

Spectrum Core 10-3000 MHz

Datasheet

v.1.0 02.09.2024



## **Your RF Spectrum Analyzer Development Kit For Easy Integration with Your System**

**Frequency Sweep • Channel Power • Zero-Span**

[www.spectrumcompact.com](http://www.spectrumcompact.com)

## Description:

Spectrum Core is a spectrum analyzer development kit that is perfectly suited for integration with third-party systems. Control of the device and measurement results are obtained by a virtual COM port via a USB interface. Spectrum Core is operator system agnostic and PC can communicate directly to the Spectrum Core without the need for any intermediate software or hardware.

## Measurement Setup:

- **Frequency sweep:** Start/Stop
- **Single sweep, Continuous sweep**
- **Power-in-Band**
- **Span:** Full Span, Min Span, Selected Span, Zero-Span
- **Resolution Bandwidth, Video Bandwidth (RBW, VBW)**
- **Attenuation**
- **Low noise amplifier (LNA) ON/OFF**
- **Detector:** Minimum, Average, Maximum

## Functions:

- **Power in Band**
- **Sweep:** Continuous, Manual Trigger
- **Zero-Span**

## Best for integration:

- **Lightweight and small form factor**
- **Open API**
- **Adaptable physical fixing options**

## Frequency

<b>Frequency Range</b>	10 – 3 000 MHz
<b>Frequency Resolution</b>	10 kHz
<b>Frequency Reference</b>	
<b>Aging</b>	±1.0 ppm/1 year
<b>Accuracy</b> (t: 25 °C ± 2.5 °C) <b>+ aging</b>	±2.5 ppm
<b>Frequency span</b>	RBW to full range, Zero-Span
<b>Resolution Bandwidth (RBW)</b>	10/30/100/300 kHz
<b>Video Bandwidth (VBW)</b>	1/3/10/30 kHz

<b>Sweep time</b>	
RBW: 10 kHz; Span: 0.5 MHz	<= 335 ms
RBW: 300 kHz; Span: 15 MHz	<= 130 ms

<b>SSB Phase Noise</b> t = 20 °C to 30 °C; F <sub>c</sub> = 1 GHz	
Carrier Offset: 20 kHz	-70 dBc/Hz
Carrier Offset: 100 kHz	-90 dBc/Hz
Carrier Offset: 1 MHz	-110 dBc/Hz

## Level

<b>Measurement Range</b>	DANL to +20 dBm
<b>Dynamic Range, REF = 0</b>	>= 75 dB
<b>Second Harmonics Distortion</b> <i>ATT: 0 dB, LNA: ON, Input Level: -40 dBm</i>	< -43 dBc typ.
<b>Third-Order Intercept (TOI)</b> <i>ATT: 0 dB, LNA: ON</i>	-5 dBm typ.

<b>Input related spurs</b>	<b>LNA ON</b>
<i>ATT: 0 dB, LNA: ON, REF: -52 dBm; Input level: -50 dBm</i>	< -43 dBc

<b>Amplitude Accuracy</b> <i>ATT: 0 dB ; Detector: AVG ; Input: -50 dBm CW ; RBW, VBW: AUTO</i>	
20 °C to 30 °C (68 °F to 86 °F)	± 1 dB
-15 °C to 55 °C (5 °F to 131 °F)	± 3 dB

<b>Maximum Safe Input</b> <i>Level DC voltage: 0 V</i>	<b>LNA ON</b>	<b>LNA OFF</b>
<i>ATT: 0 dB</i>	+10 dBm	+20 dBm
<i>ATT: 30 dB</i>	+25 dBm	+25 dBm

<b>Typical Actual DANL</b> <i>ATT: 0 dB, Detector: AVG REF: -12 dB Termination 50 Ω Trace: 16AVG, 20 °C to 30 °C</i>		<b>LNA ON</b>	<b>LNA OFF</b>
<i>RBW: 10 kHz; VBW: 1 kHz</i>	10-30 MHz	< -123 dBm	< -103 dBm
	30-3000 MHz	< -125 dBm	< -105 dBm
<i>RBW: 30 kHz; VBW: 1 kHz</i>		< -123 dBm	< -107 dBm
<i>RBW: 100 kHz; VBW: 3 kHz</i>		< -119 dBm	< -102 dBm
<i>RBW: 300 kHz; VBW: 10 kHz</i>		< -114 dBm	< -98 dBm

<b>Typical DANL</b> <b>Normalized to 1Hz</b>		<b>LNA ON</b>	<b>LNA OFF</b>
<i>20 °C to 30 °C, ATT = 0 dB, Termin.: 50 Ω Detector: AVG, Trace: 16AVG</i>	10-30 MHz	< -163 dBm/Hz, typ.	< -143 dBm/Hz, typ.
	30-3000 MHz	< -165 dBm/Hz, typ.	< -145 dBm/Hz, typ.

## General Data

<b>Data and Power Interface</b> <i>Input voltage</i>	USB Type-C 5 VDC, 3A
<b>Additional Power input</b>	USB Type-C 5 VDC, 3A
<b>Operating temperature</b>	-33 °C to 55 °C (-27 °F to 131 °F)
<b>Dimensions</b>	135 x 84 x 28 mm 5.32 x 3.31 x 1.1 inch
<b>Weight</b>	0.40 kg / 14.11 oz
<b>Ingress Protection</b>	IP54

## RF Input

<b>Impedance</b>	50 Ω (nom.)
<b>Connector</b>	SMA F
<b>VSWR</b>	< 1.5
<b>Input attenuator</b>	0, 5, 10, 15, 20, 25, 30 dB

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Spectrum Core 10-3000 MHz PRELIMINARY datasheet  
Product features may vary between different models and configurations. They are subject to change without prior notice.

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