

# Handheld Spectrum Analyzer

## 9K~3.2 GHz

### HSA2000 Series



## Feature

- IP-51 rated. Three-in-one Handheld Spectrum Analyzer.
- Large 5.6 inch 64K Color LCD Display, High Resolution (640\*480).
- 4500mAh Large-capacity Lithium Battery. Over 4 Hours Cruising Ability.
- It Supports to Use 6 PCS of 18650 Battery Pack to replace the Lithium Battery.
- Rich Expansion Interface, USB 2.0 and LAN is optional.
- Highest Sensitivity: -161dBm, Lowest DANL.
- Super Slim Design. Volume Light. Easy to Carry.



## Specification

Model		HSA2030A		HSA2030B	
Frequency	Frequency range	100K-3.2GHz(tunable to 9KHz) AC Coupled		100K-3.2GHz(tunable to 9KHz) AC Coupled 5M-3.2GHz TG	
	Frequency Resolution	1Hz		1Hz	
Internal Reference Frequency	Reference Frequency	10MHz		10MHz	
	Frequency Readout Accuracy	± (frequency indication*frequency reference uncertainty+1%*span+20%RBW+marker resolution+1Hz)			
	Internal 10MHz Reference Accuracy	Aging Rate	± 1ppm/year ( 0°C~50°C, Reference is C25°C )		
		Temperature stability	± 1ppm/year		± 1ppm/year
Marker Resolution	(frequency span)/(number of sweep points - 1)				
Frequency Counter	Counter Resolution	1Hz			
	Accuracy	± (marker frequency × frequency reference uncertainty + counter resolution)			
Frequency Span	Range	0 Hz(zero span), 100 Hz to 3.2 GHz			
	Resolution	0 Hz			
	Accuracy	± span/ ( sweep points-1 )			
SSB phase noise	Carrier offset(20°C~30°C, 500MHz central frequency )	10 KHz	<-92dBc/Hz, Typical -95dBc/Hz		
		30 KHz	<-93dBc/Hz, Typical -96dBc/Hz		
		100 KHz	<-95dBc/Hz, Typical -97dBc/Hz		
		1 MHz	<-117dBc/Hz, Typical -119dBc/Hz		
Resolution bandwidth	-3dB bandwidth	10Hz to 1MHz, 1-3-10 sequence			
	Accuracy	±5% RBW=10Hz~1MHz nominal			
Video bandwidth	-3dB bandwidth	1Hz to 1MHz, 1-3-10 sequence			
	Accuracy	± 10% VBW=1Hz~1MHz nominal			
Measurement range	100KHz~2MHz	Preamp off	Displayed average noise level (DANL) to +10dB		
	2MHz~3.2 GHz	Preamp on	Displayed average noise level (DANL) to +20dB		
Maximum safe input level	Input attenuator range	0 to 51dB,1dB steps			
	Average continuous power	+33dBm, 3 minutes maximum Input attenuator setting ≥20dB,2MHz~3.2 GHz			
Displayed average noise level (normalized to1Hz)	DC voltage	50 VDC, maximum			
	100KHz~1MHz	Preamp off	- 108 dBm, typical - 127 dBm		
	1MHz~10MHz		- 128 dBm, typical - 146 dBm		
	10MHz~500MHz		- 142 dBm, typical - 146 dBm		
	500MHz~2.5GHz		- 141 dBm, typical - 145 dBm		
	2.5GHz~3.2GHz	Preamp on	- 140 dBm, typical - 144 dBm		
	100KHz~1MHz		- 131 dBm, typical - 150 dBm		
	1MHz~10MHz		- 148 dBm, typical - 163 dBm		
	10MHz~500MHz		- 161 dBm, typical - 164 dBm		
	500MHz~2.5GHz		- 159 dBm, typical - 162 dBm		
2.5GHz~3.2GHz	- 158 dBm, typical - 161 dBm				
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, dB μV, Watts, Volts			
	Sweep (trace) points	461			
	Number of markers	4			
	Detectors	Normal, Positive Peak, Sample, Negative Peak, RMS			
	Number of traces	4			
	Trace functions	Clear/write, maximum hold, minimum hold, average, check, close			
Reference level	Level measurement error	± 1.5dB(excluding input VSWR mismatch)		20~30°C, peak detector, preamplifier off, input signal 0 dBm to 50 dBm	
	Setting range	-100dBm to +30dBm, steps of 1dB			
	Setting resolution	Log scale	0.01dB		
		Linear scale	Almost log(2.236 μV to 7.07 V)		
RF Input VSWR (at tuned frequency)	10MHz to 3.2GHz	<1.5:1, nominal		Attenuator setting 10~20dB	
Spurious response	Second harmonic distortion ( SHI )	<65dBc,50MHz to 3GHz ( Mixer level -30dBm, attenuator = 0dB, preamp off, 20-30°C )			
	Third - order intermodulation	50~300MHz	+8dBm Third-order intermodulation products: 2 x -20dBm; frequency separation 100KHz; RF attenuation = 0dB; RF preamp off; 20-30°C;		
		300MHz~3.2GHz	+10dBm		
	Input related spurious	<-75dBc (input mixer = -30dBm)			
Inherent residual response	<-90dBm, typical -98dBm (Input terminated and 0 dB RF attenuation, preamplifier off)				
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	± 12ms tp ± 12s nominal			
RF Input	Connector and impedance	N female; 50Ω			
	Reference input frequency	10MHz			
	Reference input amplitude	0~10dBm			
	Trigger voltage	5V TTL level			
10MHz reference/ External trigger input	Connector and output impedance	N femal; 50Ω			
	Power supply	DC: 12~17V, maximum 2.8A input			
General features	Display	5.6 inch, 640*480 pixels resolution, 64K color LCD display			
	Dimensions and weight	260 mm x 220mm x 75mm ; 2.9KG(include battery); 2.6KG ( exclude battery )			