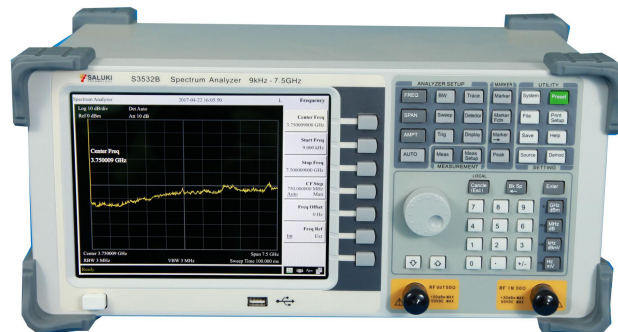




# S3533 Series Spectrum Analyzer Datasheet



Saluki Technology Inc.

**The document applies to the instruments of the following models:**

- S3533A spectrum analyzer (5kHz - 8GHz)
- S3533B spectrum analyzer (9kHz - 18GHz)

**Standard Accessories of S3533 spectrum analyzer**

No.	Item	Qty.
1	Main Machine	1 unit
2	Power Cord	1 pcs
3	CD (Manual)	1 pcs

**Options of the S3533 spectrum analyzer:**

Option No.	Item	Description
S3533-01	High-stability Time-base Option	Aging rate: <0.2ppm/year, Temperature stability: <0.1ppm
S3533-02	Advanced Measurement Option	Including Field Strength Measurement, Channel Scan, Third-order Intermodulation, Harmonic Distortion, Carrier Noise functions
S3533-03	Near Field Probe Kit	Frequency range: LF-3GHz
S3533-04	RF Demonstration Kit	Frequency range: 10MHz - 4.4GHz
S3533-05	Directional Antenna	Frequency range: 600MHz - 8GHz
S3533-06	Omnidirectional Antenna	Frequency range: 300MHz - 7.5GHz
S3533-07	USB Power Sensor	Frequency range: 10MHz - 6GHz
S3533-08	Tracking Source (updating)	Frequency range: 100kHz - 6GHz

## Preface

Thanks for choosing Saluki Technology Inc instrument. We devote ourselves to meeting your demands, providing you high-quality measuring instrument and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

## Document No.

S3533-02-01

## Version

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## Authorization

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## Product Quality Assurance

The warranty period of the product is 36 months from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period. The user should return the product to the manufacturer and prepay mailing costs. The manufacturer will return the product and such costs to the user after maintenance.

## Contacts

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## 1. Overview

S3533 series spectrum analyzer is a wide-band, high-performance spectrum analyzer with a frequency measurement range of 5kHz-8GHz/18GHz. Highly integrated RF front-end and full digital IF technology ensure its excellent performance and stable performance. The maximum real-time bandwidth of 40MHz meets the test of common radio signals such as mobile communication, TV and WiFi, and the 145MHz analog IF output provides users with a variety of test options. It has a variety of intelligent measurement functions such as spectrum analysis, network measurement, field strength measurement, channel scanning, third-order intermodulation, harmonic distortion, carrier-to-noise ratio and Pass-Fail.

S3533 series spectrum analyzer adopts all-aluminum metal structure chassis, 8.4-inch LED high-brightness standard display screen, and has good environmental adaptability. It can be widely used in aerospace, microwave communication, satellite navigation, radar detection, electronic detection and countermeasures, precision guidance and other fields.

### Key Features

- Frequency range: 5kHz - 8GHz / 9kHz - 18GHz
- Resolution bandwidth: 1Hz -5MHz
- Sensitive, DANL < -160dBm
- Maximum real-time bandwidth: 40MHz
- 145MHz analog IF output
- Various measurement functions: field strength measurement, frequency counting, channel measurement, third-order intermodulation, harmonic distortion, carrier-to-noise ratio, chromatogram, audio demodulation and Pass-Fail function etc.
- 8.4 inch LED high-brightness standard display screen
- Compact all-metal structure, good shielding performance and EMC characteristics

## 2. Specification Details

### 2.1. Frequency

	S3533A	S3533B
<b>Frequency range</b>	5kHz - 8GHz	9kHz - 18GHz
<b>Frequency Readout Accuracy</b>	$\pm (\text{frequency indication} \times \text{frequency reference} + 1\% \times \text{span} + 10\% \times \text{RBW} + 0.5 \times [\text{span}/(\text{number of sweep points}-1)] + 1\text{Hz})$	
<b>Aging Rate</b>	Standard: <1ppm/year, High-stability time-base option: <0.2ppm/year	
<b>Temperature Stability</b>	Standard: <0.5ppm (15°C - 35°C), High-stability time-base option: <0.1ppm (15°C - 35°C)	

## 2. 2. Amplitude

	S3533A	S3533B
<b>Amplitude</b>		
<b>Measurement Range (fc≥10MHz)</b>	DANL to +20dBm	
<b>Maximum Safe Input Level</b>	Average continuous power, +27dBm	
<b>Maximum DC Voltage</b>	50Vdc	
<b>Input Attenuator Range</b>	0 to 30dB in 1 dB step	
<b>Accuracy (20-30°C)</b>	±1.5dB	

## 2. 3. Resolution Bandwidth (RBW)

	S3533A	S3533B
<b>Range</b>	1Hz to 5MHz, in 1,3,5 steps	
<b>Selectivity (60dB/3dB)</b>	RBW ≤1MHz	< 5:1 (typical, digital implementation, close to Gaussian shape)
<b>Accuracy</b>	RBW ≤1MHz	<10% (typical <5%)
<b>Video Bandwidth (VBW)</b>	10Hz - 5MHz	

## 2. 4. DANL (0dB attenuation, RBW=1Hz)

	S3533A	S3533B
<b>Preamplifier Off</b>	5kHz - 1MHz: <-120dBm, typical -130dBm 1MHz - 10MHz: <-130dBm, typical -140dBm 10MHz - 2GHz: <-138dBm, typical -142dBm 2GHz - 3.1GHz: <-136dBm, typical -140dBm 3.1GHz - 5GHz: <-136dBm, typical -140dBm 5GHz - 8GHz: <-135dBm, typical -138dBm	9kHz - 100kHz: <-100dBm 100kHz - 5MHz: <-110dBm 5MHz - 4.0GHz: <-138dBm 4GHz - 7GHz: <-135dBm 7GHz - 8GHz: <-133dBm 8GHz - 15GHz: <-135dBm 15GHz - 18GHz: <-133dBm
<b>Preamplifier On</b>	1MHz - 10MHz: <-140dBm, typical -145dBm 10MHz - 2GHz: <-158dBm, typical -162dBm 2GHz - 3.1GHz: <-156dBm, typical -160dBm 3.1GHz - 5GHz: <-155dBm, typical -159dBm 5GHz - 8GHz: <-153dBm, typical -155dBm	1MHz - 10MHz: <-135dBm 10MHz - 2GHz: <-156dBm 2GHz - 5GHz: <-154dBm 5GHz - 7GHz: <-152dBm 7GHz - 8GHz: <-150dBm

	5GHz - 8GHz: <-153dBm, typical -155dBm	8GHz - 15GHz: <-153dBm 15GHz - 18GHz: <-150dBm 7GHz - 8GHz: <-150dBm 8GHz - 15GHz: <-153dBm 15GHz - 18GHz: <-150dBm
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## 2. 5. Phase Noise

	S3533A		S3533B	
CF=1GHz	Carrier offset 10kHz	-98dBc/Hz	Carrier offset 10kHz	-90dBc/Hz
	Carrier offset 1MHz	-108dBc/Hz	Carrier offset 1MHz	-105dBc/Hz
<b>Note: SSB phase noise (Sample detector, Trace average ≥10)</b>				

## 2. 6. Sweep Time

	S3533A	S3533B
<b>Non-zero Span</b>	5ms - 3000s	
<b>Zero Span</b>	20us - 3000s	
<b>Sweep Mode</b>	Continuous, single	

## 2. 7. Trigger

	S3533A	S3533B
<b>Trigger Mode</b>	Free run, video, external	
<b>External Trigger Level</b>	5V TTL level, Nominal value	

## 2. 8. Frequency Counter

	S3533A	S3533B
<b>Resolution</b>	1Hz, 10Hz, 100Hz, 1kHz	
<b>Uncertainty</b>	frequency reading x frequency reference accuracy + resolution	

## 2. 9. Spurious Response

	S3533A	S3533B
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TOI (>30MHz)	+7dBm	
SHI (>10MHz)	+40dBm	
Input Related Spurious (>10MHz)	<-60dBc	
Residual Response (>10MHz)	<-95dBm, typical <-100dBm	<-85dBm

## 2. 10. Input /Output

	S3533A	S3533B
RF Input/Output	Type -N female (50Ω)	
USB	USB 1.1 B, USB 2.0 A	
LAN	10/100 Base-T, RJ-45 Connectivity	
RS232	9 D-SUB pin (M)	
Reference Input	10MHz, BNC female, Input level 0dBm to +10dBm	
Reference Output	10MHz, BNC female, Output level 0dBm±2dB	
IF Output	145MHz, BNC female	
VGA	800*600, 60Hz, 15 D-SUB pin (female)	
External Trigger Input	5V TTL (± 10V, maximum 100mA)	
FM/AM Audio Demodulation	Headphone jack	

## 2. 11. General

	S3533A	S3533B
Display	LED backlight, 8.4 inch TFT-LCD	
Dimension	390 (W) × 182(H) × 230(D) mm	
Weight	7kg	
Operating Temperature	0°C to 40°C	
Storage Temperature	-30°C to +70°C	
Power Supply	Input voltage: 100V-240V AC, 10Hz-60Hz	
Consumption	Max.30W	Max.35W

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