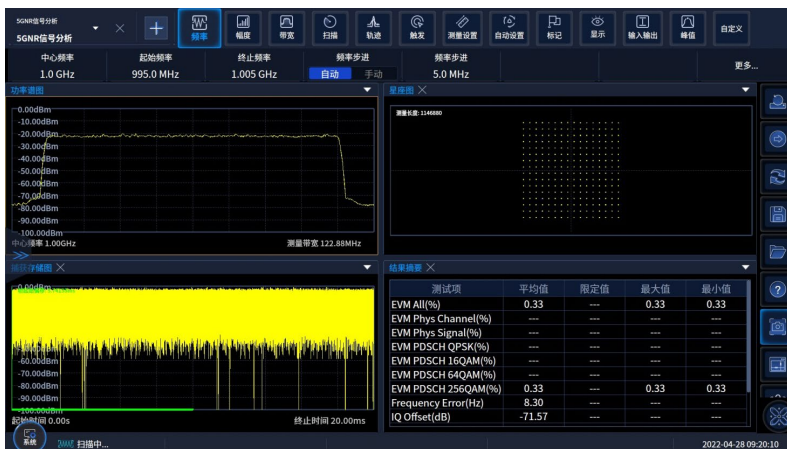
Ceyear 4052 has an instantaneous analysis bandwidth of 1.2GHz and provides 6 options from 10MHz (standard) to 1.2GHz (optional) to meet the application requirements of different test scenarios.

Various analysis bandwidth configuration options
Provides 6 bandwidth configuration options of 10MHz/40MHz/200MHz/400MHz/600MHz/1.2GHz 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 is -70dBc at 200MHz analysis bandwidth, and -55dBc at 1.2GHz analysis bandwidth.

Comprehensive wireless communication protocol analysis capabilities



The mobile communication protocol analysis option of Ceyear 4052 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 and analysis on 3GPP Rel 15 and Rel 16 versions of 5G NR uplink and downlink signals, 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 graphs.

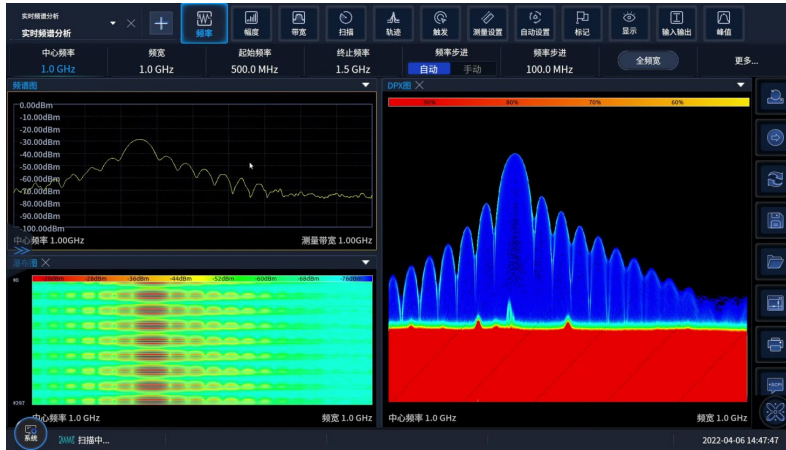
LTE, NB-IoT, WCDMA, GSM signal analysis

With Ceyear's dedicated protocol analysis software, it can perform in-band modulation analysis on LTE, LTE-Advanced, NB-IoT, WCDMA, GSM, and 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 one-key setting capabilities for standards and limit lines, and perform measurements such as adjacent channel leakage ratio (ACLR) and spectrum emission mask (SEM) efficiently.

Powerful real-time spectrum analysis function



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

Burst capture

The real-time spectrum analysis function supports functions such as 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 large-bandwidth real-time processing performance

The real-time analysis bandwidth is as high as 400MHz, the duration of 100% frequency domain intercepted signal is less than 0.6us, the duration of time domain intercepted signal is 2ns, and the spectrum processing speed is as high as 1,500,000 times per second.

Full bandwidth data real-time recording and playback



Real-time analysis of complex electromagnetic environments is extremely difficult. It is an urgent need for defense users to seamlessly record long-term and laboratory analysis of surrounding electromagnetic signals such as battlefields and positions.

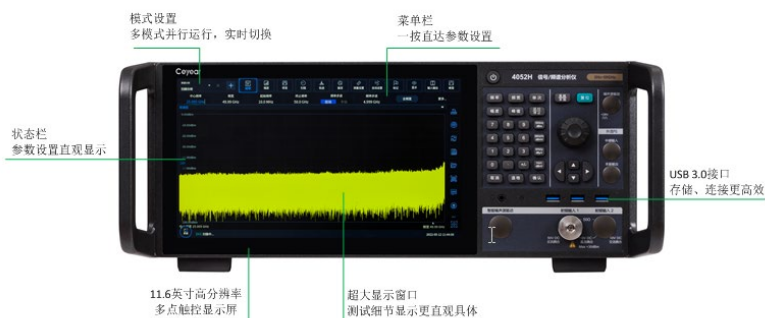
Superior RF Performance

As a signal and spectrum analyzer with excellent performance, as the receiving front end of RF acquisition and recording, it has a large dynamic range, low distortion, and high sensitivity. Combined with the powerful analysis function of Cyear 4052, it can also provide functions such as search, analysis, and playback of complex signals.

record and playback

The recording signal bandwidth is as high as 1200MHz, with the function of starting and stopping the acquisition, and the implementation of spectrum analysis mode for real-time preview and analysis.

Advanced user interface, new interactive experience



Ceyear 4052 adopts 11.6-inch touch display screen, and the test details display is more comprehensive and intuitive. The parameter setting menu is concise, and one-key direct access to parameter setting. Multiple measurement modes run and display in parallel, and the mode switching is convenient and efficient.

Forward looking interface configuration



Ceyear 4052 faces potential future applications, and is forward-looking configured with 10GbE control interface, ultra-wideband digital optical fiber interface and other interfaces.

10 Gigabit network control interface

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

UWB digital fiber optic interface

The maximum configurable 1.2GHz ultra-wideband digital interface can realize real-time broadband data acquisition and output of 1.2GHz bandwidth.

Specifications

Frequency Range	Model DC coupled AC coupled 4052A 2Hz~4GHz 10MHz~4GHz 4052B 2Hz~8GHz 10MHz~8GHz 4052C 2Hz~13.6GHz 10MHz~13.6GHz 4052D 2Hz~18GHz 10MHz~18GHz 4052E 2Hz~26.5GHz 10MHz~26.5GHz 4052F 2Hz~40GHz 10MHz~40GHz 4052G 2Hz~45GHz 10MHz~45GHz 4052H 2Hz~50GHz 10MHz~50GHz
10MHz Precision Frequency Reference	Frequency Accuracy: \pm (to date of last calibration x aging rate + temperature stability + calibration accuracy) Aging rate: $\pm 5 \times 10^{-10}$ / day Temperature stability: $\pm 5 \times 10^{-8}$ Calibration accuracy: $\pm 4 \times 10^{-8}$
Frequency Readout Accuracy	\pm (frequency reading \times frequency reference accuracy + 0.1% bandwidth + 5% resolution bandwidth + 2Hz + 0.5 horizontal resolution *) * : Horizontal resolution = bandwidth / (scan points - 1)
Frequency Count Accuracy	\pm (frequency reading \times frequency reference accuracy + 0.1Hz)
bandwidth	Range: 0Hz (zero span), 10Hz ~ the highest frequency range of this model Accuracy: \pm (0.1% \times bandwidth+bandwidth / (scan points -1))
scan time range	Bandwidth \geq 10Hz : 1ms ~ 16000s _ Bandwidth =0Hz : 1us ~ 16000s
resolution bandwidth	scope:0.1Hz ~ 20MHz (1 , 2 , 3 , 5 steps) Conversion uncertainty: ± 0.10 dB 1Hz ~ 3MHz (1 , 2 , 3 , 5 steps) ± 0.30 dB 5MHz ~ 20MHz (1 , 2 , 3 , 5 steps)
Analysis Bandwidth	Standard configuration: 10MHz Option H38-40 : 40MHz Option H38-200 : 200MHz Option H38-400 : 400MHz Option H38-600 : 600MHz Option H38-1200 : 1.2GHz
video bandwidth	1Hz ~ 20MHz (1 , 2 , 3 , 5 steps)
trigger method	Free, Power, Video, External Trigger 1/2 , Burst RF, Timer
Detection method	Normal, positive peak, negative peak, sample, video average, power average, voltage average

<p>Phase noise (carrier 1GHz , 20° C~30° C)</p>	<p>Frequency deviation index</p> <p>100Hz -95dBc/Hz</p> <p>1kHz -112dBc/Hz</p> <p>10kHz -122dBc/Hz</p> <p>100kHz -122dBc/Hz</p> <p>1MHz -135dBc/Hz</p>
<p>Residual FM</p>	<p>$\leq 0.25\text{Hz} \times N$ (10Hz resolution bandwidth, 10Hz video bandwidth, rated value within 20 ms , see the harmonic order of frequency band division for specific N value)</p>
<p>Display average noise level (input terminal connected to matched load, sampling or average detection, average type is logarithmic, 0dB input attenuation, RF gain is sensitivity priority, normalized to 1Hz RBW , 20° C ~ 30° C)</p>	<p>4052A/B front amplifier off</p> <p>Frequency Range Index</p> <p>10MHz~1GHz -151dBm</p> <p>1GHz~2GHz -149dBm</p> <p>2GHz~3GHz -147dBm</p> <p>3GHz~4GHz -144dBm</p> <p>4GHz~6GHz -147dBm</p> <p>6GHz~8GHz -145dBm</p> <p>Release before 4052A/B</p> <p>Frequency Range Index</p> <p>10MHz~50MHz -156dBm</p> <p>50MHz~4GHz -161dBm</p> <p>4GHz~6GHz -161dBm</p> <p>6GHz~8GHz -157dBm</p> <hr/> <p>4052C/D/E/F/G/H Front amplifier off</p> <p>Frequency Range Index</p> <p>10MHz~1GHz -149dBm</p> <p>1GHz~2GHz -147dBm</p> <p>2GHz~3GHz -146dBm</p> <p>3GHz~4GHz -141dBm</p> <p>4GHz~6GHz -142dBm</p>

	<p>6GHz~8GHz -139dBm</p> <p>8GHz~18GHz -145dBm</p> <p>18GHz~26.5GHz -141dBm</p> <p>26.5GHz~40GHz -135dBm</p> <p>40GHz~45GHz -134dBm</p> <p>45GHz~50GHz -130dBm Release before 4052C/D/E/F/G/H</p> <p>Frequency Range Index</p> <p>10MHz~50MHz -156dBm</p> <p>50MHz~4GHz -161dBm</p> <p>4GHz~6GHz -161dBm</p> <p>6GHz~8GHz -157dBm</p> <p>8GHz~18GHz -157dBm</p> <p>18GHz~26.5GHz -154dBm</p> <p>26.5GHz~40GHz -151dBm</p> <p>45GHz~50GHz -148dBm</p>
<p>Frequency Response and Absolute Amplitude Accuracy (10dB attenuation, 20° C ~ 30° C)</p>	<p>Frequency range Pre-amplifier off indicator</p> <p>10MHz~4GHz ±0.30dB</p> <p>4GHz~8GHz ±0.50dB</p> <p>8GHz~18GHz ±1.50dB 18GHz~26.5GHz ±2.00dB</p> <p>26.5GHz~45GHz ±2.50dB</p> <p>45GHz~50GHz ±3.00dB</p> <p>Frequency range Front release indicator</p> <p>10MHz~4GHz ±1.00dB</p> <p>4GHz~8GHz ±1.50dB</p> <p>8GHz~18GHz ±2.50dB</p> <p>18GHz~45GHz ±3.00dB</p> <p>45GHz~50GHz ±3.50dB</p>

	Absolute amplitude accuracy (10 dB attenuation, 20° C ~ 30° C , 1 Hz ≤ resolution bandwidth ≤ 1 MHz , input signal -10 ~ -50 dBm) : ±0.20dB 500MHz calibration frequency ± (0.20dB + frequency response) all frequencies (except 500MHz calibration frequency)
1dB gain compression (two-tone method test, resolution bandwidth 5kHz , 3MHz frequency interval, 20° C ~ 30° C)	Frequency Range Index 10MHz~100MHz 0dBm 100MHz~1GHz 0dBm 1GHz~8GHz +5dBm 8GHz~50GHz +5dBm
third order intermodulation distortion (TOI) (Input mixer two -10dBm signal test, frequency interval 50kHz , 20 °C ~ 30 °C)	Frequency Range Index 10MHz~200MHz +12dBm 200MHz~4GHz +17dBm 4GHz~8GHz +16dBm 8GHz~50GHz +18dBm
remaining responses (input terminated with matched load, 0dB attenuation)	-90dBm 200kHz ~ 8GHz
IQ data	Storage depth (IQ length): Analysis bandwidth ≤ 40MHz : 500M IQ samples, IQ byte length: 32 -bit I , 32 -bit Q Analysis bandwidth > 40MHz : 1000M IQ samples, IQ byte length: 16 -bit I , 16 -bit Q
Dimensions	Width (mm) x height (mm) x depth (mm) : (426 ± 4) mm × (177 ± 4) mm × (450 ± 4) mm (excluding handles, feet, pads and side straps)
maximum weight	Approx. 23kg (different options configuration, different weight)
power supply	AC 110~240V : 50~60Hz
power consumption	Maximum power consumption: 300W (standard configuration), 450W (configure broadband or real-time options such as H38/H41).
temperature range	Working temperature: 0° C~+50° C Storage temperature: -40° C~+70° C

Host model

serial number	describe
4052H	Signal/Spectrum Analyzer 2Hz~50GHz
4052G	Signal/Spectrum Analyzer 2Hz~45GHz
4052F	Signal/Spectrum Analyzer 2Hz~40GHz
4052E	Signal/Spectrum Analyzer 2Hz~26.5GHz
4052D	Signal/Spectrum Analyzer 2Hz~18GHz
4052C	Signal/Spectrum Analyzer 2Hz~13.6GHz
4052B	Signal/Spectrum Analyzer 2Hz~8GHz
4052A	Signal/Spectrum Analyzer 2Hz~4GHz



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