



SAV502 NB-IoT Modular Signal Analyzer

Datasheet



Saluki Technology Inc.



ООО «4TECT»
Телефон: +7 (499) 685-4444
info@4test.ru
www.4test.ru

The document applies to following models:

- SAV502 NB-IoT Modular Signal Analyzer

Standard Accessories

- Main machine
- Power adapter
- Power cable
- USB cable

Options

SAV102-001	GSM License
SAV102-002	WCDMA License
SAV102-003	TDD-LTE License
SAV102-004	FDD-LTE License
SAV102-005	NB-IoT License
SAV102-006	LoRa License

Preface

Thank you for choosing SAV502 NB-IoT Modular Signal Analyzer produced by Saluki Technology Inc.

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.

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Saluki Technology

Document Authorization

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Product Quality Assurance

The warranty period of the product is 18 months from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period.

Product Quality Certificate

The product meets the indicator requirements of the document at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Settings Management

Research, development, manufacturing and testing of the product comply with the requirements of the quality and environmental management system.

Contacts

Service Tel: 886.2.2175 2930

Address: No. 367 Fuxing N Road, Taipei 105, Taiwan (R.O.C.)

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1. Overview

SAV502 NB-IoT Modular Signal Analyzer is designed with a small shape which allow it to be easily integrate to any instrument. With excellent testing performance and measurement sensitiveness, SAV502 NB-IoT Modular Signal Analyzer suits the testing requirement of the majority of RF signals. SAV502 NB-IoT Modular Signal Analyzer satisfy the needs of general spectrum test, and further secondary development is also allowed based on the API function library.

Key feature

- Frequency range: 10MHz-4200MHz
- DANL: -168 dBm @1GHz (Sensitivity set to High, normalized to 1Hz)
- Resolution bandwidth: 10Hz-5MHz
- Signal storage depth of 1Gbit for signal capture and analysis
- Small (193mm×93mm×34mm), lightweight (only 0.8kg), and easy to carry.
- Provide API function library to support secondary development.

1. 1. Definitions

Specification (Spec.)

Specifications describe the performance of parameters within the warranty of the instrument. Product specifications applies under the following conditions:

- 1) Two hours storage at ambient temperature(0-40°C) followed by 30 minutes warm-up operation
- 2) Specified environmental conditions met
- 3) Instrument is within its calibration cycle.
- 4) The specification listed in the datasheet includes measurement uncertainties.

Data in this document are Spec. unless otherwise noted.

Typical (typ.)

Typical data is not guaranteed by instrument warranty. It describes additional product performance information that 80 percent of the units exhibit. Typical data only valid at 25°C. Typical performance does not include measurement uncertainty.

Nominal(nom.)

Nominal values indicate expected performance, or describe product performance that is useful in the application of the product, but are not covered by the product warranty.

2. Specifications

2.1. Frequency & Sweep

2.1.1. Frequency Range

Model	Frequency Range
SAV502	10MHz - 4.2GHz

2.1.2. Frequency Reference

Frequency Resolution	1Hz	
10MHz Reference	Frequency Span Accuracy	$\pm 1\%$
	Aging Rate	$\pm 1\text{ppm}$

2.1.3. Span

Range	0Hz (Zero Span)
	10MHz - Max. Frequency

2.1.4. Sweep

Sweep Time	Span \geq 10Hz	1.1ms - 1600s
	Span=0Hz	2.69ms - 1600s

2.1.5. RBW & VBW

Range	10Hz - 5MHz
RBW Accuracy	RBW>1MHz, $\pm 10\%$ RBW<1MHz, $\pm 2\%$

2.2. Amplitude

2.2.1. Amplitude Range

Measurement Range	DANL to +20dBm
Attenuator Range	0 - 30dB, 1dB Step

2.2.2. Maximum Input Level

Maximum Safe Input Level	+30dBm (Sensitivity Low) 0dBm (Sensitivity Medium) -20dBm (Sensitivity High)
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2. 2. 3. Input-Related Response

10MHz-1.285GHz	<-70dBc
1.285GHz - 1.625GHz	<-42dBc
1.625GHz - 1.775GHz	<-55dBc
1.775GHz - 2.35GHz	<-42dBc
2.35GHz - 2.71GHz	<-25dBc
2.71GHz - 3.22GHz	<-42dBc
3.22GHz - 3.7GHz	<-70dBc
3.7GHz - 4.2GHz	<-35dBc

2. 2. 4. Absolute Amplitude Accuracy

All Frequency	±1.5dB
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2. 2. 5. Display Scale Switching Uncertainty

RBW Range	Specification
10Hz - 5MHz	±0.3dB

2. 2. 6. Reference Level

Range	-140dBm to +20dBm
Linear Scale	707pV - 7.07V, 0.01dB resolution
Accuracy	Reference Level >-60dBm, ±0.8dB

2. 3. Dynamic Range Specifications

2. 3. 1. 1dB Gain Compression

P1dB	+5dBm
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2. 3. 2. DANL

CF=1GHz

Sensitivity Mode	DANL
Sensitivity: Low	-131dBm/Hz (typically -133dBm/Hz)
Sensitivity: Medium	-151dBm/Hz (typically -153dBm/Hz)
Sensitivity: High	-168dBm/Hz (typically -169dBm/Hz)

2. 4. Residues, SHI, TOI, Phase Noise

2. 4. 1. Residual Response

Full Range	-75dBm
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2. 4. 2. Second Harmonic Distortion(SHI)

Frequency Range	SHI
Full Range	-70dBc

2. 4. 3. Third Order Intermodulation Distortion

-10dBm tones, 1MHz apart, Sensitivity set to low, Ref set to -10 dBm

Frequency Range	TOI (Nom.)
Full Range	+15dBm

2. 4. 4. Phase Noise

- Settings: CF=1GHz, RBW= 10Hz, VBW = 10Hz

Frequency Offset	Phase Noise
10kHz	-96dBc/Hz
1MHz	-118dBc/Hz

2. 5. Storage

Maximum storage depth	1Gbit
Data format	I/Q two-way, 16bit

2. 6. Interfaces

2. 7. General

Operation System	Window XP/7
Connectors	RF input: N-type USB: USB Type-C Power Interface: DC 12V
Operation Environment	Operating 0 to 50°C Storage -20 to 70°C
Dimension	193*93*34 (mm)
Weight	0.8kg

2. 8. Compliant

2. 8. 1. CE



- EMC

Complies with the requirements of the EC EMC directive 2014/30/EU with amendments.

Test Standards:

EN 61326-1:2013

EN 61000-3-2:2014

EN 61000-3-3:2013

- Safety

Complies with EC LVD Directive 2014/35/EU with amendment.

Test Standard

EN61010-1:2010

2. 8. 2. ISO



- Manufacturing

This instrument is manufactured in an ISO-9001 registered facility

- End of Document -