

Yanmis c533d575-35d7-4bc1-b8a8-7e922095364d

Yanmis RF Demo Kit NanoVNA Test Board User Manual

Model: c533d575-35d7-4bc1-b8a8-7e922095364d

INTRODUCTION

This manual provides instructions for the Yanmis RF Demo Kit NanoVNA Test Board. This board is designed as a comprehensive learning and calibration tool for Vector Network Analyzers (VNAs) and Antenna Analyzers. It integrates 18 functional modules, allowing users to explore various RF circuit characteristics and calibration techniques.

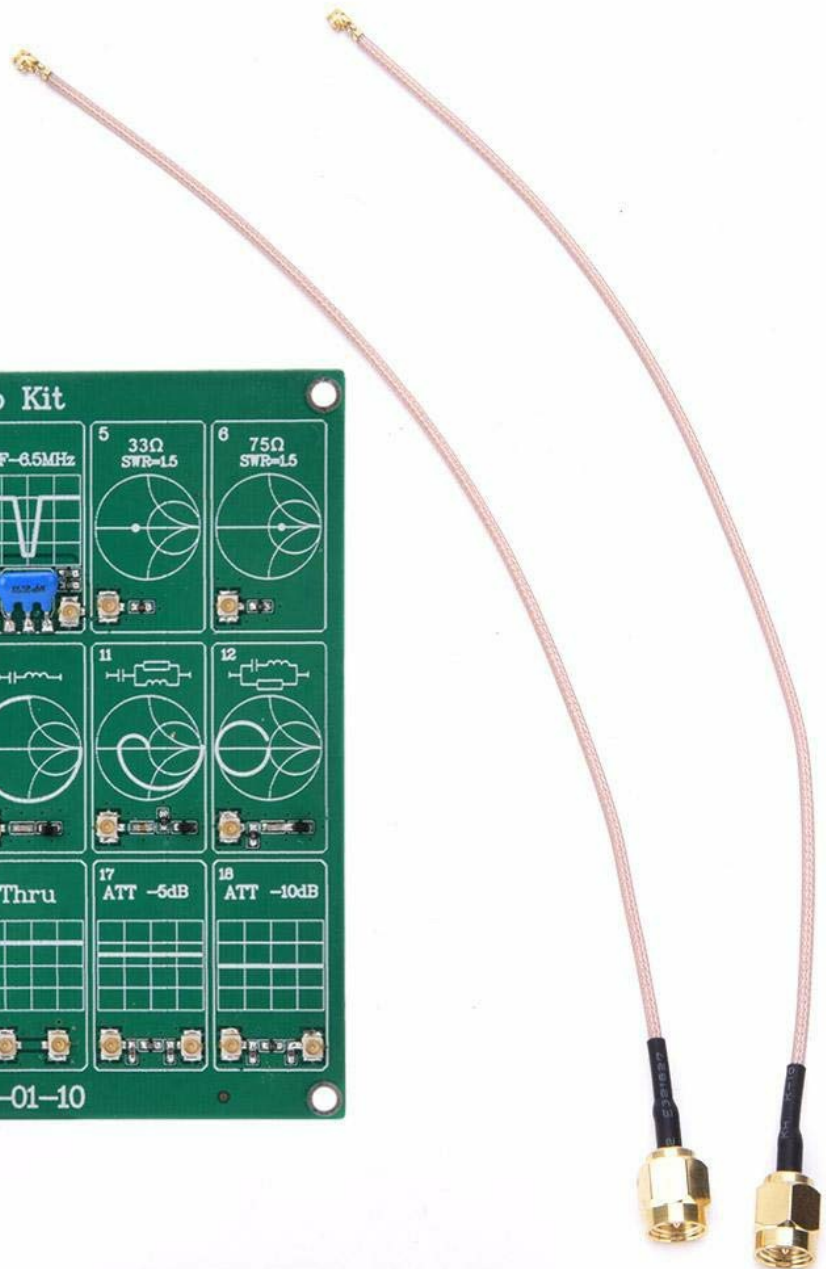
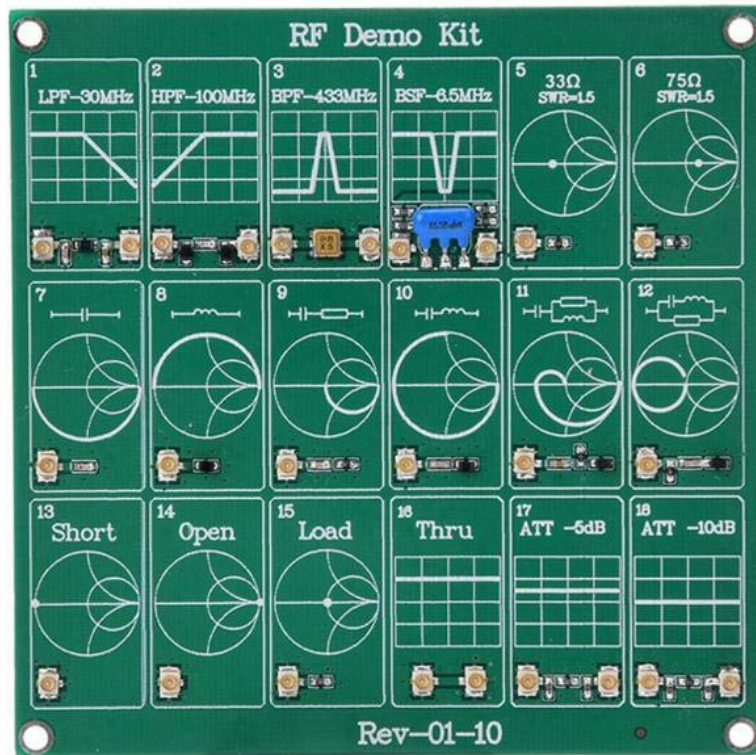


Image: Overview of the Yanmis RF Demo Kit NanoVNA Test Board, showcasing its compact design and various labeled modules.

SETUP

The RF Demo Kit is designed for ease of use with a NanoVNA or similar RF test equipment. Follow these steps for initial setup:

1. **Unpack Components:** Carefully remove the RF Demo Kit board and the two UFL patch cords from their packaging.
2. **Inspect for Damage:** Before use, visually inspect the board and patch cords for any signs of physical damage.
3. **Connect to NanoVNA:** Use the provided UFL patch cords to connect the desired test points on the RF Demo Kit board to your NanoVNA's input ports (e.g., Port 0 and Port 1). Ensure connections are secure but do not apply excessive force to avoid damaging the UFL connectors.

NanoVNA RF

RLC Series and
Parallel Circuit
Short: 30MHz
High-pass: 100MHz
Bandpass: 433MHz

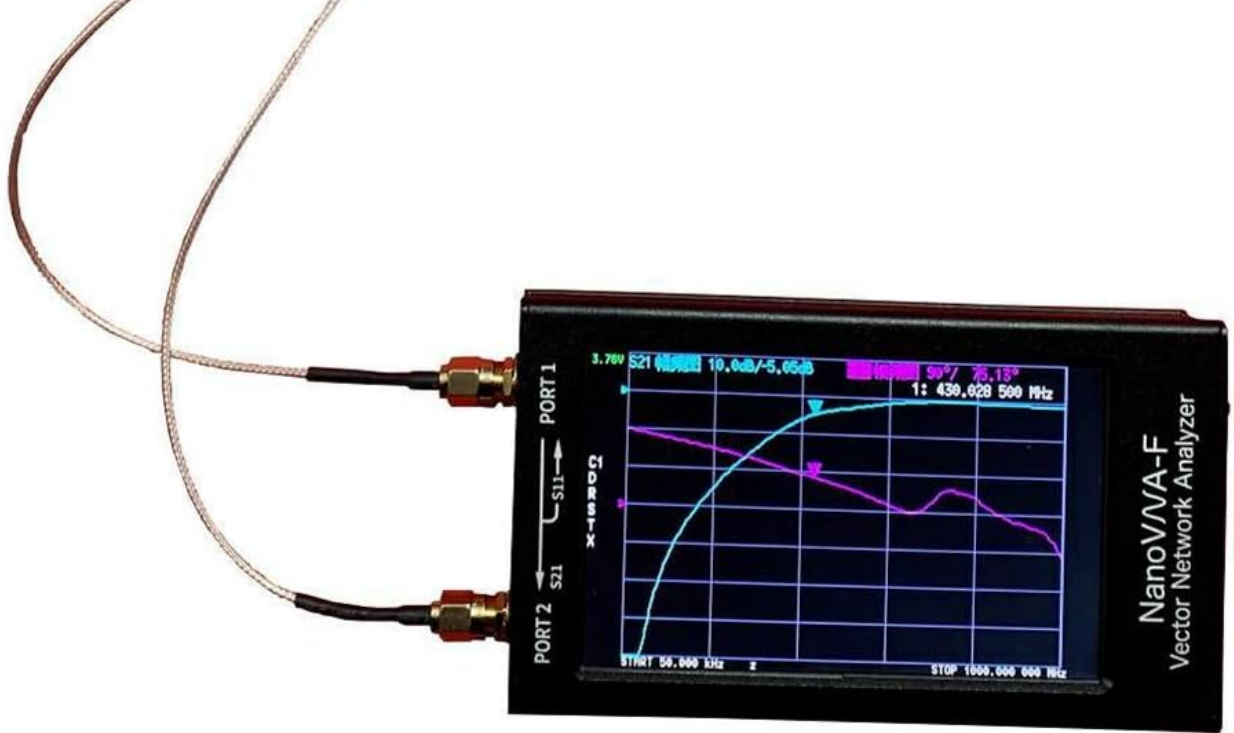


Image: The RF Demo Kit board connected to a NanoVNA using UFL patch cords, demonstrating a typical setup for testing.

UFL Patch Cord



Image: A pair of UFL patch cords, essential for connecting the test board to a Vector Network Analyzer.

OPERATING INSTRUCTIONS

The RF Demo Kit features 18 distinct functional modules for various RF measurements and learning exercises. Each module is clearly labeled on the board.

Used for learning vector network analyzer

For antenna analyzer test calibration study

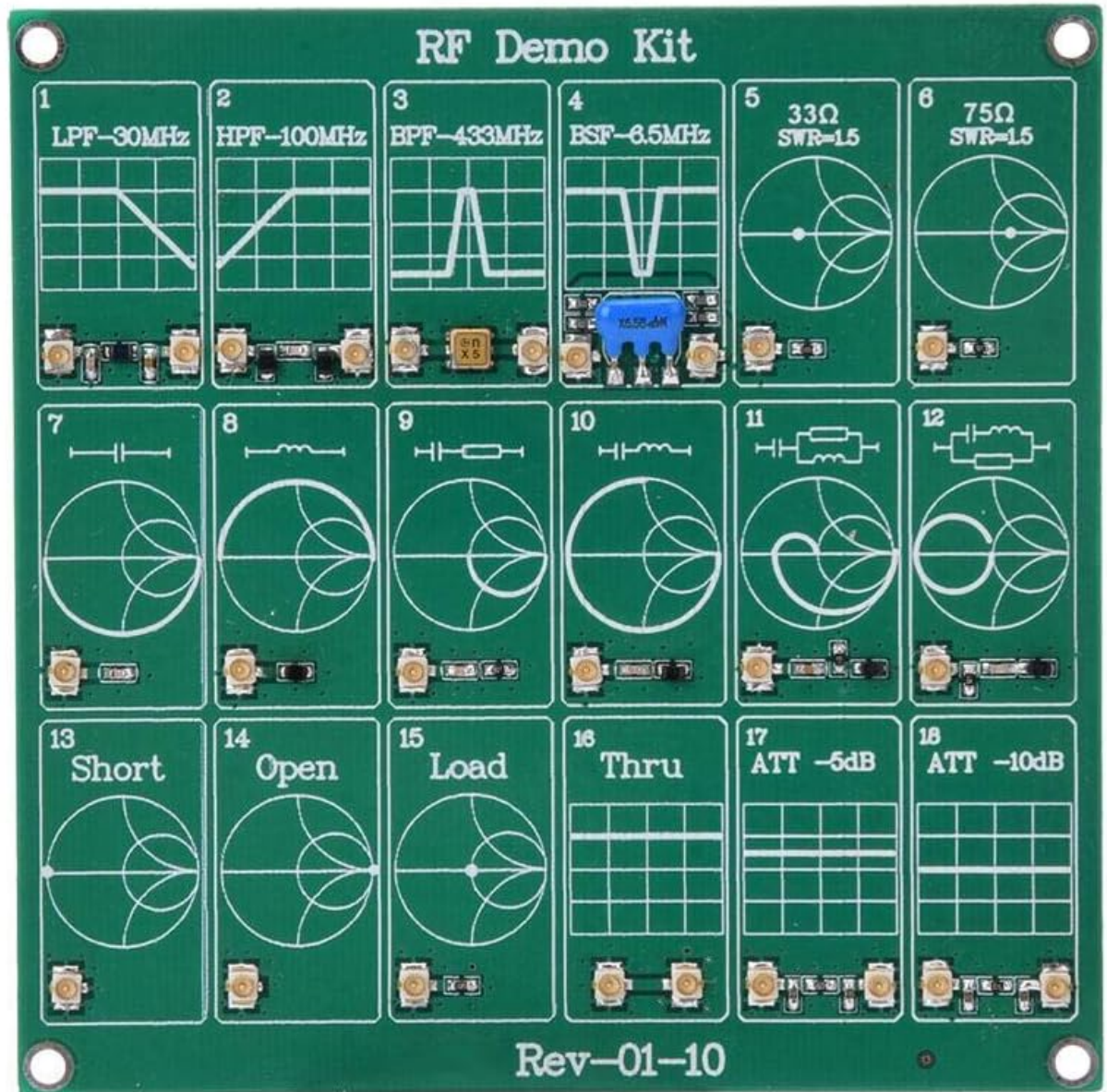


Image: A detailed view of the RF Demo Kit board, highlighting the individual numbered modules and their corresponding functions.

1. Filter Modules

- **Short-wave Low-Pass Filter (LPF): 30MHz** (Module 1): Use this module to observe the characteristics of a low-pass filter designed for frequencies up to 30 MHz.
- **FM High-Pass Filter (HPF): 100MHz** (Module 2): This module demonstrates a high-pass filter with a cutoff frequency around 100 MHz, suitable for FM band applications.
- **Commonly Used SAW Bandpass Filter (BPF): 433MHz** (Module 3): Explore the behavior of a Surface Acoustic Wave (SAW) bandpass filter centered at 433 MHz, common in remote control and IoT devices.
- **Video Ceramic Trap (BSF): 6.5MHz** (Module 4): This module provides a band-stop filter (notch filter) at 6.5 MHz, typically used in video circuits to remove specific interference.

2. RLC Series and Parallel Circuits

Modules 7 through 12 represent various combinations of Resistor (R), Inductor (L), and Capacitor (C) components in series and parallel configurations. These are fundamental for understanding impedance matching, resonance, and filter design. Connect your VNA to these points to analyze their impedance characteristics across a frequency

range.

3. Open/Short Circuit and Load Calibration Circuits

- **Open Circuit** (Module 14): Provides an open-circuit termination for VNA calibration.
- **Short Circuit** (Module 13): Provides a short-circuit termination for VNA calibration.
- **Load Circuit** (Module 15): Provides a 50-ohm load termination for VNA calibration.
- **Thru Circuit** (Module 16): A direct connection for through calibration, used to measure the transmission characteristics between two ports.
- **33Ω SWR=1.5** (Module 5) and **75Ω SWR=1.5** (Module 6): These modules provide specific impedance mismatches to demonstrate Standing Wave Ratio (SWR) concepts.

These modules are crucial for performing accurate calibration of your NanoVNA, ensuring precise measurements of other circuits.

Video Ceramic Trap BSF: 6.5MHz

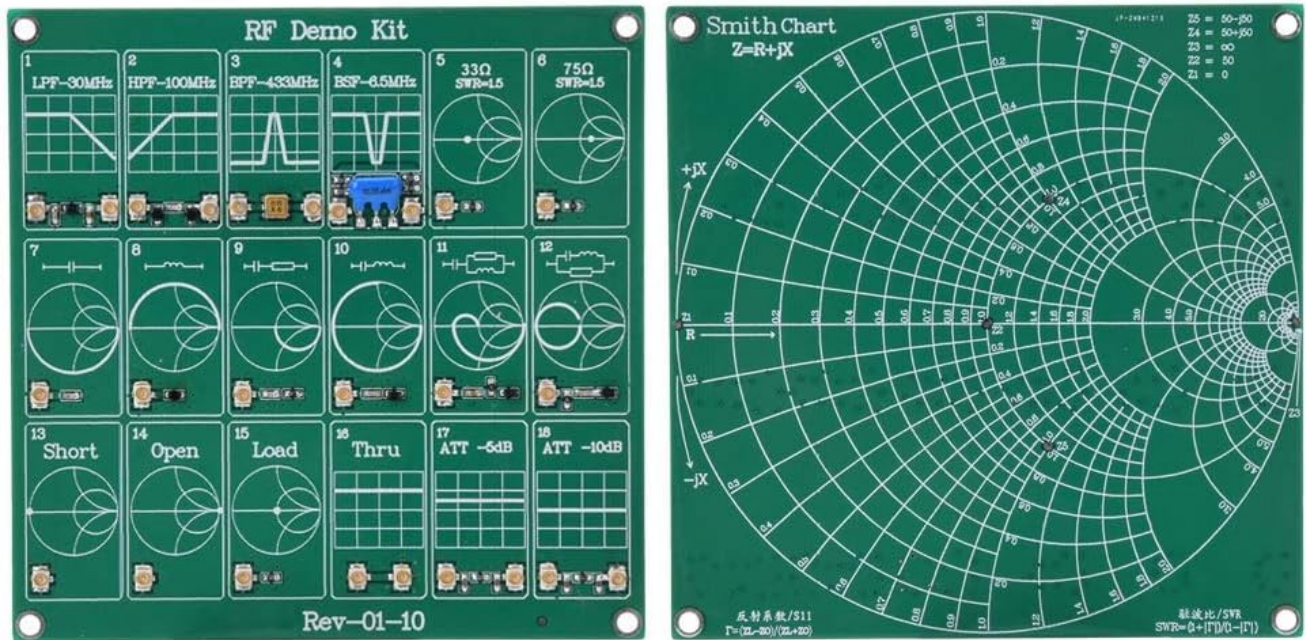


Image: The RF Demo Kit board alongside a Smith Chart, illustrating the graphical representation of impedance and reflection coefficients used in RF analysis.

4. Attenuation Circuits

- **Attenuation (ATT): -5dB** (Module 17): This module provides a fixed 5 dB attenuation.
- **Attenuation (ATT): -10dB** (Module 18): This module provides a fixed 10 dB attenuation.

These modules are useful for demonstrating signal loss and for testing the dynamic range of your VNA.

MAINTENANCE

To ensure the longevity and accuracy of your RF Demo Kit, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to gently wipe the board. Avoid using liquid cleaners or solvents, as they may damage the components or PCB traces.

- **Storage:** Store the board in a clean, dry, and static-free environment when not in use. Keep it away from direct sunlight, extreme temperatures, and high humidity.
- **Handling:** Handle the board by its edges to avoid touching the components or connectors directly. Static electricity can damage sensitive electronic components.
- **Connector Care:** The UFL connectors are small and delicate. Always align them carefully before pushing them into place. Avoid bending or twisting the connectors.

TROUBLESHOOTING

If you encounter issues while using the RF Demo Kit, consider the following troubleshooting steps:

- **No Signal/Incorrect Readings:**
 - Ensure all UFL patch cord connections are secure and correctly seated.
 - Verify that your NanoVNA or test equipment is properly calibrated.
 - Check the frequency range settings on your VNA to ensure they are appropriate for the module being tested.
- **Damaged Connectors:** The UFL connectors are small. If a connector appears bent or damaged, it may affect performance. Handle with care.
- **Missing Components:** Visually inspect the board to ensure all components are present and securely soldered.

SPECIFICATIONS

Brand	Yanmis
Model Number	c533d575-35d7-4bc1-b8a8-7e922095364d
Item Type	RF Demo Kit
Number of Functional Modules	18
Included Components	1 x RF Demo Kit Board, 2 x UFL Patch Cords
Filter Modules	LPF: 30MHz, HPF: 100MHz, BPF: 433MHz, BSF: 6.5MHz
Calibration Circuits	Open, Short, Load, Thru, 33Ω SWR=1.5, 75Ω SWR=1.5
Attenuation Circuits	-5dB, -10dB
Item Weight	0.04 Kilograms
Color	Green
Special Feature	Portable

WARRANTY

Yanmis guarantees the quality of this product. The RF Demo Kit is manufactured to high standards. For specific warranty details, please refer to the purchase documentation or contact customer support.

SUPPORT

If you have any questions regarding the setup, operation, or troubleshooting of your Yanmis RF Demo Kit, please do not hesitate to contact Yanmis customer support. Contact information can typically be found on the product

packaging or the retailer's website where the product was purchased.