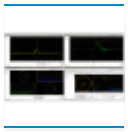
LibreVNA 2 ports full VNA 100kHz - 6GHz

Eleshop / Test & measure / Vector network analysers



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Details

The LibreVNA is an open source USB based vector network analyser with 2 ports. The VNA is an RF frontend with some processing power but everything else is handled in the PC application. The PCB has 3 ADC's and a FPGA for all the signal signal processing. It is able to do 10000 point dual-port measurements within one second and has an effective dynamic range of 100 dB.
Thanks to two measurement ports this vector network analyser can be used to measure the complete set of reflection and transmission coefficients (S11/S12/S21/S22). Although the LibreVNA hardware is designed to be a VNA, the general hardware architecture is so similar to that of a spectrum analyser that simple two-channel spectrum measurements can also be performed.

Important remarks
Due to this being an open source VNA, there are some limitations in the design. These remarks are as follows:
Due to some structural limitations the S12 isolation is 10 dB worse than that of the S21 parameter. Above 3GHz the performance decreases with increasing frequency causing the port isolation to only be 50 dB at 6 GHz.
Furthermore, below 1 MHz, the performance decreases with decreasing frequency and the effective dynamic range decreases to 70 dB at 100 kHz. The output power may decrease when frequency is lower than 1 MHz or higher than 3 GHz.
With this VNA the use of higher accuracy calibrators allows for higher precision of measurements.

All in all, this is a powerful VNA for a limited budget. However, it should not be seen as an alternative for a high-end VNA like the SNA5002A from the Siglent SNA5000A series.

Specifications

VNA specifications

Frequency range	100 kHz - 6 GHz
Test Ports	2
Output power	-40 dBm - 0 dBm
Frequency accuracy	< 2 ppm
Measurement points	2 - 4501
Measurement bandwidth	10 Hz - 50 kHz
Dynamic range	> 95 dB (<3 GHz) > 50 dB (<6 GHz)
Measurement parameters	S11, S21, S12, S22
Impedance	50 Ω

Signal generator specifications

Frequency range	100 kHz - 6 GHz
Output power	-40 dBm - 0 dBm

Spectrum analyser specifications

Frequency range	100 kHz - 6 GHz
Input power	<-5 dBm
Resolution bandwidth	13 Hz - 112 kHz
Phase noise	-103 dBc/Hz (1 GHz, 10 kHz offset)

Power supply	DC 5V, 1.5A (USB or 3.5 mm connector)
Supported OS	Windows, Linux, MacOS
Dimensions	122 x 98 x 16 mm

Accessories

The LibreVNA comes by default with:

- USB to USB cable
- USB to USB-C cable
- 2x 30cm SMA male to male SS405 RF cable
- SMA male calibration kit - OPEN
- SMA male calibration kit - SHORT
- 2x SMA male calibration kit - LOAD
- 2x SMA female to female connector
- 2x SMA male to male connector

Pros and cons

Costeffective solution

Real 2 ports VNA

Limited dynamic range

Limited IFBW

Trace noise not specified

Downloads

LibreVNA manual (1.65 MB) Download

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€1,359.00

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