HSA1036 (TG) Series
Handheld Spectrum Analyzer

+ Frequency Range from 9 kHz up to3.6 GHz
+ -160dBm Displayed Average Noise Level
+ Phase Noise -82dBc/Hz @1Gz and offset at 10KHz
+ Total Amplitude Accuracy <1.5dB
+ 10Hz Minimum Resolution Bandwidth (RBW)
+ EMI Pre-compliance Test Kit
+ Up to 3.6 GHz Tracking Generator Kit
+ 8 inches touchscreen display

+ Performance Specifications

Model	HSA1036TG
Frequency	
Range	9kHz-3.6 GHz
Resolution	1Hz
Frequency span	
Range	0 Hz，100 Hz to maximum frequency of device
Accuracy	± span /（swept points -1）
Internal reference	
Reference frequency	10.000000 MHz
Reference frequency accuracy	±[（days from last calibrate × freq aging rate）+ temperature stability + initial accuracy]
Temperature stability	<2.5ppm （15℃ to 35℃）
Aging rate	<1ppm/year
Readout	
Marker frequency resolution	span/（the number of sweep points -1）
Uncertainty	±（freq indication × freq reference uncertainty +1%× span +10%× resolution bandwidth + Marker Frequency Resolution）
Frequency counter	
Resolution	1 Hz，10 Hz，100 Hz，1 kHz
Accuracy	±（marker freq × freq reference uncertainty + counter resolution）
Bandwidth	
Resolution bandwidth (-3 dB)	10 Hz to 500 kHz (1-10 steps by sequence), 1 MHz, 3 MHz
Resolution Filter Shape Factor (60 dB : 3 dB)	<5: 1 typical (digital and close to Gaussian shape)
Accuracy	< 5%, typical (RBW ≤ 1 MHz)
Video bandwidth (-3 dB)	10Hz to 3MHz

Amplitude Specification	
Amplitude and electric level	
Amplitude measurement range	DANL to +20 dBm， close the preamplifier
Reference electric level	-80 dBm to +30 dBm，0.1dBm steps
Preamp	20 dB, nominal, 9 kHz to 3.6 GHz
Input attenuator range	0 to 50 dB, in 1 dB step
Max input DC voltage	50 VDC
Max continuous power	+30dBm, average continuous power
Displayed average noise level (DANL) (Input Attenuation= 0 dB, Sample Detector ,Trace Average ≥20, 20℃ to 30℃,Input Impedance=50 Ω ,RBW normalizes to 1Hz)	
Preamp off	1 MHz~1GHz -140 dBm (Typical), <-130 dBm
	1GHz~3.6 GHz -138 dBm(Typical), <-128 dBm
Preamp on	1 MHz~1GHz -160 dBm (Typical), <-150 dBm
	1GHz~3.6 GHz -158 dBm (Typical), <-148 dBm
SSB Phase Noise (20℃ to 30℃,fc=1 GHz, RBW=1 kHz,VBW=1 kHz)	
Phase noise	<-80 dBc/Hz @10 kHz offset
	<-100 dBc/Hz @100 kHz offset
	<-107 dBc/Hz @1 MHz offset
Level display range	
Log scale coordinate	1dB ~255dB
Linear scale coordinate	0 to reference level
level unit	dBm, dBuW, dBpW, dBmV, dBuV, W,V
Points	201~1001
Number of traces	5
Detectors	Positive-peak, negative-peak, sample, normal, RMS,AVG, QualPeak
Trace functions	Clear write, Max Hold, Min Hold, View, Blank, Average
Frequency response (20℃ to 30℃, 30% to 70% relative humidity, input attenuation=21 dB, reference frequency=50 MHz)	
Preamp Off (fc≥100K)	±0.8 dB；±0.4 dB (Typical)
Preamp On (fc≥1 MHz)	±0.9 dB；±0.5 dB (Typical)
Difference and Accuracy	
RBW Switch Difference	RBW=10 kHz, Log resolution=±0.2 dB, Lin resolution=±0.01. Nominal
Input Attenuation Difference	HSA1036(TG): 20℃ ~30℃, fc=50 MHz, Preamplifier Off, 20 dB RF attenuation, input signal 1~50dB ±0.5 dB
Absolute Amplitude Uncertainty	20℃ to 30℃, fc=50 MHz, Span=200 kHz, RBW=10 kHz, VBW=10 kHz, peak detector,10 dB RF attenuation,95% confidence level Preamp Off ·±0.4 dB, input signal level -20 dBm Preamp On ·±0.5 dB, input signal level -40 dBm
Uncertainty	input signal range 0dbm~-50dbm
	±1.5 dB

VSWR	input 10 dB RF attenuation，1 MHz~1.5GHz
	<1.5，nominal
Distortion and spurious response	
Second harmonic distortion	fc ≥ 50 MHz，Preamp off, signal input -30 dBm, 0 dB RF attenuation, 20 ℃ to 30 ℃
	-65dbc
Third-order intermodulation	fc ≥ 50 MHz
	+10 dBm
1 dB Gain Compression	fc ≥ 50 MHz, 0 dB RF attenuation, Preamp off , 20℃ to 30℃
	>+2 dBm, nominal
Residual response	connect 50 Ω load at input port, 0 dB input attenuation, 20℃ to 30℃
	<-85 dBm, typical
Input related spurious	-30 dBm signal at input mixer, 20℃ to 30℃
	<-60 dBc
Sweep time and triggering	
Sweep Time	100Hz≤SPAN≤3GHz 10ms to 3000s zero sweep width 10ms to 3000s
Mode	Continue, single
Tracking generator	
Output frequency range	100 kHz~3.6 GHz（Tracking generator） 35 MHz~3.6 GHz（Source generator）
Output power level range	-40 dBm~0 dBm
Output power level resolution	1dB
Output flatness	± 3 dB
Maximum safe reverse level	Average total power：± 30 dBm，DC：±50 VDC
Audio Demodulation	
Frequency Range	100 kHz to 3.6 GHz
Demodulat-ion Type	FM/AM
AM Measurement	
Frequency Range	100 kHz to 3.6 GHz
Modulation rate	20 Hz to 100 kHz
Modulation Rate Accuracy	1Hz,nominal (Modulation rate < 1 kHz) <0.1% modulation rate, nominal (Modulation rate ≥ 1 kHz)
Depth	5% to 95%
Depth Accuracy	±4%, nominal
FM Measurement	
Frequency Range	100 kHz to 3.6 GHz
Modulation rate	20 Hz to 100 kHz
Modulation Rate Accuracy	1Hz,nominal (Modulation rate < 1 kHz) <0.1% modulation rate, nominal (Modulation rate ≥ 1 kHz)

Deviation	20 Hz to 200 kHz
Deviation Accuracy	±4%, nominal
Inputs and Outputs	
RF input connector	50 Ω，N-type female
track generator output	50 Ω，N-type female
External trigger in	BNC female
10 M reference input/output	50 Ω，BNC
Interface	USB HOST, USB DEVICE, LAN, earphone port,GPS&BDS
General techincal specification	
Display	8 inches touch screen LCD
Weight (without package)	About 2.5 kg
Dimension (W × H × D)	265mm*190mm*58mm
Working temperature	0~40 ℃
Storage temperature	-20 °C to +60 °C
Power	100V~240V 50/60Hz
Battery	7.4V 9100mAh