

Quick Start Guide

ShockLine™ Series Vector Network Analyzers Verification Kits and Performance Verification Software

MS46522A Series VNAs

MS46322A Series VNAs

MS46122A Series VNAs



Anritsu

1. Introduction to the Quick Start Guide

This quick start guide provides a brief overview of the installation and use of ShockLine™ Verification Kits and the 2300-560-R Performance Verification Software (PVS) with ShockLine™ Series VNAs.

2. Verification Kit Components

The supplied Verification Kit components are listed in the general reference figure below. The actual appearance of individual calibration kits and components varies.



3668-2 K Connector Verification Kit

	3668-2 K Connector Verification Kit	3663-2 N Connector Verification Kit
1. 2300-560-R USB Flash Drive: Software and Documentation	Contains: <ul style="list-style-type: none"> • Performance Verification Software and Test Definition data • Quick Start Guide – 10410-00740 • Characterization Data 	
2. Precision Airline (m-f)	19K50-7	18N50-10
3. Beatty Airline (m-f)	19K50-7B	18N50-10B
4. 20dB Offset (Pad) Attenuator (m-f)	20 dB 42K-20	20 dB 42N-20
5. 40 dB or 50 dB Offset (Pad) Attenuator (m-f)	50 dB 42K-50	50 dB 42N-50

Figure 1. ShockLine Verification Kit Components

3. Required PC Controller Equipment

The following Personal Computer (PC) Controller equipment and software are required to control the ShockLine Series VNA. The PC Controller and the VNA are connected over an Ethernet network. The required Ethernet cable, test port adapters, and phase-stable through line with any required adapters are not included in the verification kit.

The PVS must be run on a PC controller equipped as described in [Table 1](#), with NI-VISA library and NI-VISA Run-Time Engine 4.1 or later. The NI-VISA Run-Time license is available from National Instruments (NI) as a stand-alone software package. Please contact NI for additional details.

Table 1. Required PC Controller Equipment

Component	Description
PC Controller	Personal computer with: <ul style="list-style-type: none"> • Microsoft Windows XP or Microsoft Windows 7 • Minimum 233 MHz single or dual processor (recommended: Intel Pentium/Celeron processor or AMD K6/Athlon-/Duron processor) • 1 GB RAM • USB 2.0 Type A Ports • 20 MB of free hard disk space • Mouse • Keyboard • Monitor with minimum display resolution of 1024 x 786
National Instruments	The following software is required from NI: <ul style="list-style-type: none"> • NI-VISA Run-Time Engine 4.1 or higher

4. Summary of Required Anritsu Hardware

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Anritsu hardware requirements depend on the VNA Model, reference plane connector types, and the manual calibration kit to be used. [Table 2](#) summarizes required support hardware for each verification kit and VNA combination and provides fully insertable (m-f) DUT measurement reference planes.

Note	As described in the section above, the PC Controller, related hardware and software are also required. Only a single calibration kit is required.
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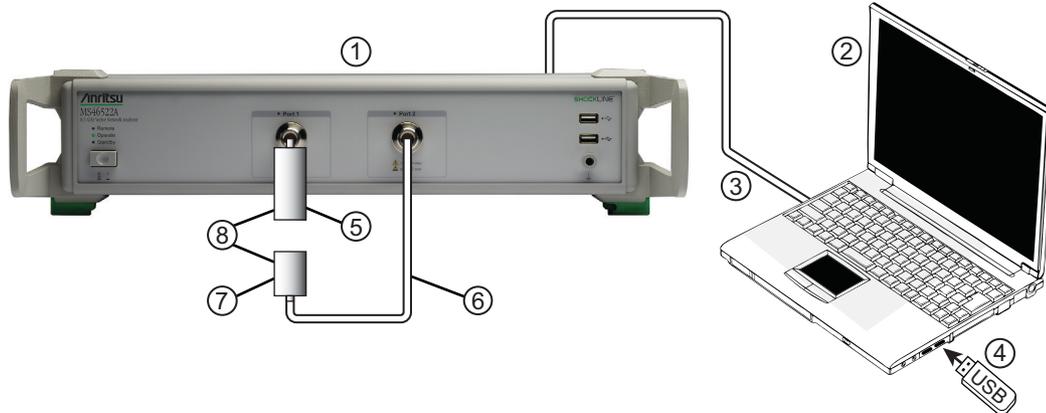
Table 2. Required Anritsu Hardware

Verification Kit	VNA Model	VNA Test Port Connections Required Adapters and/or Through Lines	Mechanical Cal Kit
3668-2 K Connector Verification Kit	MS46322A-020 MS46322A-030 MS46322A-040 or MS46122A-020 MS46122A-040	Test Port 1 K(m) 33KFKF50B K(f) to K(f) Adapter on Port 1	TOSLK50A-20 Precision K Male Through/Open/Short/Load Mechanical Calibration Tee
		Test Port 2 K(m) Through Line Cable on Port 2, use one: <ul style="list-style-type: none"> • 3670K50-2 Test Port Cable K(f) to K(m), Ruggedized Semi-Rigid, 61 cm (24") • 3671KFK50-100 Test Port Cable, Flexible Phase Stable, 100 cm (39.4") K(f) to K(m) <i>See Note</i> • 33KKF50B K(m) to K(f) Adapter on above cable. 	TOSLKF50A-20 Precision K Female Through/Open/Short/Load Mechanical Calibration Tee TOSLK50A-40 Precision K Male Through/Open/Short/Load Mechanical Calibration Tee TOSLKF50A-40 Precision K Female Through/Open/Short/Load Mechanical Calibration Tee
3663-2 Type N Connector Verification Kit	MS46522A-010 or MS46322A-010 or MS46122A-010	Test Port 1 N(f)	3653A Type N Connector Mechanical Calibration Kit with Fixed Loads
		Test Port 2 N(m) <ul style="list-style-type: none"> • 3670K50-2 Test Port Cable K(f) to K(m) Ruggedized Semi-Rigid, 61 cm (24") • 34NK50 N(m) to K(m) Adapter and 34NKF50 N(m) to K(f) Adapter on both ends of the above cable. 	OSLN50A-8 Precision N Male Open/Short/Load Mechanical Calibration Tee OSLNF50A-8 Precision N Female Open/Short/Load Mechanical Calibration Tee TOSLN50A-8 Precision N Male Through/Open/Short/Load Mechanical Calibration Tee TOSLNF50A-8 Precision N Female Through/Open/Short/Load Mechanical Calibration Tee

Note: Required because the N-connector coupling nuts on 3670NN50-2 do not allow the use of a torque wrench.

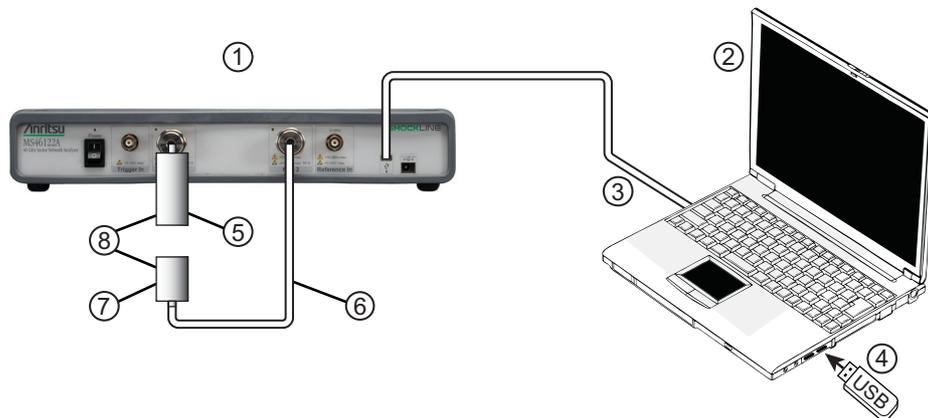
5. PC Controller Cable Connections to VNA

The basic connections between the PC Controller, the VNA, and the verification components are shown below.



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. ShockLine Series VNA 2. PC Controller: <ul style="list-style-type: none"> • With installed NI VISA Library • With installed 2300-560 R PVS application 3. Ethernet connectivity 4. Verification Kit USB Device with characterization data | <ol style="list-style-type: none"> 5. Port 1 Adapter (if needed) 6. Test Port Through Line M-F Cable 7. Adapter attached to Through Line and Port 2 8. Insert calibration or verification components here. <p>Note that the setup for any given verification kit varies slightly with additional adapters.</p> |
|--|--|

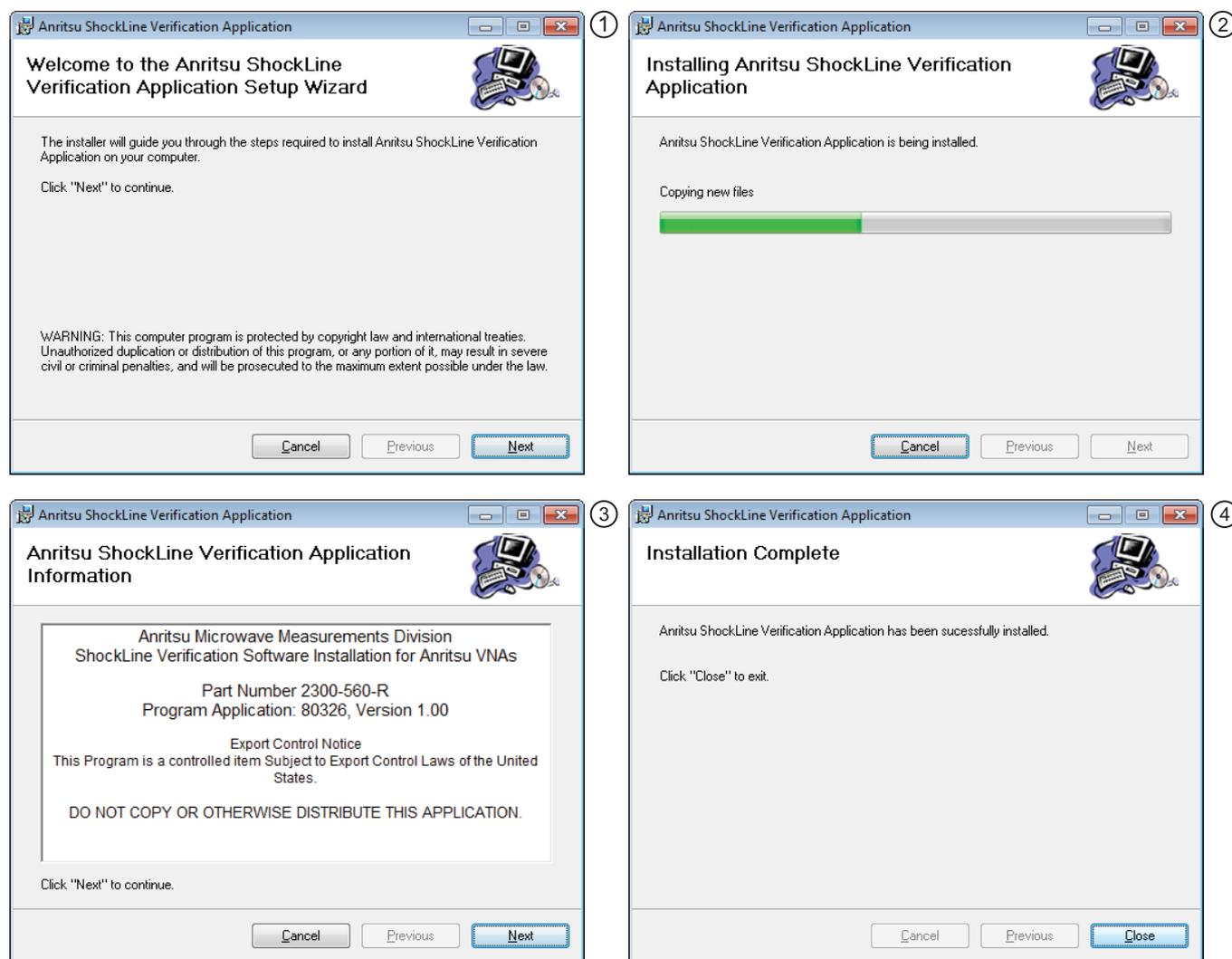
Figure 2. MS46522 and MS46322 VNA Connections



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. ShockLine Series VNA 2. PC Controller: <ul style="list-style-type: none"> • With installed NI VISA Library • With installed 2300-560 R PVS application 3. USB connectivity 4. Verification Kit USB Device with characterization data | <ol style="list-style-type: none"> 5. Port 1 Adapter (if needed) 6. Test Port Through Line M-F Cable 7. Adapter attached to Through Line and Port 2 8. Insert calibration or verification components here. <p>Note that the setup for any given verification kit varies slightly with additional adapters.</p> |
|---|--|

Figure 3. MS46122 VNA Connections

6. Installing the Anritsu ShockLine Verification Application.



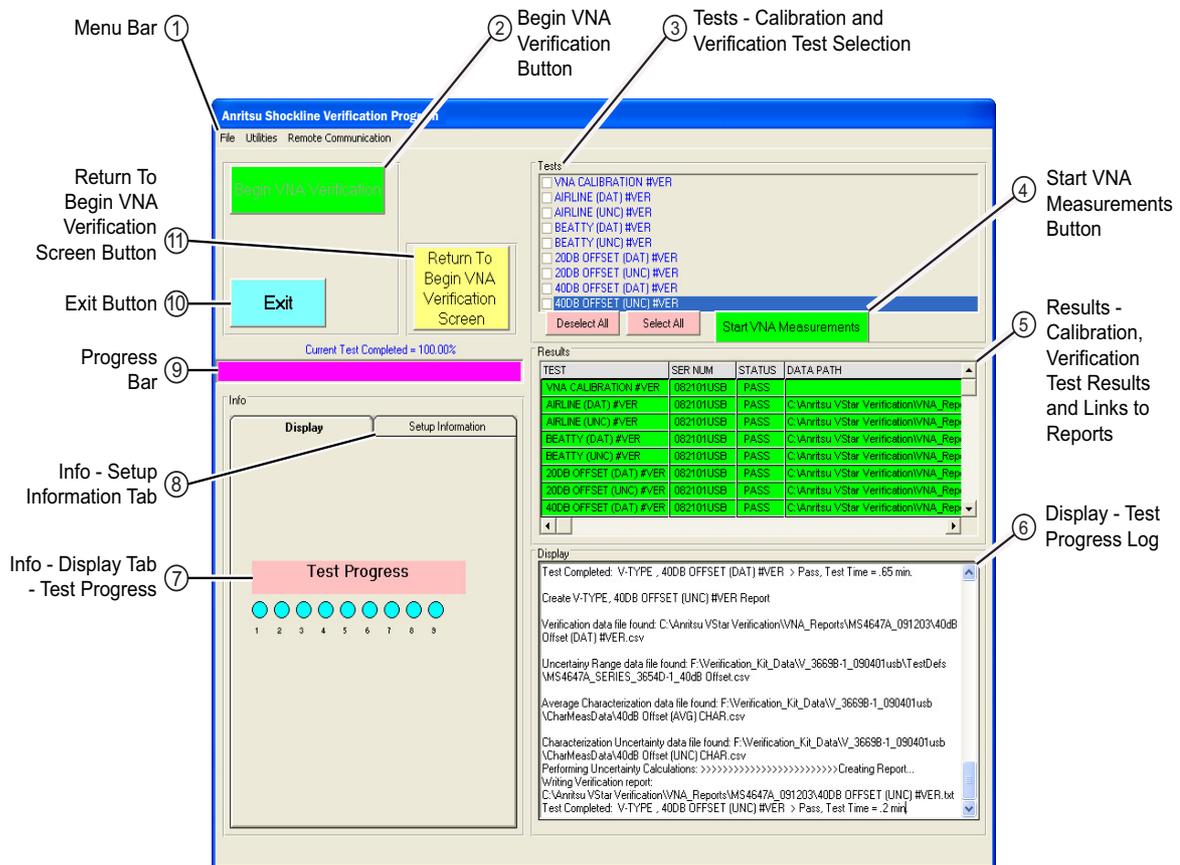
1. Welcome to the Anritsu ShockLine Verification Application Setup Wizard screen
2. Installing Anritsu ShockLine Verification Application screen

3. Anritsu ShockLine Verification Application Information screen
4. Installation Complete screen

Figure 4. Anritsu ShockLine Verification Application Setup Wizard screens

1. Insert the Verification Kit USB flash drive into a USB port on the PC Controller.
2. Click Next in the Welcome to the Anritsu ShockLine Verification Application Setup Wizard screen.
3. If the Anritsu ShockLine Verification Application Setup Wizard does not autoload, navigate to the USB drive directory and double-click the ShockLineVerification.msi file.
4. Click Next in the Confirm Installation screen.
5. The Installing Anritsu ShockLine Verification Application screen displays during the installation process.
6. Click Next in the Anritsu ShockLine Verification Application Information screen.
7. Click Close in the Installation Complete screen.

7. Anritsu ShockLine Verification Program Screen



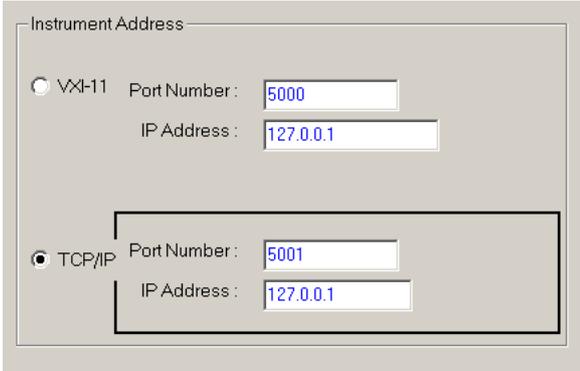
- Menu Bar** – File, Utilities, Remote Communication
- Begin VNA Verification** button - Begins setup
- Tests** checklist – Available tests
- Start VNA Measurements** button – Begins testing
- Results** list – Color-coded test report links
- Display** – Scrolling log of test events
- Info - Display Tab - Test Progress** - display shows completed tests
- Setup Information** tab – Read-only list of device model information and serial numbers
- Progress Bar** - shows test progress
- Exit** button – Exits the application
- Return to Begin VNA Verification Screen** button – Returns to setup screen for new tests

Figure 5. PVS Verification Program Main Screen and User Interface Controls

- Double-click the ShockLine Verification desktop icon or select Start | Program | Anritsu ShockLine Verification | ShockLine Verification to open the Anritsu ShockLine Verification Application.
- Click NEXT in the application splash screen when the application has loaded.
- From the Menu Bar, select Remote Communication | Set Instrument Address.

8. PVS VNA Calibration/Verification Test Sequence and Reports

- For MS4652xA and MS46322A instruments, select VXI-11 and set the IP address to that of the instrument.
For MS46122A instruments, select TCP/IP and set the IP address to 127.0.0.1



The screenshot shows a dialog box titled "Instrument Address". It contains two radio button options. The first option is "VXI-11", which is currently unselected. Next to it are two input fields: "Port Number" with the value "5000" and "IP Address" with the value "127.0.0.1". The second option is "TCP/IP", which is currently selected. Next to it are two input fields: "Port Number" with the value "5001" and "IP Address" with the value "127.0.0.1". The "TCP/IP" section is enclosed in a rectangular box.

Figure 6. Instrument Address

- In the Anritsu ShockLine Verification Program screen, click the Begin VNA Verification button.
- The testing process begins with a series of preliminary screens to collect information about the VNA being tested, calibration, and verification components that is included in the test reports.

8. PVS VNA Calibration/Verification Test Sequence and Reports

Any combination of tests can be selected. If all are selected, the calibration tests are completed first followed by the verification tests in the following sequence:

- VNA Calibration Test
- Airline (DAT)
- Airline (UNC)
- Beatty Airline (DAT)
- Beatty Airline (UNC)
- 20 dB Offset (Pad) (DAT)
- 20 dB Offset (Pad) (UNC)
- 40 dB or 50 dB Offset (Pad) (UNC)

Each verification test generates CSV DAT and TXT UNC reports. The CSV DAT reports are the current measured data for the user's devices. The TXT UNC reports are the calculated uncertainties based on the measured data above and the verification kit certification data. The reports can be viewed and printed in two sizes. Other applications, such as spreadsheets or word processors, can easily import the report data.

9. Test Results Grid

On the Verification Program Main Screen, the right side Results area [Figure 7](#) displays the general status of each completed test in which:

- Green = Test Passed
- Red = Test Failed
- Magenta = Test Canceled or Aborted

For the eight (8) verification tests, clicking on the Data Path column displays the test report in the PC default text editor, usually Windows Notepad.

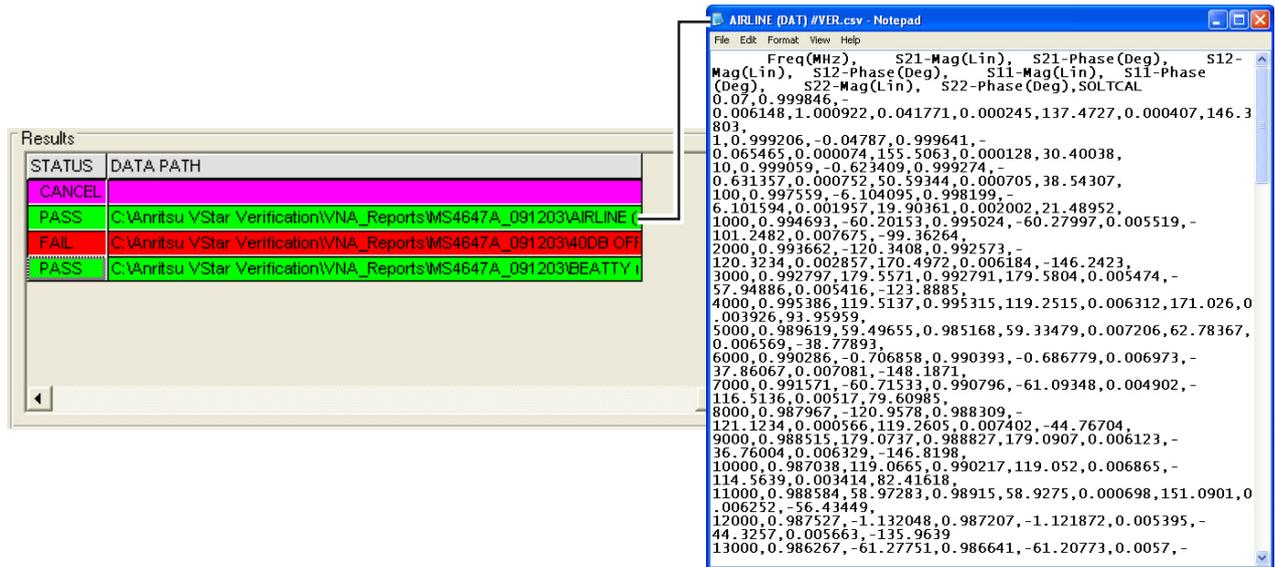


Figure 7. Test Results Grid and Related Report

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