JHS7000A Series Signal Analyzer

Key Features

■ Frequency range from 2 Hz up to a maximum of 40 GHz

■ Displayed Average Noise Level (DANL) as low as -167 dBm (typical)

■ Phase noise < -110 dBc/Hz (at 10 kHz offset from 1 GHz carrier, typical)

■ Selectable analysis bandwidth up to 255 MHz

■ Maximum sweep points up to 100,001

■ Minimum Resolution Bandwidth (RBW) 1 Hz

■ Supports Real-Time Spectrum Analysis

■ Supports Advanced Measurements (optional)

■ Supports EMI Pre-Scan Analysis (optional)

■ Supports Analog Demodulation Analysis (optional)

■ Supports Vector Signal Analysis (optional)

■ Supports I/Q Analysis (optional)

■ Supports 5G NR and 4G LTE standard communication signal demodulation (optional)

■ Equipped with 11.6-inch 1920x1080 HD capacitive touch TFT LCD display screen

■ Rich peripheral interfaces: Supports keyboard, mouse, storage, host computer, remote control, Web control, multi-device synchronization, presentation monitoring, 3.5mm headphone jack, etc.

JHS7000A Series Signal Analyzer

Multi-Touch HD Screen

The 11.6- inch multi- touch HD capacitive screen enables quick menu navigation and supports gesture operations such as drag, expand, and zoom for traces. Its intuitive user interface significantly simplifies operation and improves workflow efficiency.


Excellent Sensitivity

The detection of weak signals is often limited by the inherent noise floor of the spectrum analyzer. The JHS7000A series achieves a displayed average noise level as low as –167 dBm (typical), providing exceptional sensitivity for accurate measurement of low- level signals.

Superior Phase Noise Performance

Meets user requirements for communication signal measurements. Phase noise is better than -110 dBc/Hz (typical) under conditions of a 1 GHz carrier and 10 kHz offset.

High Accuracy Amplitude Measurement

Features excellent amplitude measurement accuracy. Typical amplitude accuracy is better than ±0.4 dB for signals in frequency bands below 8 GHz.
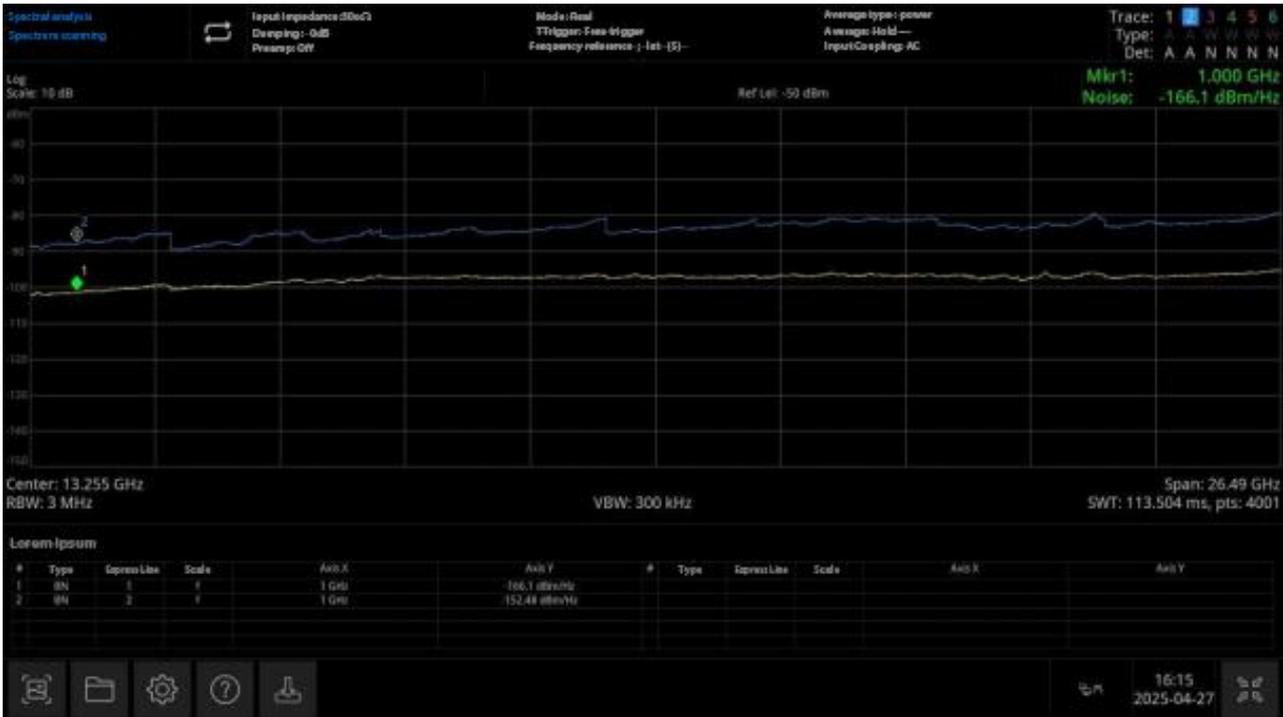
Displayed Average Noise Level with Pre- amplifier Off/On

Phase Noise @ 10 kHz Offset

Comprehensive Spectrum Analysis Capabilities

The JHS7000A series delivers extensive spectrum parameter testing for thorough and detailed analysis.

Supports both sweep and FFT scan modes. Sweep points can be set from 200 to 100,001. Maximum sweep time for zero span is 6000 s; minimum sweep time is 1 µs.

Rich Trace and Detection Functions

Supports 6 traces, 10 markers, 7 detection modes, and 3 averaging types. Comprehensive marker functions include N dB, noise, channel power, channel power density, and frequency counter. Complies with EMC CISPR standards, supporting preset frequency bands, EMI averaging, and quasi- peak detection.

Excellent Selectivity

Enhanced ability to resolve adjacent signals with unequal amplitudes.

One- Click Power Measurement Suite

Provides power and nonlinear measurements including channel power, adjacent channel power, occupied bandwidth, third- order intercept, spectrum monitoring, and carrier- to- noise ratio.
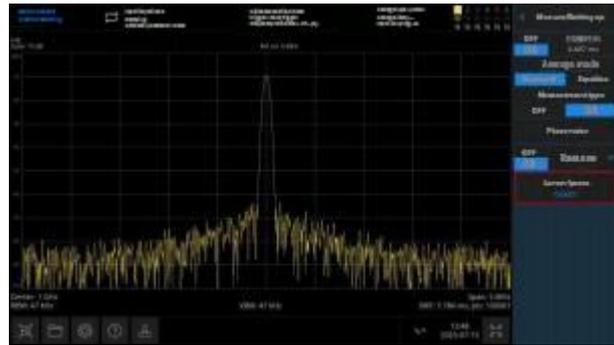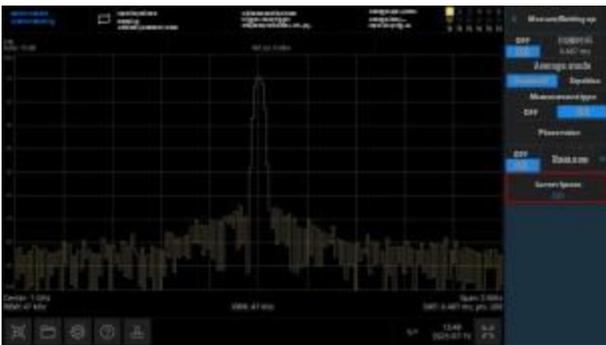
Increasing the number of sweep points effectively improves spectrum measurement accuracy
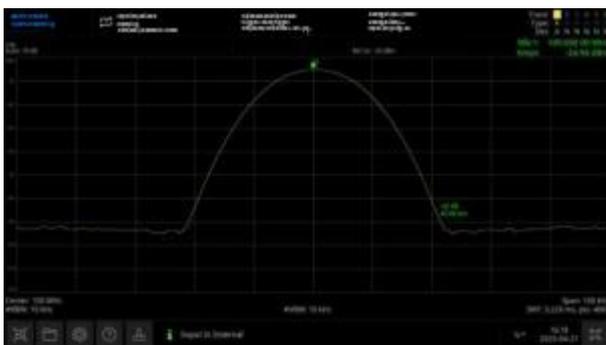
Excellent selectivity   Adjacent Channel Power Measurement Interface

Comprehensive Signal Analysis Suite

The JHS7000A offers an extensive signal analysis option set, including I/Q analysis, EMI pre-scan, analog demodulation, vector signal analysis, real-time spectrum analysis bandwidths, phase noise analysis, and support for LTE and 5G NR.
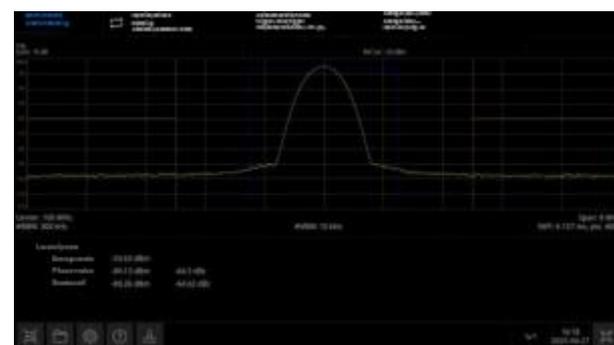
5G NR Signal Analysis

Performs modulation analysis on 3GPP Rel-15/16/17/18 5G NR uplink and downlink signals. Supports FDD and TDD duplex modes, modulation schemes from BPSK to 1024 QAM, one-click test models, and customized parameter setup. Displays EVM, frequency error, power, and other results; provides constellation diagrams, eye diagrams, and multiple view options.

5G NR Signal Analysis Interface

LTE Signal Analysis

Performs modulation analysis on LTE uplink and downlink signals. Supports FDD and TDD duplex, modulation from QPSK to 256 QAM, E-TM one-click testing, and flexible parameter configuration. Displays EVM, frequency error, power, and other measurements for various physical channels and signals; offers multiple view formats.
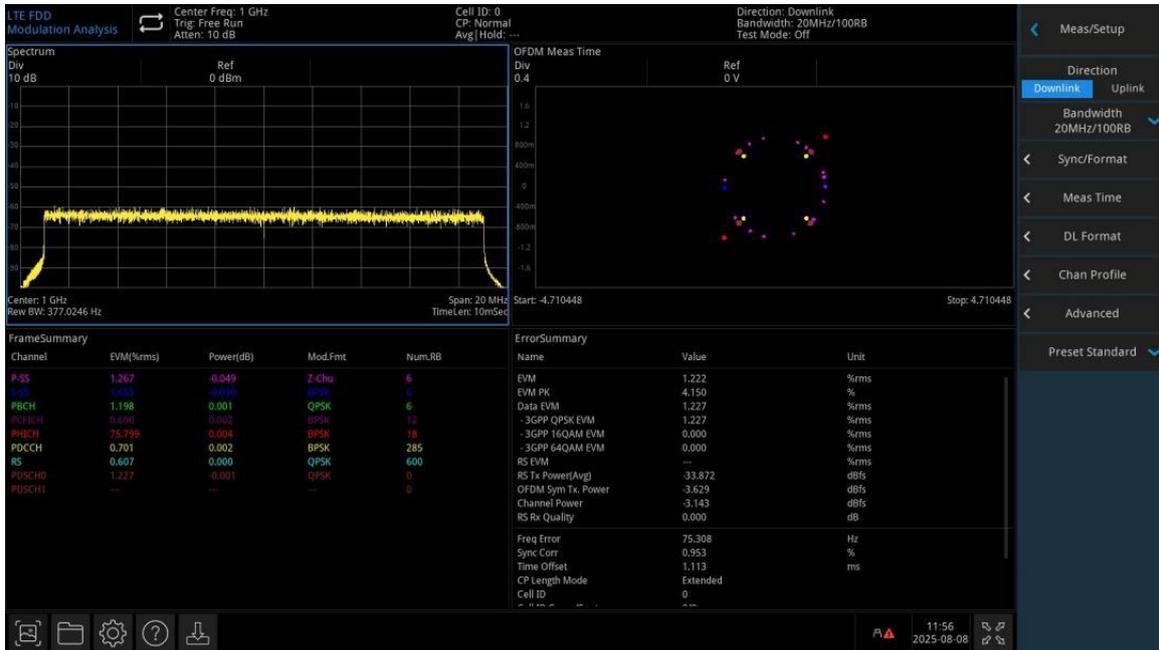
LTE Signal Analysis Interface

Powerful Real-Time Spectrum Analysis

An excellent tool for analyzing time-varying signals such as burst, hopping, and frequency-agile signals. Real-time analysis bandwidths: 40 MHz, 85 MHz, 160 MHz, 255 MHz. 100% probability of intercept (POI) for signals as short as 4.5 μs.
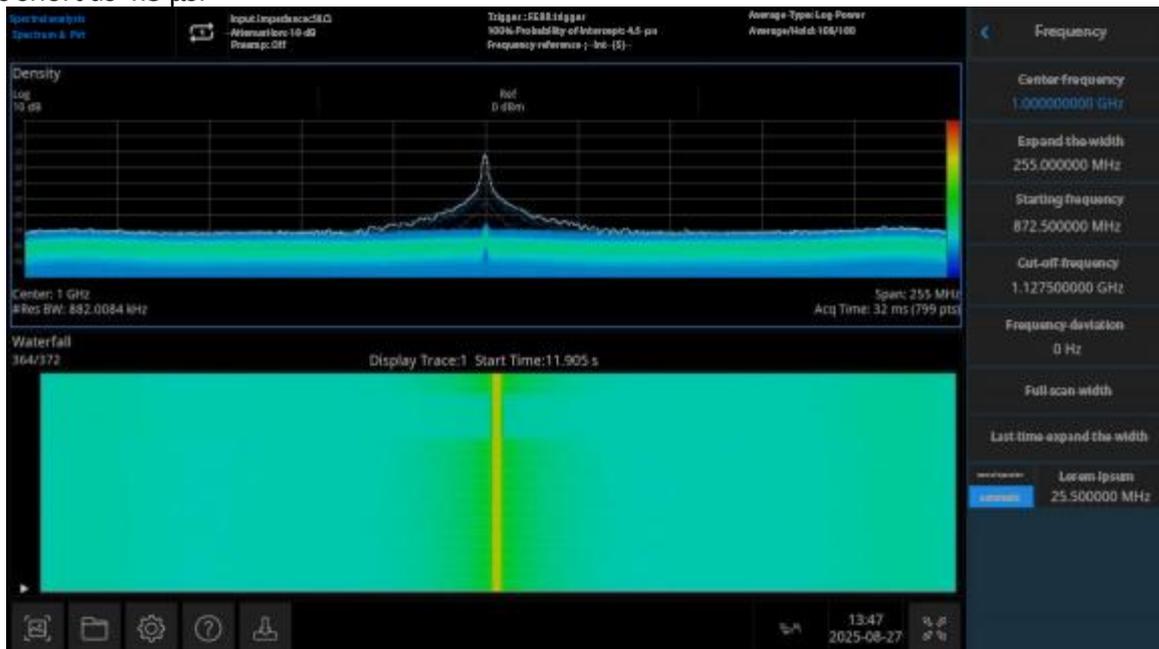
Real-Time Spectrum Analysis Interface

Vector Modulation Signal Analysis

The JHS7000A series provides vector modulation signal demodulation and analysis in time, frequency, and modulation domains. Supports a wide range of common single- carrier digital modulation types including PSK, FSK, QAM, and ASK.
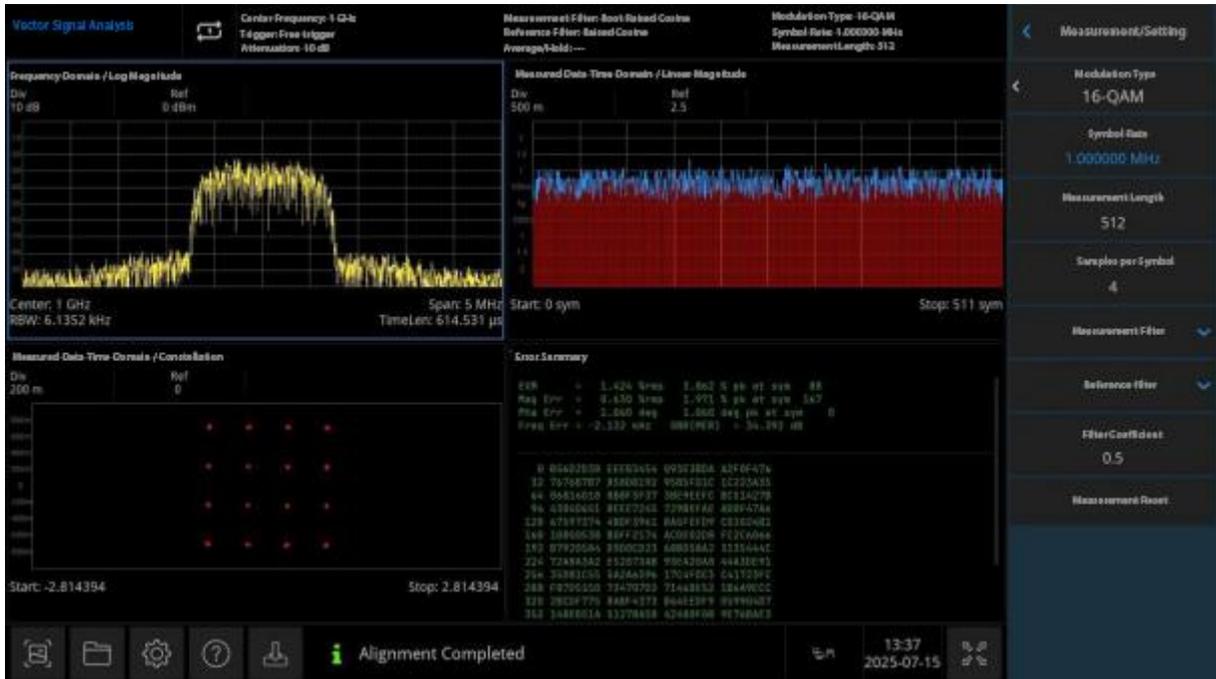
Vector Signal Analysis Interface

Analog Demodulation

Demodulates and analyzes AM, FM, and PM modulated signals.

Analog Demodulation

EMI Pre- compliance and Conformance Testing

Early EMI performance testing helps prevent product launch delays. Conducting pre- compliance testing during development identifies EMI issues early, allowing internal conducted and radiated emissions testing and shortening the overall test cycle.
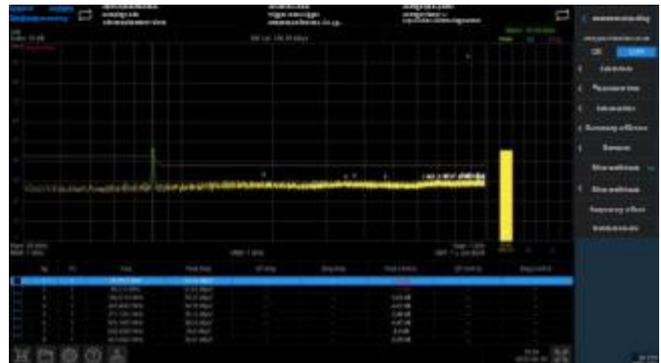
EMI Measurement Interface

I/Q Analysis

Efficient I/Q data acquisition and analysis.
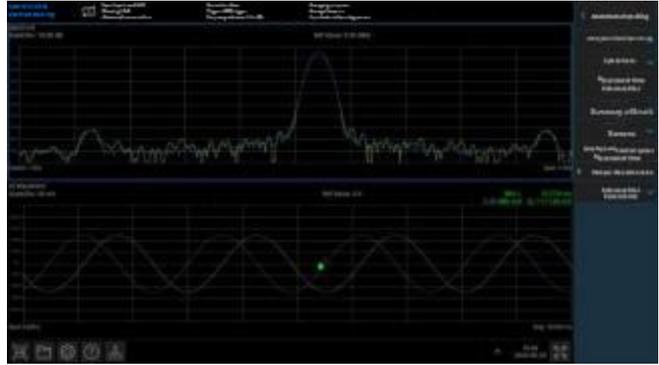
Phase Noise Analysis

One- click phase noise analysis for fast and convenient testing.

Phase Noise Analysis Interface

Definitions and Conditions

The technical specifications describe the parameters and performance covered by the product warranty. Unless otherwise stated, these specifications apply over the temperature range of 20 °C to 30 °C.

"Typical values" indicate performance information not covered by the warranty. When performance exceeds the stated specifications, 80% of units will meet these values with 95% confidence within 20 °C to 30 °C. Typical performance does not include measurement uncertainty.

"Nominal value" refers to expected performance that is useful in applications but not covered by the warranty.

Under the following conditions, the analyzer can meet its specified performance: The instrument must be within its calibration cycle and warmed up for at least 30 minutes. If the analyzer has been stored in an environment within the permitted storage temperature range but outside the permitted operating temperature range, it must be placed within the permitted operating temperature range for at least two hours before being powered on.

Product Features and Model Comparison

	JHS7013A	JHS7026A	JHS7032A	JHS7040A
Spectrum Analysis	●	●	●	●
Real-time Spectrum Analysis	●	●	●	●
Vector Signal Analysis	○	○	○	○
EMI	○	○	○	○
Analog Demodulation	○	○	○	○
Advanced Measurements	○	○	○	○
I/Q Analysis	○	○	○	○
FDD-LTE	○	○	○	○
TDD-LTE	○	○	○	○
NR	○	○	○	○
Phase Noise Analysis	○	○	○	○
Preamplifier	○	○	○	○
Analysis Bandwidth 40MHz	○	○	○	○
Analysis Bandwidth 85MHz	○	○	○	○
Analysis Bandwidth 160MHz	○	○	○	○
Analysis Bandwidth 255MHz	○	○	○	○

Note: ● indicates standard configuration, ○ indicates optional configuration.

Frequency and Time Technical Index

Frequency				
Model	JHS7013A	JHS7026A	JHS7032A	JHS7040A
Frequency range	2Hz to 13.6GHz	2Hz to 26.5GHz	2Hz to 32GHz	2Hz to 40GHz
Frequency range	Local oscillator frequency dou- bling (N)			
0	1		9kHz to 3.0GHz	
1	2		3.0GHz to 7.5GHz	
2	2		7.5GHz to 9.5GHz	
3	2		9.5GHz to 12.3GHz	
4	2		12.3GHz to 15.5GHz	
5	4		15.5GHz to 19.3GHz	
6	4		19.3GHz to 21.0GHz	
7	4		21.0GHz to 22.8GHz	
8	4		22.8GHz to 26.5GHz	
9	8		26.5GHz to 32.0GHz	
10	4		32.0GHz to 36.0GHz	
11	8		36.0GHz to 40.0GHz	

10MHz internal frequency reference	
Reference frequency	10.000000MHz
Reference frequency accuracy	± [(Time since last calibration × Frequency aging degree) + Temperature stability + Initial accuracy]
Temperature stability	Full temperature range ±10ppb, ($\pm10\times10^{-9}$)
Frequency aging	$\leq\pm0.2$ppm/year, ($\pm2\times10^{-7}$/year)
Initial calibration accuracy	$\leq\pm40$ppb, ($\pm4\times10^{-8}$)
Frequency reference accuracy (one year later)	$\pm(2\times10^{-7}+4\times10^{-8}+1\times10^{-8})$
Surplus FM	$\leq$Nominal value for 1 Hz p-p within 20ms

Frequency readings (start, stop, center, cursor)	
Cursor resolution	Scan width / (Scan points-1)
Cursor frequency reading accuracy	± [cursor frequency reading × reference frequency accuracy + 0.25% × sweep width + 5% × resolution bandwidth + cursor frequency resolution]
Cursor Mode	Normal, difference, fixed
Cursor	Band noise, band power, band density, N dB, frequency meter

Frequency counter resolution	0.001 Hz	
Uncertainty of frequency counter	± [cursor frequency reading × reference frequency accuracy + frequency counter resolution]	
△Counter accuracy	± [△Frequency Readout Baseli * eFrequency Accuracy + 0.141Hz]	

Frequency sweep width (FFT and scan mode)

Scan width	0 Hz (zero sweep width), 10Hz to 40GHz	
Horizontal resolution	Scan width / (scan points-1)	
Precision (scan width ≥100Hz)	Scan pattern	± [0.25% × scan width + horizontal resolution]
	FFT pattern	± [0. 10% × scan width + horizontal resolution]

Scan time and trigger

Sweep time range	Scan width =0Hz	1from µs to 6000s
	Scan width ≥10Hz	1 ms to 4000 seconds
Scan time precision	Scan width ≥10Hz, scan mode	±0.01% nominal value
	FFT with sweep width ≥10Hz	±40% of the nominal value
	Scan width =0 Hz	±1% nominal value
Scan/Measure	Continuous, single	
Trigger source	Free Trigger, Video Trigger	External Trigger, External Trigger 2, Periodic Trigger, RF Power Trigger
Trigger delay	0 Up to +500ms	
	Resolution ratio	0.1µs

Resolution Bandwidth (RBW)

Range (-3 dB bandwidth)	1 Hz to 3MHz (10% step), 4 MHz	5MHz,6MHz,8MHz,10MHz
Shape factor of a dispersive filter	<4. 1:1 (nominal value)	-60dB:-3dB
Bandwidth accuracy	1Hz to 910kHz	±2.0% nominal value
(-3.01dB) (Scan mode,	1MHz to 3 MHz	±7.0% nominal value
scan time = precise)	4MHz to 10MHz	± 15% of the nominal value

Video Bandwidth (VBW)	
Scope	1Hz to 3MHz (10% step), 4 MHz, 5 MHz, 6 MHz, 8 MHz, 10MHz
Video bandwidth uncertainty	±6.0% of the nominal value
Scan (trajectory) point range	
Scan All	200 to 100001

Range Technical Index

Amplitude range		
Range	Display the average noise level (DANL) up to + 30dBm	
Input attenuation	0 Step up to 75 dB in 5 dB increments	
Reference level		
Logarithmic scale	Step from-170dBm to +30dBm in 0.01dB increments	
Linear scale	Same logarithm (707pV to 7.07V)	
Accuracy	0dB	
Pre-amplifier (optional)		
Frequency range	100kHz to 40GHz	
Noise factor	10MHz to 40GHz	Display the average noise level (DANL) + 174dBm nominal value
Maximum safe input level		
Average total power	+30dBm(1W)	
Peak pulse power	+50dBm(100W)	Pulse width <10µs, duty cycle <1%, input atten- uation ≥ 30dB
Volts d.c	Dc coupling	0VDC
	a-c coupling	±16VDC
Indication range		
Logarithmic scale	0.1 Step by 0.1 to 1dB per grid	
	1 Up to 20dB per grid, with 1dB increments (10 display grids)	
Linear scale	10 rattle	
Scale unit	dBm ,dBmV ,dBµV ,V ,W	
Display scale uncertainty		
Switching Between Linear and Logarithmic Scales	0dB	
Log scale grid switch	0dB	

Display scale fidelity

-80dBm ≤ input mixer level <-10dBm	±0. 15dB total value

Trace detector

Normal detection, peak, negative peak, sampling, logarithmic power average, RMS average, voltage average, quasi-peak, EMI average

Tracing Function

Refresh, Average Trace, Maximum Hold, Minimum Hold

Frequency response

Operating conditions: 20°C to 30°C, 30% to 70% relative humidity, with 10dB input attenuation. The signal-to-noise ratio (σ) is calculated relative to 100MHz, where σ denotes the nominal standard deviation.

		Qualification	95%(≈2σ)
The preamplifier is off	2 Hz to 9kHz	± 0.50dB	± 0.30dB
	9kHz to 10MHz	± 0.50dB	± 0.40dB
	10MHz to 3GHz	± 0.65dB	± 0.65dB
	3GHz to 13.6GHz	± 1.30dB	± 0.80dB
	13.6GHz to 19.3GHz	± 1.50dB	± 1.00dB
	19.3GHz to 24.2GHz	± 1.80dB	± 1.30dB
	24.2GHz to 26.5GHz	± 2.50dB	± 1.40dB
	26.5GHz to 32GHz	± 2.60dB	± 2.00dB
	32GHz to 40.0GHz	± 2.80dB	± 2.30dB
The preamplifier is on	100kHz Up to 10MHz	± 0.60dB	± 0.50dB
	10MHz to 3GHz	± 1.10dB	± 1.00dB
	3GHz to 7.5GHz	± 1.40dB	± 1.20dB
	7.5GHz to 13.6GHz	± 1.50dB	± 1.20dB
	13.6GHz to 21GHz	± 1.60dB	± 1.20dB
	21GHz to 24.2GHz	± 2.00dB	± 1.80dB
	24.2GHz to 26.5 GHz	± 2.80dB	± 2.40dB
	26.5GHz to 32GHz	± 3.00dB	± 2.60dB
	32GHz to 40.0GHz	± 3.20dB	± 2.80dB

Note: DC coupling meets specifications below 9 kHz. For AC coupling, specifications apply to frequencies of 9kHz and above. Pre-amplifier open applies to frequencies of 100kHz and above.

Input attenuation switching uncertainty

		Qualification	Other information
Thepreamplifier is off	100MHz (Base Frequency)	±0.30dB	±0. 15dB typical value
Relative to 10dB (baseline setting, input attenuation ≤55 dB)	100kHz to 3.0 GHz	±0.30dB nominal value	
	3.0GHz to 7.5GHz	±0.50dB nominal value	
	7.5GHz to 26.5GHz	±0.70dB nominal value	
	26.5GHz to 40GHz	±1.00dB nominal value	

Total absolute magnitude accuracy

(10dB attenuation, 20 to 30°C, 1 Hz ≤ RBW ≤ 1 MHz, input signal range-10dBm to-50dBm. All settings are auto- coupled except for AJHo Swp Time (Automatic Scan Time) =Accy (Accuracy), with any reference level and scale.)

100MHz	±0.40dB
All frequencies	± (0.40dB + frequency response)
The preamplifier is on	± (0.36dB + frequency response) (95%)

Input voltage standing wave ratio (VSWR) (≥10dB attenuation)

10MHz to 26.5GHz	<1.6 Nominal value
26.5 GHz to 40GHz	<1.8 nominal value

Resolution bandwidth conversion uncertainty (based on a 30kHz RBW)

Scan Pattern	RBW 1Hz up to 910 kHz	±0.05dB
	RBW 1 MHz to 3 MHz	±0.10dB
	RBW 4MHz,5MHz,6MHz	±0.15dB
	RBW 8MHz,10MHz	±1.0dB

Dynamic Range Technique

1dB gain compression (dual audio)

		Total input power of mixer
The preamplifier is off	10MHz to 7.5GHz	+6dBm nominal value
	7.5GHz to 13.5GHz	+4dBm nominal value
	13.5GHz to 26.5GHz	+2dBm nominal value
	26.5 From GHz to 40GHz	-2dBm nominal value
The preamplifier is on	10MHz to 7.5GHz	-15dBm nominal value
	7.5GHz to 26.5 GHz	-19dBm nominal value
	26.5 From GHz to 40GHz	-32dBm nominal value

Display Average Noise Level (DANL)

The input terminal is connected to a 50 a load, equipped with a sample or average detector. The average type is Log, with 0dB input attenuation and a RBW of 1 Hz, operating at temperatures between 20°C and 30°C.

JHS70 13 A, JHS702 6A	The preamplifier is off	The preamplifier is on
100kHz to 1 MHz	-140dBm typical value	---
1MHz to 20MHz	-145dBm, -151dBm typical values	-160dBm, -166dBm typical values
20MHz to 1.5GHz	-147dBm, -153dBm typical values	-162dBm, -167dBm typical values
1.5GHz to 3GHz	-146dBm, -151dBm typical values	-160dBm, -165dBm typical values

3GHz to 4.5GHz	-146dBm, -152dBm typical values	-160dBm, -165dBm typical values
4.5GHz to 7.5GHz	-140dBm, -145dBm typical values	-153dBm, -159dBm typical values
7.5GHz to 9.5GHz	-143dBm, -149dBm typical values	-156dBm, -160dBm typical values
9.5GHz to 12.3GHz	-138dBm, -146dBm typical values	-153dBm, -161dBm typical values
12.3GHz to 15.5GHz	-142dBm, -147dBm typical values	-155dBm, -162dBm typical values
15.5GHz to 19.3GHz	-140dBm, -145dBm typical values	-153dBm, -158dBm typical values
19.3GHz to 21GHz	-140dBm, -148dBm typical values	-153dBm, -158dBm typical values
21GHz to 22.8GHz	-138dBm, -145dBm typical values	-150dBm, -155dBm typical values
22.8 GHz to 26.5 GHz	-138dBm, -145dBm typical values	-152dBm, -159dBm typical values
JHS7 0 3 2A,JHS7 04 0A	**The preamplifier is off**	**The preamplifier is on**
100kHz to 1 MHz	-140dBm typical value	---
1MHz to 20MHz	-145dBm, -149dBm typical values	-160dBm, -166dBm typical values
20MHz to 1.5GHz	-145dBm, -150dBm typical values	-162dBm, -165dBm typical values
1.5GHz to 3GHz	-143dBm, -149dBm typical values	-158dBm, -162dBm typical values
3GHz to 4.5GHz	-144dBm, -149dBm typical values	-158dBm, -162dBm typical values
4.5GHz to 7.5GHz	-139dBm, -145dBm typical values	-152dBm, -158dBm typical values
7.5GHz to 9.5GHz	-140dBm, -145dBm typical values	-154dBm, -158dBm typical values
9.5GHz to 12.3GHz	-136dBm, -144dBm typical values	-152dBm, -157dBm typical values
12.3GHz to 15.5GHz	-136dBm, -143dBm typical values	-152dBm, -157dBm typical values
15.5GHz to 19.3GHz	-134dBm, -140dBm typical values	-150dBm, -155dBm typical values
19.3GHz to 21GHz	-135dBm, -141dBm typical values	-150dBm, -155dBm typical values
21GHz to 22.8GHz	-133dBm, -139dBm typical values	-148dBm, -154dBm typical values
22.8 GHz to 26.5 GHz	-133dBm, -138dBm typical values	-148dBm, -153dBm typical values
26.5GHz to 32GHz	-128dBm, -135dBm typical values	-144dBm, -150dBm typical values
32GHz to 40GHz	-124dBm, -131dBm typical values	-140dBm, -148dBm typical values

Spurious response

Residual response (input connected to 50Ω load and 0dB attenuation)	200kHz to 40GHz (scan mode)	-90dBm
	Zero sweep width or FFT or other frequency	-100dBm nominal value

	Tuned frequency (f)	Respond
Image response	10MHz to 40GHz	typical values of-70dBc and-80dBc
LO related spurious signal	10MHz to 40GHz---	-10dBm -64dB typical value

Other stray response

	Mixer level	Respond
Intermediate frequency feed through	-10dBm	-75dBc, -80dBc typical values
First-order radio frequency	-10dBm	`-70dBc, -80dBc nominal values

(f ≥ 10MHz off the carrier frequency)		
Higher-order radio frequency (f ≥10MHz off the carrier frequency)	-10dBm	-70dBc, -80dBc nominal values

Second Harmonic Distortion (SHI)

Frequency of signal source	SHI(nominal value)
10MHz to 3.75GHz	+45dBm
3.75GHz to 13.25GHz	+62dBm
13.25GHz to 20GHz	+50dBm

Third-order intermodulation distortion (TOI)

The preamplifier is off (Mixer input-20dBm, 100kHz fr- equency band, dual audio signal, 0 dB attenuation, 20°C to 30°C)	10MHz to 2GHz	+ 12dBm, + 16dBm typical values
	2GHz to 3GHz	+ 12dBm, + 17dBm typical values
	3GHz to 7.5GHz	+ 12dBm, + 16dBm typical values
	7.5GHz to 13.6GHz	+ 11dBm, + 15dBm typical values
	13.6GHz to 26.5GHz	+8dBm, +12dBm typical values
	26.5 From GHz to 40GHz	+7dBm, +12dBm typical values
The preamplifier is on (Mixer input-45dBm, 100kHz frequency band, dual audio signal, 0dB attenuation, 20°C to 30°C)	10MHz to 26.5GHz	-8dBm nominal values
	26.5GHz to 40GHz	-15dBm nominal values

Phase noise

	Frequency deviation	Metric	Representative value
Noise sideband (20°C to 30°C, CF = 1 GHz)	100Hz	---	-80dBc/Hz nominal value
	1kHz	-102dBc/Hz	-104dBc/Hz
	10kHz	-108dBc/Hz	-110dBc/Hz
	100kHz	-108dBc/Hz	-110dBc/Hz
	1MHz	-122dBc/Hz	-124dBc/Hz

Nominal Phase Noise at 1GHz Central Frequency

Advanced Measurement (Optional)

Power measurement	
Channel power	Channel power, power integral density
Time domain power	Integral power of zero sweep width time
Occupied bandwidth	Power consumption, transmission frequency error
Adjacent channel power	Main channel power, left neighbor channel power/power ratio, right neighbor channel power/power ratio
Carrier-to-noise ratio	Carrier power, noise power
Nonlinear measurement	
Third-order intercept	Automatic search based on double tone peak
Harmonic analysis	Maximum harmonic number 10
Spectrum monitoring	
Waterfall Chart	

Simulated Demodulation Analysis (Optional)

General Parameters		
Carrier frequency range	2 MHz to 40GHz	
Carrier power accuracy	±2dB, nominal value	
Interior input power	-30dB to +20dBm	Automatic attenuation
AM measure		
Modulating frequency	20Hz to 100kHz	
Accuracy	1Hz (nominal value)	Modulation frequency <1kHz
	<0. 1% modulation frequency (nominal value)	Modulation frequency ≥1kHz
Degree of depth	5 Up to 95%	
Accuracy	±4% of the nominal value	
FM measure		
Modulating frequency	20Hz to 100kHz	
Accuracy	1Hz (nominal value)	Modulation frequency <1kHz
	<0. 1% modulation frequency (nominal value)	Modulation frequency ≥1kHz
Frequency deviation	1kHz to 400kHz	
Accuracy	±4% (nominal value)	
PM measure		
Modulating frequency	20Hz to 100kHz	
Accuracy	1Hz (nominal value)	Modulation frequency <1kHz
	<0. 1% modulation frequency (nominal value)	Modulation frequency ≥1kHz
Phase deviation	0.2 Up to 6.28rad	
Accuracy	±4% (nominal value)	

Vector Signal Analysis (Optional)

Measurement function		
Modulation type	ASK：	2ASK, 4ASK, 8ASK, 16ASK
	FSK：	2 FSK, 4 FSK, 8FSK, 16FSK
	MSK：	type1, type2
	PSK：	BPSK, QPSK, OQPSK, 8 PSK
	BPSK, QPSK, 8BPSK； DQPSK, D8PSK, π/4 -DQPSK, π/8 -D8 PSK,OQPSK	
	QAM: 16, 32, 64, 128, 256	

Measure symbol length	10 Up to 4096
Symbol count/oversampling rate	4, 6, 8 ,10, 12, 14, 16, 20
Symbol rate	1 ksp/s to analysis bandwidth/symbol points
Filter	
Filter type	None, Root Mean Square Error, Gauss, EDGE, CDMA, Rectangle
Filter length	2 Up to 128
Alpha/ BT	0.05 Up to 1
Show	
Data	IQ measures the time domain and frequency domain
	IQ reference time domain, IQ reference frequency domain
	Symbol error statistics table, error vector time domain, error vector frequency domain
	Time domain, frequency domain, IQ amplitude error, IQ phase error
Form	Logarithmic amplitude, linear amplitude, real part, imaginary part
	IQ Chart, Zodiac Chart, Eye Chart, Q Eye Chart
	Phase diagram, phase expansion diagram, phase tree diagram
Symbol error statistics table	
PSK/ DPSK/ MSK/QAM	EVM (rms EVM,peak EVM),Magnitude error
	Phase error, IQ offset,Carrier offset,SNR Quadrature error
	Gain imbalance(not support for MSK)
ASK	ASK Error,ASK depth,carrier offset
FSK	FSK Error,Magnitude error,FSK deviation,carrier offset

IQ Analysis (Optional)

Frequency	
Frequency sweep width	10Hz to 20MHz
	10Hz to 40MHz (Optional JHS7000A-B40, factory configuration required)
	10Hz to 85MHz (Optional JHS7000A-B85, factory configuration required)
	10Hz to 160MHz (Optional JHS7000A-B160, factory configuration required)
	10Hz to 255MHz (Optional JHS7000A-B255, factory configuration required)
Resolution bandwidth (spectral measurement)	
Scope	1Hz to 10MHz
Window shape	Flat Top, Hanning, Gaussian, Blackman, Blackman-Harris(Blackman-Harris)

Intermediate frequency response (demodulation and FFT response relative to the center frequency, 20°C to 30°C)			
Center frequency (GHz)	Scan width (MHz)	maximum change	RMS (nominal value)
≤3.0	≤10	±0.4dB	0.03dB
3.0＜f ≤26.5	≤10		0.10dB

Intermediate frequency phase linearity (average phase linearity deviation, nominal value)			
Center frequency (GHz)	Scan width (MHz)	peak-to-peak value	RMS (nominal value)
≤3.0	≤ 10	0.5°	0.2°
3.0＜f ≤7.5	≤ 10	0.5°	0.4°
7.5＜f ≤26.5	≤ 10	0.5°	0.4°

Data acquisition (standard 20MHz intermediate frequency path) time record length	
IQ analyse	8,000,000 IQ samples
Data transfer rate	IFBW× 1.25
Sampling rate	100MSa/s
ADC resolution ratio	14bits

Data acquisition (40MHz to 255MHz intermediate frequency path) time record length	
IQ analyse	8,000,000 IQ samples
Data transfer rate	IFBW×1.2
Sampling rate	1GSa/s
ADC resolution ratio	14bits

Real Time Spectral Analysis

Frequency and time accuracy	
Real time analysis bandwidth	20MHz
	40MHz (Optional JHS7000A-B40, factory configuration required)
	85MHz (Optional JHS7000A-B85, factory configuration required)
	160MHz (Optional JHS7000A-B160, factory configuration required)
	255MHz (Optional JHS7000A-B255, factory configuration required)
Detection mode	Positive peak, Negative peak, Sampling, Average
Number of traces	12
Window type	Hanning, Blackman Harris, rectangle, flat top, Caesar, Gauss
Resolution bandwidth	Six RBWs are provided for each window, except for rectangular windows.

Resolution bandwidth	Caesar window		
	Scan width	Minimum bandwidth	Maximum bandwidth
	255MHz	882.0084kHz	28.4007MHz
	160MHz	553.0802kHz	17.7504MHz
	85MHz	294.0028kHz	9.4669MHz
	40MHz	138.2028kHz	4.508MHz
	20MHz	69.1014kHz	2.254MHz
	10MHz	34.5507kHz	1.127MHz
	1MHz	3.4551kHz	112.7011kHz
	100kHz	345.5069Hz	11.2701kHz
Maximum sampling rate	100MSa/s		
	1GSa/s (Optional for JHS7000A-B40 to B255)		
FFT speed	311,875/s (nominal value)		
Cursor number	10		
Amplitude resolution	0.01dB		
Frequency point	799		

Minimum signal duration at 100%POI

Default Kaiser window	Duration (µs)				
Scan width	255MHz	160MHz	85MHz	40MHz	20MHz
RBW6	4.5	10.9	4.53	4.57	4.65

Range

Amplitude flatness (conventional spectrum)	±0.6dB (nominal value)
SFDR	<-60dBc (typical value)

Probability density display

Probability range	0 Up to 100% (step 0. 1%)
Minimum sweep width	5kHz
Duration	32ms to 10s

Spectrogram

Maximum capture amount	10000
Dynamic range of color coverage	200dB

PVT

Minimum capture time	50us
Maximum capture time	100s

Detonate by contact

Trigger source	Free Trigger, External Trigger 1, External Trigger 2, Periodic Trigger, RF Power Trigger, Frequency Mask Trigger

Frequency Template Trigger (FMT)	
Trigger resolution	0.5dB (nominal value)
Trigger condition	Enter, Exit, Inside, Outside, Enter→Exit Exit → Enter

Analyze bandwidth (factory configuration required for optional items)

Analyze the bandwidth of 20MHz	
IQ analysis bandwidth range	10Hz to 20MHz
RTSA analysis bandwidth	5kHz to 20MHz

Analyze bandwidth from 40MHz to 255MHz (optional JHS7000A-B40 to B255, factory configuration required)				
IQ analysis bandwidth range	10Hz to 40MHz	85MHz，	160MHz，	255MHz
RTSA analysis bandwidth	5kHz to 40MHz	85MHz，	160MHz，	255MHz

LTE Signal Analysis (Optional)

Measurement parameters	
Preset criteria	
Duplex type	TDD， FDD
TM test pattern	Uplink: FRC Test Mode / PUCCH Test Mode
	Downstream: TM1.1, TM2, TM2a, TM2b, TM3.1, TM3. 1a, TM3. 1b, TM3.2, TM3.3
Signal carrier	
Carrier bandwidth	1.4MHz ,3MHz ,5MHz ,10MHz ,15MHz ,20MHz
Spectral mirror image	On ,Off
Uplink-downlink configuration	0 Up to 6
Synchronous mode	Downstream: CRS/PSS
	Uplink: PUSCH DMRS/PUCCH DMRS/SRS
Synchronous time slot	0 Maximum time slot number
Cell ID source	Down: manual
	Upward: manual
Cell ID	0 Up to 503
CP length	Normal/Extended
Reference signal port	1/2/4

count		
Reference signal port	0 to the maximum reference port number	
Channel type	Downlink: CRS, PSS, SSS, PCFICH, PDCCH, PHICH, PBCH, PDSCH	
	Uplink: PUCCH, PUSCH, SRS	
Time settings		
Slot offset	0 Maximum time slot number	
Symbol offset	0 maximum symbol number per time slot	
Time slot length	1 number of time slots	
Measure symbol length	0 number of time slot symbols	
View		
Data	Original data time domain, Original data frequency domain, IQ measurement time domain, IQ measurement frequency domain, IQ reference time domain, IQ reference frequency domain, Error vector time, Error vector frequency domain, RB error magnitude time domain, RB error magnitude frequency domain, Error statistics table, Frame statistics table	
Form	Logarithmic amplitude, linear amplitude, real part, imaginary part, IQ diagram, constellation diagram, I-eye diagram, Q-eye diagram, phase diagram, phase unwinding diagram	
Parameter list		
Error Statistics Table	Channel power, EVM (RMS/Peak), Data EVM, frequency deviation, synchronization correlation, synchronization source, CTE, time deviation, cell ID, CP type	
Frame count table	Each channel/UE: EVM, RE power, modulation type	

5G NR Signal Analysis (Optional)

Measurement parameters	
Preset criteria	
Duplex type	TDD ,FDD
TM test pattern	FR1： TM1.1 ,TM1.2 ,TM2.0 ,TM2.0a ,TM2.0b ,TM3.1 ,TM3.1a ,TM3.1b,TM3.2 ,TM3.3
Signal carrier	
Number of carriers	1
Carrier bandwidth	FR1： 5MHz,10MHz,15MHz,20MHz,25MHz,30MHz,35MHz,40MHz,45MHz ,50MHz ,60MHz ,70MHz ,80MHz ,90MHz ,100MHz
Subcarrier spacing	15kHz ,30kHz
Channel type	Downlink: SSB, PDSCH, PDCCH, CSI-RS
	Uplink: PUCCH, PUSCH, SRS
View	

Data	Time domain of raw data, Frequency domain of raw data, Time domain of IQ measurement, Reference time domain of IQ, RMS power vs time, RMS power vs frequency, Error vector time, Error vector frequency, RMS error vector time, RMS error vector frequency, Result statistics table, Frame statistics table, Time slot statistics table, RE allocation diagram, MI MO information	
Form	Logarithmic amplitude, linear amplitude, real part, imaginary part, IQ plot, constellation plot, I-eye plot, Q-eye plot, phase plot, phase spread plot, phase tree plot	
Parameter list		
Results Table	Channel power, EVM (RMS/Peak), frequency deviation, symbol clock deviation, IQ Offset, time deviation, synchronization correlation, synchronization source, amplitude error, phase error, IQ gain imbalance, IQ orthogonal error, IQ time deviation, cell ID	
Frame count table	Each channel/UE: EVM, RE power, modulation type, RB count, RNTI	
Slot table	Each time slot (classified by channel/UE)	EVM, RE power, modulation type, RB count, SINR
MIMO information	Port number, EVM, power, TAE,	Frequency deviation, phase deviation, symbol clock deviation

Noise Analysis (Optional)

Measurement parameters	
Measurement frequency range	100kHz to 40GHz
Minimum offset frequency	10Hz
Maximum offset frequency	Maximum measurement frequency-measurement signal frequency
Measurement function	
View	Spectrum monitoring, point frequency measurement, logarithmic chart, IQ waveform
Measurement pattern	Phase Noise, DANL Floor
Mark function	Noise angle, noise arc, noise jitter, noise d Bc, residual FM (weighted integral), Average noise density

Interface and Display

Universal inter face	
Radio frequency input	2.92mm male head
10MHz reference input	10 MHz, -5 dBm to +10 dBm, 50 Ω, BNC connector
10MHz reference output	10 MHz,>0 dBm, 50 Ω, BNC-type connector

External Trigger Input 1	TTL, BNC type penis	
External Trigger Input 2	TTL, BNC type penis	
Trigger Output 1	BNC type penis	
Trigger Output 2	BNC type penis	
HDMI show	19 HDMI connector	
USB-Host	Front panel: USB-A 3.0, Rear panel: USB-A 2.0	
USB-Device	USB-B 3.0	
LAN	LAN(VXI-11),10/100/1000 Base,RJ-45	
Audio interface	3.5mm	
GPIB joggle	24 D-Sub (D-24) compatible with IEEE-488	
Display screen		
Display type	11.6 inch HD capacitive touch screen	
Display resolution	1920× 1080	

Outline specification

Specifications		
Supply Voltage	100 Up to 240VAC (fluctuation: ±10%)	100 Up to 120VAC (fluctuation: ±10%)
Frequency	50/60Hz	400Hz
Power	≤250W	
Environment		
Temperature range	Operation: 0° C to +40° C	
	Non-operational: -20° C to +60° C	
Cooling means	Forced cooling by fan	
Humidity range	Operation: below +35℃ with relative humidity ≤90%;	
	Non-operational: +35° C to +40° C, relative humidity ≤ 60%	
Above sea level	Operable: below 3000 meters; Non-operable: below 15000 meters	
Class of pollution	2	
Service environment	For indoor use	
Rating of machine		
Size	484mm × 189mm × 475.5mm (width × height × depth)	
	426mm × 177mm × 400mm (width × height × depth) – Excludes handles, feet, footrests, and side straps	

Weight	About 15kg	
Adjust the interval	The recommended calibration interval is one year.	

Regulatory Standards

Electromagnetic compatibility	Complies with EMC Directive (2014/30/EU), meets or exceeds IEC standards 61326-1:2021/EN61326-1:2021,IEC 61326-2-1:2021/EN61326-2-1:2021	
Conduction disturbance	CISPR 11/EN 55011	CLASS B group 1,150kHz-30MHz
Radiation disturbance	CISPR 11/EN 55011	CLASS B group 1,30MHz-1GHz
Electrostatic Discharge (ESD)	IEC 61000-4-2/EN 61000-4-2	$\pm$ 4.0kV (contact), $\pm$ 8.0kV (air)
Radio frequency electromagnetic field immunity	IEC 61000-4-3/EN 61000-4-3	3V/m(80 MHz to 1 GHz); 1V/m(1.4 GHz to 6 GHz)
Electric fast transient pulse train (EFT)	IEC 61000-4-4/EN 61000-4-4	$\pm$ 1kV (AC input port)
Surge	IEC 61000-4-5/EN 61000-4-5	$\pm$ 0.5kV (hot to neutral) $\pm$ 1kV (hot/neutral to ground)
RF continuous conduction immunity	IEC 61000-4-6/EN 61000-4-6	3V,0.15-80MHz
Voltage Sags and Short Term Interruptions	IEC 61000-4-11/EN 61000-4-11	Voltage dip：0% JH during 0.5 cycle; 0% JH during 1 cycle; 70% JH during 25/30 cycles Short interruption: 0% JH during 250/300 cycles

Safe code

EN 61010-1:2010+A1:2019

EN I EC61010-2-030:2021+A11:2021

UL 61010-1:2012 Ed.3+ R:19 Jul2019

UL 61010-2-030:2018 Ed.2

CSA C22.2#61010-1:2012 Ed.3+u1;u2;A1

CSA C22.2#61010-2-030:2018 Ed.2

Attachments, Options, and Warranty

Description		Number of order
Model	Signal Analyzer, 2 Hz to 13.6 GHz	JHS7013A
	Signal Analyzer, 2 Hz to 26.5 GHz	JHS7026A
	Signal Analyzer, 2 Hz to 32 GHz	JHS7032A
	Signal Analyzer, 2 Hz to 40 GHz	JHS7040A
Standard accessories	Power cord compliant with local standards x 1 USB data cable x 1	JH-D14
Optional attachments		
Software	JHS7040A preamplifier, 40GHz	JHS7000A-P40
	JHS7032A Pre-amplifier, 32GHz	JHS7000A-P32
	JHS7026A Pre-amplifier, 26.5 GHz	JHS7000A-P26
	JHS7013A Pre-amplifier, 13.6GHz	JHS7000A-P13
	Noise phase analysis	JHS7000A-PNM
	EMI measure	JHS7000A-EMI
	Simulated demodulation analysis	JHS7000A-AMA
	Advanced Measurement	JHS7000A-AMK
	Digital demodulation analysis	JHS7000A-VSA
	I/Q analyse	JHS7000A-I/Q
	FDD-LTE demodulation analysis	JHS7000A-FDD-LTE
	TDD-LTE demodulation analysis	JHS7000A-TDD-LTE
	NR demodulation analysis	JHS7000A-NR
	40MHz signal analysis bandwidth	JHS7000A-B40
	85MHz signal analysis bandwidth	JHS7000A-B85
	160MHz signal analysis bandwidth	JHS7000A-B160
	255MHz signal analysis bandwidth	JHS7000A-B255
Accessory Pack JH-CK02	JH-W03-40GHz-2.92J RF cable x 1	JH-W03-40GHz
	Radio Frequency Connector 2.92-KKG Double Tip x2	JH-C04-40GHz
	JH-C03-18GHz SMA-N RF Adapter x 1	JH-C03-18GHz
Near-field probe pack JHS-EMI01	50 Ω SMA-SMB cable x 1	JH-W03
	Adapter SMA-N-KJ-T DC-6GHz x 1	JH-C01
	Near-field probe, frequency range 30MHz-3GHz, detection range 10cm x 1	NFP-3G-P1
	Near-field probe, frequency range 30MHz-3GHz, detection range 3 cm x 1	NFP-3G-P2

Near-field probe, frequency range 30MHz-2GHz, resolution 5 mm x 1	NFP-2G-P3	
Near-field probe, frequency range 30MHz-3GHz, resolution 2 mm x 1	NFP-3G-P4	

Note: All hosts, accessories, and optional items are available for purchase from KTB Solutions Inc.

Warranty

The host comes with a 1-year warranty, excluding cables and accessories.