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> SEESII NanoVNA-H Vector Network Analyzer User Manual

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SEESII NanoVNA-H Vector Network Analyzer User Manual

Model: NanoVNA-H

1. INTRODUCTION

The SEESII NanoVNA-H is a compact and portable Vector Network Analyzer (VNA) designed for measuring RF parameters across a frequency range of 10KHz to 1.5GHz. This device is essential for electronics engineers, amateur radio operators, and DIY enthusiasts for tasks such as antenna tuning, filter design, and cable analysis. It features a 2.8-inch LCD touchscreen and comes with a durable EVA protective case for enhanced portability and protection.

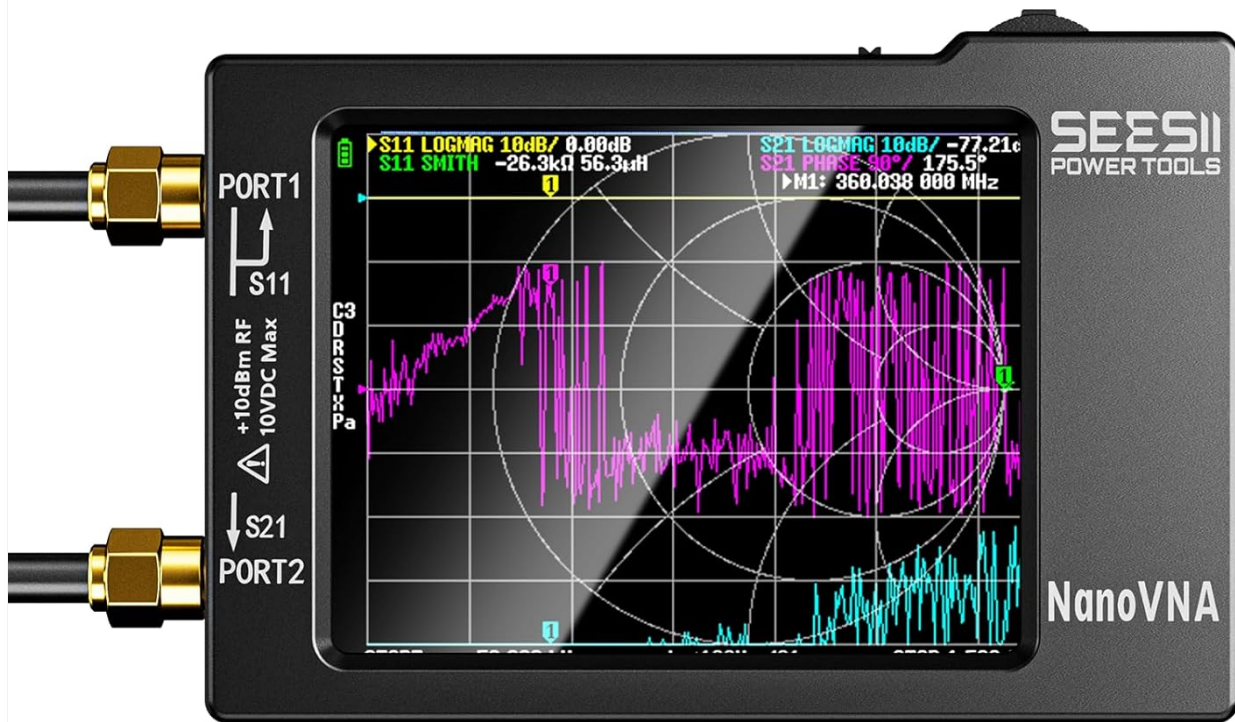


Figure 1.1: SEESII NanoVNA-H Vector Network Analyzer and included accessories.

2. SAFETY INFORMATION

- Do not expose the device to extreme temperatures, humidity, or direct sunlight.
- Avoid dropping or subjecting the device to severe impacts.
- Use only the specified charging cables and power sources.
- Do not attempt to disassemble or modify the device, as this will void the warranty and may cause damage.
- Keep the device away from strong electromagnetic fields.

3. PACKAGE CONTENTS

Verify that all items listed below are present in your package:

- 1x NanoVNA-H Host Unit
- 2x 30cm SMA Male to Male RG174 RF Cables

- 1x SMA Female to Female Connector
- 1x SMA SHORT Calibration Kit
- 1x SMA OPEN Calibration Kit
- 1x SMA LOAD Calibration Kit
- 1x USB Type-C Data Cable
- 1x USB-C to USB-C Line
- 1x Lanyard
- 1x Touch Plectrum (Stylus)
- 1x Custom-designed EVA Carrying Case

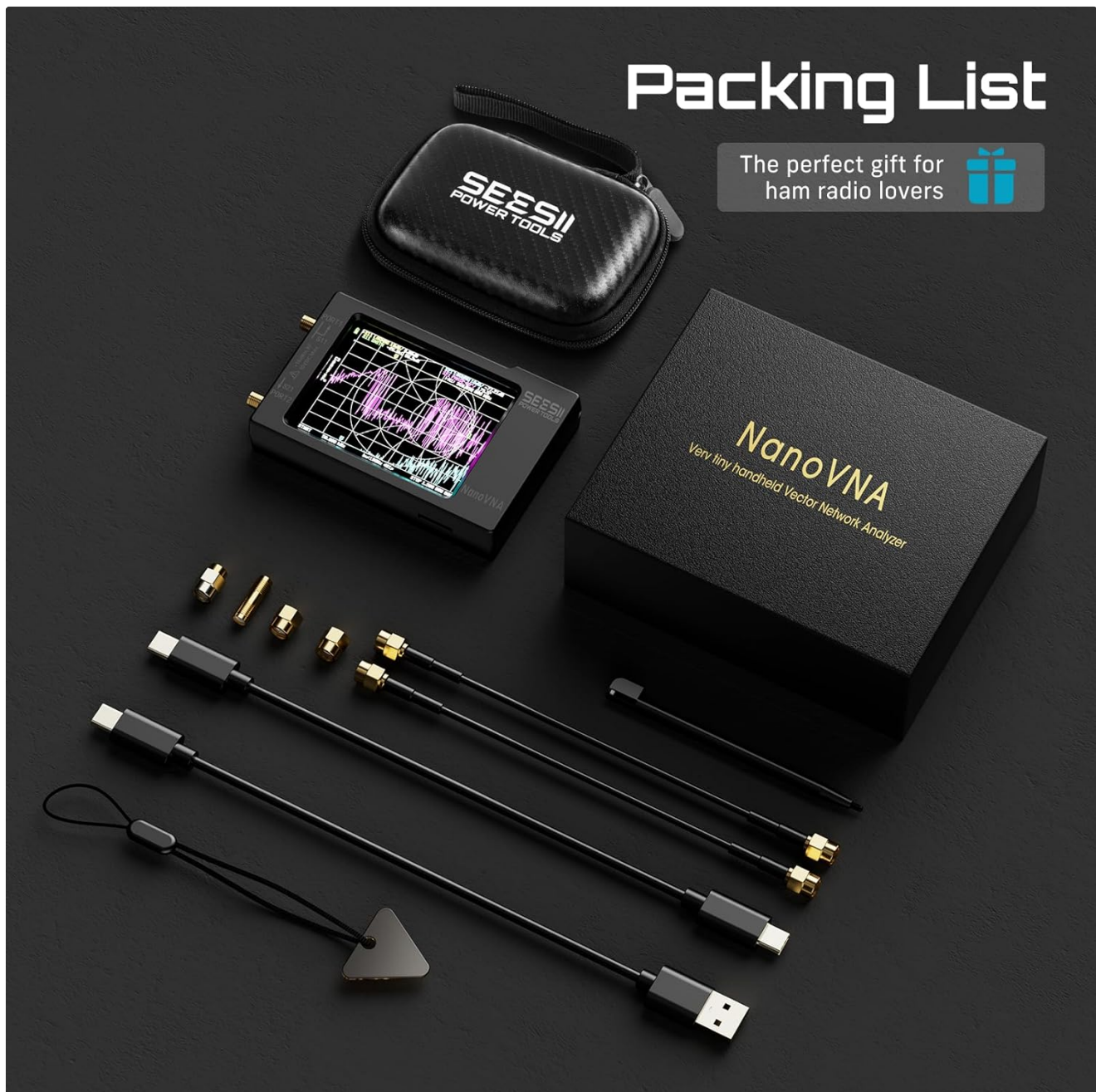


Figure 3.1: All items included in the NanoVNA-H package.

4. DEVICE OVERVIEW

The NanoVNA-H features a compact design with essential ports and controls for efficient operation.

4.1 Front Panel

- **2.8-inch LCD Touchscreen:** Displays measurement results and allows interaction with the user interface.
- **PORT1 (CH0):** RF input/output port for S11 measurements.
- **PORT2 (CH1):** RF input/output port for S21 measurements.

4.2 Side Panel

- **Type-C USB Interface:** For charging, data transfer, and PC/Android connectivity.
- **Multi-function Switch:** Used for power control and menu navigation.
- **Battery LED:** Indicates charging status and battery level.
- **SD Card Slot:** Supports up to 32GB for data recording and storage.



Figure 4.1: Side view of the NanoVNA-H highlighting ports and controls.

5. SETUP

5.1 Initial Charging

Before first use, fully charge the NanoVNA-H using the provided USB Type-C cable and a compatible 5V USB power adapter (not included). The Battery LED will indicate charging status.

5.2 Power On/Off

To power on the device, press and hold the multi-function switch. To power off, press and hold the switch again and confirm the shutdown on the screen.

6. OPERATING INSTRUCTIONS

6.1 Basic Navigation

The NanoVNA-H operates via its 2.8-inch touchscreen. Use the included touch plectrum (stylus) for precise interaction with the menu options and settings.

6.2 Calibration

Calibration is crucial for accurate measurements and must be performed whenever the frequency range to be measured is changed. Follow these steps:

1. Connect the appropriate calibration standard (OPEN, SHORT, or LOAD) to PORT1 (CH0).
2. Navigate to the calibration menu on the device.
3. Select and perform the 'OPEN' calibration, then 'SHORT', and finally 'LOAD'.
4. After completing all three, save the calibration data.

Built-in Calibration Function

Calibration must be performed whenever the frequency range to be measured is changed



Figure 6.1: Calibration process using OPEN, SHORT, and LOAD standards.

6.3 PC Software Control

The NanoVNA-H can be connected to a computer for enhanced control and data analysis using NanoVNASaver software. This allows for larger display, data extraction, and saving measurements as Touchstone (.snp) files for use with radio design and simulation software.

- Connect the NanoVNA-H to your PC using the provided USB Type-C data cable.
- Install and launch the NanoVNASaver software on your computer.
- Select the correct serial port and connect to the device within the software.
- You can then set frequency ranges, get measurement data, and save files.



Figure 6.2: NanoVNA-H connected to a PC running NanoVNASaver software.

6.4 Android Phone Control

The NanoVNA-H supports connection to Android phones via a USB-C to USB-C cable for mobile control and display. (Note: iPhone is not supported).



Figure 6.3: NanoVNA-H connected to an Android phone.

6.5 Performing Measurements

The NanoVNA-H can measure various parameters including S-Parameters (S11, S21), Standing Wave Ratio (SWR), Phase, Delay, and display Smith Charts. Refer to the device's on-screen menu for specific measurement modes and settings.

7. MAINTENANCE

7.1 Cleaning

Wipe the device with a soft, dry cloth. Do not use liquid cleaners or solvents.

7.2 Storage

Store the NanoVNA-H in its custom-designed EVA carrying case when not in use. The case provides shockproof, waterproof, and dustproof protection, ensuring the device's longevity and keeping accessories organized.

Full Kit with Carrying Case



Figure 7.1: NanoVNA-H and accessories stored in the EVA case.

8. TROUBLESHOOTING

- **Inaccurate Readings:** Ensure the device is properly calibrated for the current frequency range. Check all cable connections for tightness.
- **Device Not Powering On:** Verify the battery is charged. Connect to a power source and attempt to power on again.
- **Connectivity Issues with PC/Android:** Ensure the correct USB cable is used and drivers (if necessary) are installed. Check serial port selection in software.
- **Touchscreen Unresponsive:** Try restarting the device. If issues persist, ensure the screen is clean and free from debris.

9. SPECIFICATIONS

Feature	Specification
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Feature	Specification
Frequency Range	10KHz - 1.5GHz
Hardware Version	HW3.6
Display	2.8-inch LCD Touchscreen
Dynamic Range (50K-300MHz)	70dB
Dynamic Range (300M-900MHz)	60dB
Dynamic Range (900M-1.5GHz)	40dB
Connectivity	USB Type-C
SD Card Support	Up to 32GB
Power Input	5V USB (500mA Max)
Dimensions	5.08 x 4.33 x 2.17 inches
Weight	9.91 ounces

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the official Seesii website or contact their customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.

Manufacturer: Seesii