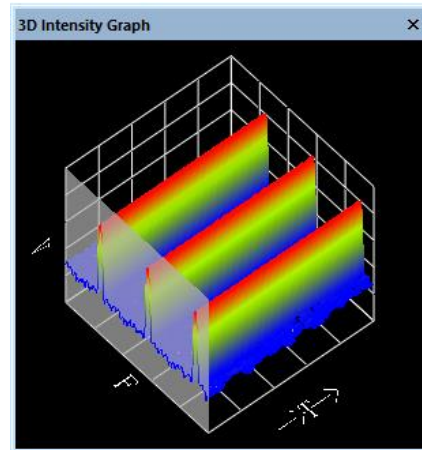
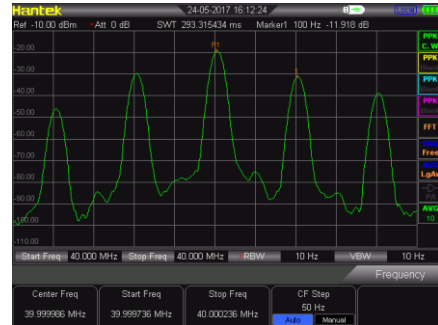


HSA2016 Series Spectrum Analyzer 9kHz-1.6GHz



Features

- Frequency range: 9KHz-1.6GHz (tunable to 9KHz) AC Coupled
- Optimal sensitivity: -161dBm RBW:10Hz to 1MHz
- IP-51 High protection portable design, sturdy and durable, can be used in laboratory, more suitable for field mobile use.
- built-in large capacity lithium battery, can work for more than 4 hours. 18650 rechargeable battery.
- 5.6 inch highlight color display, 640*480 resolution, waveform display clearly.
- HSA2000 Series spectrum analyzer has the lowest DANL and SSB phase noise, and narrowest RBW. It greatly enhances the recognition ability to the spurious signal and noise signal.
- Optional FM/AM modulation analysis, including carrier power, modulation rate, AM depth/FM deviation, SINAD and carrier frequency offset.
- Standard spectrum feature. It can analyze the signal time stability, and find out lacunar signal in communication system accurately.
- Strong field strength test function, fit for the test work in transmitter, base station and the antenna coverage site. It can show the density of field strength or power. The user could also calibrate gain or loss by using amplitude offset function.
- HAS2000 Series has least RBW in the same level of analyzers, and can easily confirm, distinguish and measure two similar signals.
- The 5.7 inch highlight color display can provide accurate, bright and clear trace both inside and outside, no need to move to shading place for work.
- Short scanning time. It can fast catch the data and help to locate and recognize the irregular transient disturbance signal, and then optimize the testing time and accuracy.
- Advanced built-in battery management system is adopted. Standard super large capacity-7800mAh lithium battery, and support 6 packs of 18650 battery pack which can keep measurement working in site for over 4 hours.
- Firm and tight mechanical structure, close rubber sleeve pack, which is fit for harsh site work environment.
- Integration USB Host & Device, support USB flash disk memory, optional WIFI/LAN, which is convenient for networking and long-range control.
- Its PC software can achieve the management and storage of testing data.
- HSA2000 Series site measurement application.
 1. Aerospace and Defense: Radio and Radar, interferometric analysis, site repairment.
 2. Wireless service provider: interferometric analysis, site repairmen.
 3. TV & Radio: interferometric analysis, check of channel power.
 4. Spectrum management agency: spectrum monitor.

Parameters		
Model	HSA2016A	HSA2016B
Frequency		

Frequency Range	9KHz~1.6GHz AC Coupled	9KHz~1.6GHz AC Coupled 5M~1.6GHz TG
Frequency Resolution	1Hz	
Reference Frequency	10MHz	
Frequency Readout Accuracy	$\pm(\text{frequency indication} \times \text{frequency reference uncertainty} + 1\% \times \text{span} + 20\% \text{RBW} + \text{marker resolution} + 1\text{Hz})$	
Internal 10MHz Reference	Aging rate	$\pm 1\text{ppm/year}$ (0°C~50°C, Reference is 25°C)
	Temperature stability	$\pm 1\text{ppm/year}$
Marker Resolution	(Frequency span)/(number of sweep points-1)	
Resolution Bandwidth (RBW)		
-3dB Bandwidth	10Hz to 1MHz, 1-3-10 sequence	
Accuracy	$\pm 5\%$ RBW=10Hz~1MHz nominal	
Resolution Filter Shape Factor	<5:1 nominal	
Video Bandwidth (VBW)	-3dB bandwidth	1Hz to 1MHz, 1-3-10 sequence
	Accuracy	$\pm 10\%$ VBM=1Hz~1MHz nominal
Displayed Average Noise Level (normalized to 1Hz)		
9K~1MHz	Preamp off	-108dBm, typical -127dBm
1MHz ~10MHz		-128dBm, typical -146dBm
10MHz ~500MHz		-142dBm, typical -146dBm
500MHz ~2.5GHz		-141dBm, typical -145dBm
2.5GHz ~3GHz		-140dBm, typical -144dBm
9K~1MHz	Preamp on	-131dBm, typical -150dBm
1MHz ~10MHz		-148dBm, typical -163dBm
10MHz ~500MHz		-161dBm, typical -164dBm
500MHz ~2.5GHz		-159dBm, typical -162dBm
2.5GHz ~3GHz		-158dBm, typical -161dBm
SSB Phase Noise		
Carrier Offset(20°C~ 30°C, 500MHz Central Frequency)	10K	< -92 dBc/Hz, typical -95 dBc/Hz
	30K	< -93 dBc/Hz, typical -96 dBc/Hz
	100K	< -95 dBc/Hz, typical -97 dBc/Hz
	1MHz	< -117 dBc/Hz, typical -119 dBc/Hz
Sweep Time		
Range	Span >100Hz	2ms to 1000s
	Span=0Hz	600ns to 200s
Sweep Mode	Continuous, single	
Trigger Source	Free run; video; external	
Trigger slope	Selectable positive or negative edge	
Trigger delay	Span =0Hz	$\pm 12\text{ms}$ to $\pm 12\text{s}$ nominal
Frequency Counter		
Counter Resolution	1Hz	
Accuracy	$\pm (\text{marker frequency} \times \text{frequency reference uncertainty} + \text{counter resolution})$	
Level Display Range		
Log Scale and Units	1 to 10 dB/divisions in 1, 2, 5, 10 dB steps, 10 divisions displayed	
Linear Scale and Units	0 to 100%, 10 divisions displayed	
Scale Unit	dBm, dBmV, dBuV, Watts, Volts	
Sweep (Trace) Points	461	
Number of Markers	4	
Detectors	Normal, positive peak, dample, negative peak, RMS	
Number of Traces	4	
Trace Functions	Clear/write, maximum hold, minimum hold, average, check, close	
Level Measurement Error	$\pm 1.5\text{dB}$ (excluding input VSWR mismatch)	
	20~30°C, peak detector, preamplifier off, input signal -50dBm to 0dBm	
Reference Level		
Setting Range	-100dBm to +30dBm, steps of 1dB	
Setting Resolution	Log scale	0.01dB
	Linear scale	Almost log (2.236 μV to 7.07V)

Amplitude		
Maximum Safety Input Level	Average continuous power	+33dBm
	DC input voltage	50Vdc
Measurement Range	9KHz~2MHz	Displayed average noise level (DANL) to +10dB
	2MHz~3GHz	Displayed average noise level (DANL) to +20dB
	Input attenuator range	0 to 51dB, 1dB steps
Spurious Response		
Second Harmonic Distortion (SHI)	<65dBc, 50MHz to 3GHz (Mixer level -30dBm, attenuator =0dB, preamp off, 20°C~30°C)	
Third-Order Intermodulation (TOI)	50~300MHz	+8dBm, Third-order intermodulation products: 2 x -20dBm; frequency separation 100KHz: attenuation = 0dB; preamp off, 20°C~30°C
	300MHz~1.6GHz	+10dBm
Input Related Spurious	<-75dBc, (input mixer = -30dBm)	
Inherent Residual Response	<-90dBm, typical -98dBm (Input terminated and 0 dB RF attenuation, preamplifier off)	
RF Input VSWR (at Tuned Frequency)	10MHz to 1.6GHz	<1.5:1, nominal Attenuator setting 10~20dB
10MHz Reference/External Trigger Input		
Reference Input Frequency	10MHz	
Reference Input Amplitude	0~10dBm	
Trigger Voltage	5V TTL level	
Connector and Output Impedance	N female; (50Ω)	
General Feature		
Interface Language	English, Chinese, Chinese Traditional	
Display Index	5.7 inch, 640*480 resolution, 64M color LCD display	
Temperature Range	Working	-10°C to +50°C, (battery: 0°C to 50°C)
	Storage	-40°C to +70°C, (battery :-20°C to 50°C)
Relative Humidity	<95%	
Weight	2.9kg (with battery) , 2.6kg (without battery)	
Size	260m X 220m X 75m	
Power	Input voltage range	DC: 12-17V, maximum 2.8A input 220VAC±15%
	AC frequency range	40Hz to 60Hz
	Power consumption	Maximum 32W