

URF VNA Emulator
Major Features

Multi-Vendor VNA Emulation

1. Seven selectable vendor profiles: CMT, LibreVNA, Keysight, Rohde & Schwarz, NanoVNA, Anritsu, and Signal Hound.
2. Vendor-specific SCPI command handling within a consistent virtual analyzer interface.
3. Local SCPI communication for developing and testing instrument automation without physical VNA hardware.

RF Measurement Simulation

4. Frequency-dependent complex S-parameter simulation using selectable virtual DUT models.
5. Single-port reflection and two-port S-parameter simulation, including S11, S21, S12, and S22 where applicable.
6. Configurable frequency sweeps, sweep points, source power, IF bandwidth, and averaging.

Virtual Analyzer Interface

7. Interactive VNA-style display with multiple S-parameter traces and configurable reference level and scale.
8. Single, Hold, and Continuous sweep controls for instrument-style operation.
9. Multiple interactive markers with frequency and response readouts.

Automation and Data Exchange

10. Vendor-specific MATLAB and Python example scripts for SCPI acquisition workflows.
11. Touchstone measurement export for simulated one-port and two-port data.
12. Save and recall emulator state, including measurement and display configuration.

Training and Development

13. Optional Learning Mode with contextual explanations of analyzer functions.
14. Built-in Help / How to Use guidance for learning virtual VNA operation.
15. Supports education and SCPI script development; simulated data is not a substitute for calibrated hardware verification.