Quick Start Guide

**Agilent Technologies
14762A Voltage and
Frequency Disturbances
Immunity Tests Application**
**for Windows 95, Windows 98, and
Windows NT 4.0**

Agilent Technologies

Contents

Description

What the Agilent 14762A Will Do

The Agilent Technologies 14762A Voltage and Frequency Disturbances Immunity Tests Application tests a device to the requirements of IEC documents 61000-4-11, 61000-4-14, and 61000-4-28.

When using Agilent 6800-series AC Power Source/Analyzers, the Agilent 14762A application generates ac mains disturbances as specified by the IEC standards, and produces a test report describing the stimulus applied to the equipment under test (EUT), as well as the response of the EUT. With the application's intuitive graphical user-interface you can:

- Set up and run immunity tests.
- Collect real-time test data from the Agilent AC Power Source/ Analyzers.
- Display and monitor ongoing test results.
- Save test results.
- Terminate tests based on user-defined criteria.
- Print reports and graphs.

What the Agilent 14762A Application Will Not Do

The Agilent 14762A Voltage and Frequency Disturbances Immunity Tests Application does not:

- Control instruments other than Agilent ac sources.
- Provide drivers for other GPIB instruments.
- Operate with Windows 3.1.

System Requirements

PC

- 486DX66 (minimum)
- 8 Mbytes RAM
- 4 Mbytes of disk space

32-bit Platforms

- Windows 98, Windows 95, or
- Windows NT 4.0

Supported I/O

- Agilent 82335B[1], 82340B, 82341C, 82341D,
- National Instruments AT GPIB/TNT[2]

[1]The Agilent 82335B is only supported for Windows 95 & 98, provided you have either the E2094E, E2094F, or E2094G I/O library.

[2]For National card, National NI-488.2M software or National VISA library.

Supported AC Sources

- Agilent 6811B, 6812B, 6813B
- Agilent 6841A, 6842A, 6843A
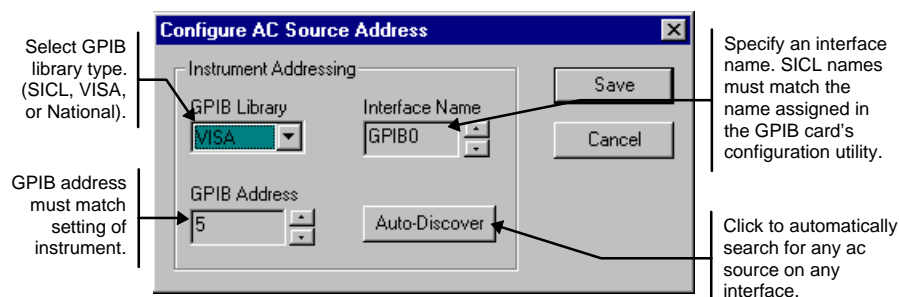
Installing and Running the Software

NOTE: Before running the Agilent 14762A application, you must have installed and connected your ac source to the PC using the appropriate interface cable. You must also have the appropriate interface card installed and configured. If you are using an Agilent GPIB interface card, you must have the appropriate 32-bit SICL or VISA library drivers installed.

1. Place Disk #1 in the A: drive of your computer and run SETUP.EXE.

2. Follow the directions on the screen to install the software. Enter the registration number from your disk. Specify an installation directory. Select the default voltage and frequency settings for the equipment that you will be testing. The README.TXT file contains product updates or corrections that are not documented in the help file. Use any text editor to open and read this file.

3. To run the application, click on the **Start** button and select: **Programs** | **Agilent Regulatory Test Solution | Voltage and Frequency Immunity**.

Configuring the Address

This step is necessary to establish communication with the ac source.

*   Make sure that the ac source is turned on.

*   In the **Configure** menu, click on the **AC Source Address** command.

*   Click the **Auto Discover** button.

*   If the software reports an instrument was found, click **Save**. If no instrument was found, check that all equipment including interface cards are installed correctly.

Select GPIB library type. (SICL, VISA, or National).

GPIB address must match setting of instrument.

Specify an interface name. SICL names must match the name assigned in the GPIB card's configuration utility.

Click to automatically search for any ac source on any interface.

Entering General Test Information

The **Main** window appears when you first run the Agilent 14762A application. This screen lets you enter general information about the test. The information on this screen appears on the test report.

Type in the user name.

Type in the company name.

Type in the test description.

Enter a description of the equipment under test.

Enter a unique test ID.

Setting Up Test Parameters

To define the nominal test conditions, go to the **Setup** screen by clicking on the **Setup** tab. This screen also lets you choose to abort a test sequence if any error conditions occur and what actions to take when the test sequence is aborted.

Specify the nominal voltage to be used during all test sequences.

Specify a current limit for the ac source that will be used during all test sequences.

Specify conditions that cause a test sequence to abort. Conditions can be entered manually or automatically (AutoEUTCheck).

Specify the nominal frequency to be used during all test sequences.

Specify if the ac source is configured for remote or local sensing.

Specify what action to take when the test sequence is aborted.

You cannot make any changes on this screen if the output of the ac source is on. To turn the output off, execute the **Output Off** step in the Sequence/Manual control screen. Also note that the setup parameters may change when you open an existing test setup.

5

Creating or Modifying the Test Sequence

To create or modify the test sequence, go to the **Sequence/Manual Control** screen by clicking on the **Sequence/Manual Control** tab.

There are two ways to run tests. You can manually apply a single **step type** to the equipment under test. You can also build and run a test sequence, which applies a sequential series of **steps** to the equipment under test. Each step performs an operation such as **Output On**, **Voltage Dip**, or **Voltage Variation**.

NOTE: Do **NOT** use the ac source front panel controls when using the Agilent 14762A application. Doing so may cause unpredictable results.
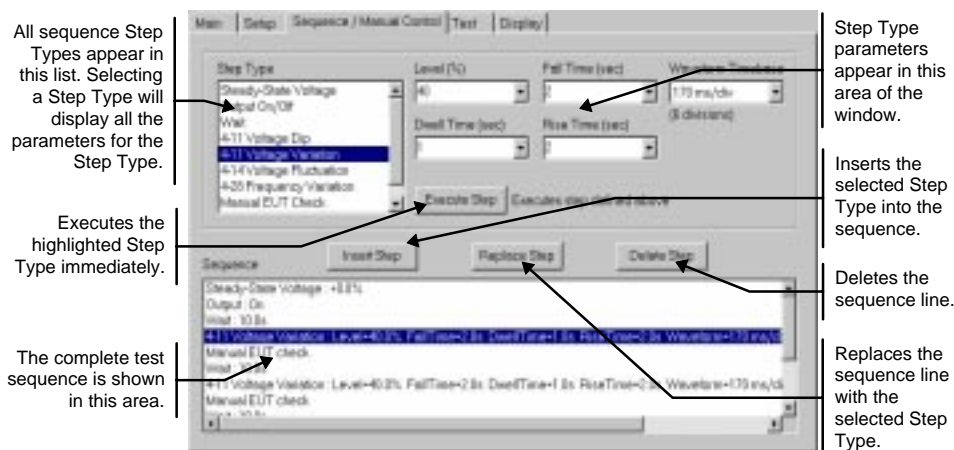
To access an existing setup:

- Click **File**, **Open Test Setup** in the menu.

- Select the desired file (setup files have an .s11 extension) and click **Open**.

NOTE: The Agilent 14762A application includes several pre-defined test samples (see page 11). If you know which of one of the voltage and frequency disturbances immunity tests that you want to run, simply load that test setup, edit the sequence if necessary, and run the test.

- To create a new test sequence, click **File, New Test Setup**. This action clears the present test sequence and resets the parameters on the Setup screen to the default values.

To execute a step manually:

- In the **Step Type** box, highlight the type of step to be executed.

- Enter any required parameters for the selected step type.

- Click the **Execute Step** button.
- For **4-11 Voltage Dip** or **4-11 Voltage Variation** steps, you can view the voltage and current waveforms in the **Display** screen, provided that the **Waveform Timebase** parameter is not set to Off.

To add a step to the sequence:

- In the **Step Type** box, highlight the type of step to be inserted. Step types are described in the on-line help.
- If parameters are required for the selected step type, enter them in the boxes that appear. A drop-down list shows the most commonly used values, but you may also enter other values by typing them in.
- In the **Sequence** box, highlight the line where you want to insert the new step. The new step will be inserted before the highlighted line. Note that all sequences contain an **End** step.
- Click the **Insert Step** button.

To change an existing step in the sequence:

- Follow the same procedure as before, but click the **Replace Step** button.

To delete a step:

- Highlight the step in the **Sequence** box, and click the **Delete Step** button.

To run a test sequence:

- Go to the **Test** screen and click the **Start Test** button.

Determining Pass/Fail Criteria

Since the equipment under test (EUT) can be almost any type of device, this application cannot directly measure the performance of the equipment being tested. Therefore, two steps can be added to the sequence to determine the response of the equipment under test to ac mains disturbances:

- **Manual EUT Check** – This step puts up a dialog box that asks the operator to determine the condition of the EUT and enter the information on the screen. If any result other than "Normal Performance" is entered, the test results will indicate that the test has failed.
- **Auto EUT Check** – This step automatically launches a user-written program and receives the test results. This user-written program must automatically measure the response of the EUT using whatever instrumentation is necessary and return the pass/fail results.

Running the Test Sequence

To run a test sequence, go to the **Test** screen by clicking on the **Test** tab. The results of the test are displayed in the **Test Results** box.
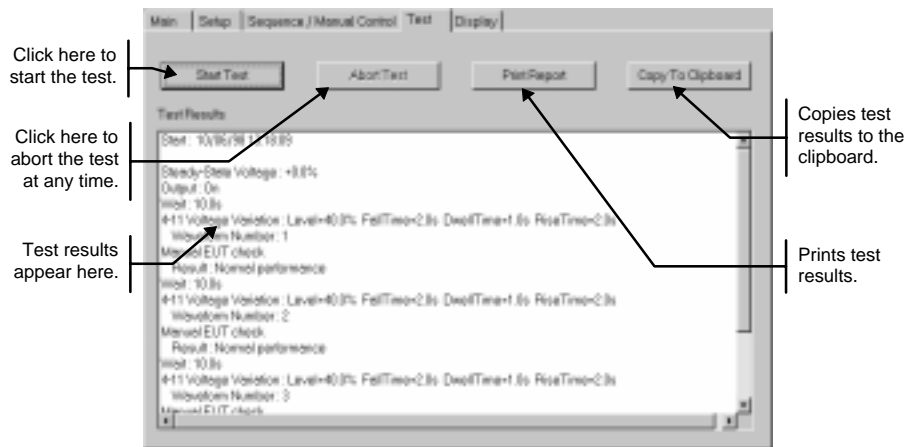
To run a test after loading or creating it:

- If you are just exercising the software, ensure that nothing is connected to the output of the ac source. If a device is connected to the output, make sure it will not be damaged by the conditions that are specified in the test sequence (for example, a mains voltage of 253V).

- Go to the **Test** screen by clicking the **Test** tab.

- Click the **Start Test** button.

NOTE: If this button is grayed-out, it may be because the application is not configured to communicate with the ac source.

- When prompted, enter the name of a file in which to store the test results. . The test will start running as soon as this action is completed.

- If the test sequence contains one or more **Manual EUT Check** operations, a dialog box will pop up during the test asking you to describe the condition of the EUT. Enter the requested information and click **OK** to continue.

- View the results of the current test in the **Test Results** box.
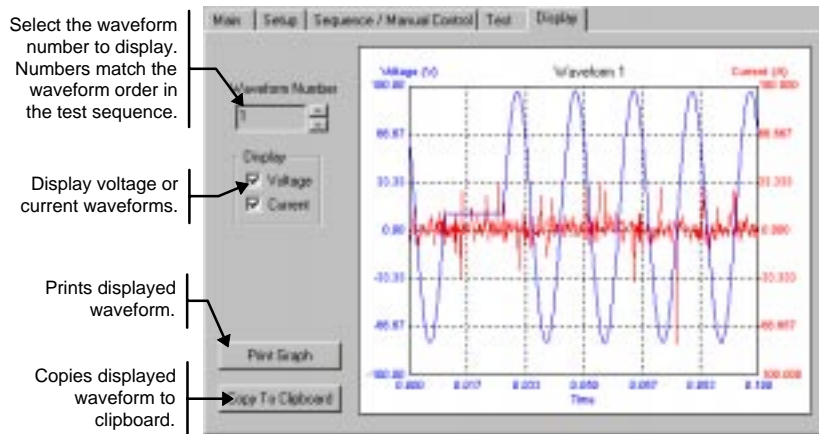
To print test reports:

- Click the **Print Report** button.

8

To view the results of a previous test:

- Click **File**, **Open Test Results** in the menu.

- Select the desired file (which should have an extension of .r11) and click **Open**. All five screens will contain information from the previously run test.

Viewing Voltage and Current Waveforms

If voltage and current waveforms are acquired during the test, they may be viewed from the Display screen. Each waveform is identified by a number, and the Results box on the Test screen shows when each waveform was acquired.

Select the waveform number to display. Numbers match the waveform order in the test sequence.

Display voltage or current waveforms.

Prints displayed waveform.

Copies displayed waveform to clipboard.

## Exporting Data to Other Applications

Both text and graphics may be copied from the Agilent 14762A application and pasted into other Windows applications.

- To copy the complete contents of the **Test Results** box, go to the **Test** screen and click the **Copy To Clipboard** button.

- To copy the presently-displayed graph, go to the **Display** screen and click the **Copy To Clipboard** button .

- To copy the entire test sequence to the clipboard, click the **Sequence/Manual Control** tab, then click **Edit, Copy** in the menu.
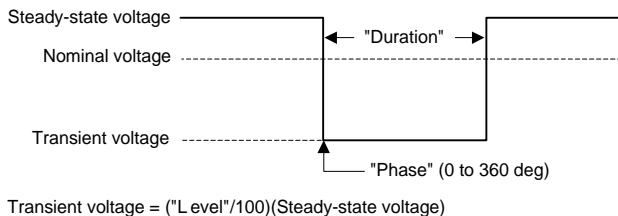
Step Type Definitions

Steady State Voltage

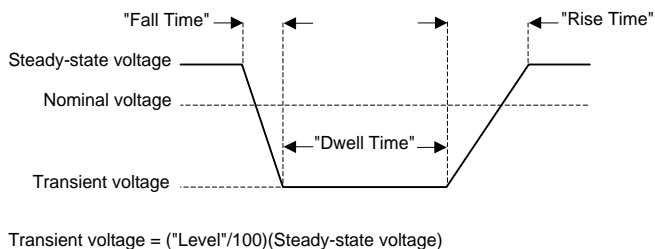Specifies the steady-state voltage for all step types.

Steady state voltage

Nominal voltage

Steady state voltage = (1 + "Voltage Deviation"/100)(Nominal Voltage)
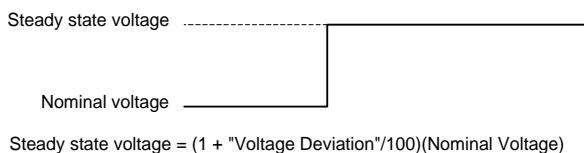
4-11 Voltage Dip

Causes the output voltage to change abruptly to a lower value, and then return.

Steady-state voltage

Nominal voltage

"Duration"

Transient voltage

"Phase" (0 to 360 deg)

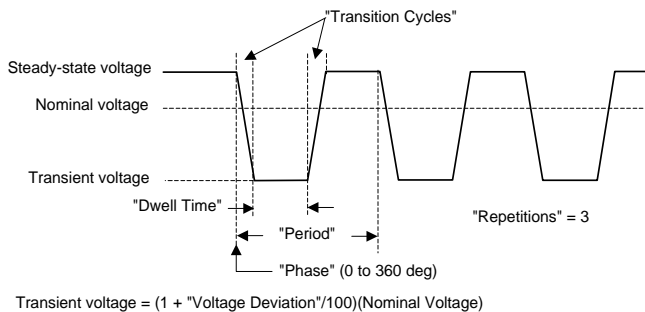Transient voltage = ("Level"/100)(Steady-state voltage)

4-11 Voltage Variation

Causes the output voltage to change gradually to a lower value, remain constant for a time interval, and then gradually return.

"Fall Time"

"Rise Time"

Steady-state voltage

Nominal voltage

"Dwell Time"

Transient voltage

Transient voltage = ("Level"/100)(Steady-state voltage)

4-14 Voltage Fluctuation

Causes the output voltage to change to a lower or higher value, remain constant for a time interval, and then return. This is repeated multiple times..

"Transition Cycles"

Steady-state voltage

Nominal voltage

Transient voltage

"Dwell Time"

"Period"

"Repetitions" = 3

"Phase" (0 to 360 deg)

Transient voltage = (1 + "Voltage Deviation"/100)(Nominal Voltage)

4-28 Frequency Variation

Causes the
output frequency
to change
abruptly to a
different value,
and then return.

Nominal frequency   Transient frequency   Nominal frequency
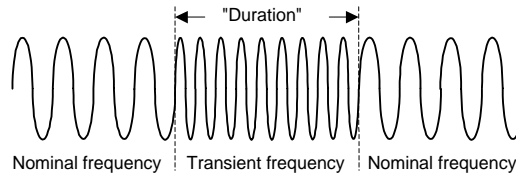
Transient frequency = (1 + "Freq. Deviation"/100)(Nominal frequency)

Test Sample Files

- To load one of the test sample files Click **File, Open Test Setup**.

- Select one of the following *.s11 files and click **Open**. These pre-defined setup files have the read-only attribute set to avoid accidental erasure or modification.

4-11Dips_NomLine_230V.s11 - Sets the mains voltage to **230V**, and executes 3 voltage **dips** separated by wait times of 10 seconds.

4-11Dips_HiLowLine_230V.s11 - Sets the mains voltage to **207V** (230V - 10%), executes 3 voltage **dips** separated by wait times of 10 seconds, then repeats the process at **253V** (230V + 10%).

4-11Vars_NomLine_230V.s11 - Sets the mains voltage to **230V**, and executes 3 voltage **variations** separated by wait times of 10 seconds.

4-11Vars_HiLowLine_230V.s11 - Sets the mains voltage to **207V**, executes 3 voltage **variations** separated by wait times of 10 seconds, then repeats the process at **253V**.

4-14_Class2_230V.s11 - Sets the nominal mains voltage to **230V**, and executes a class 2 voltage fluctuations test.

4-14_Class3_230V.s11 - Sets the nominal mains voltage to **230V**, and executes a class 3 voltage fluctuations test.

4-28_Class1_230V.s11 - Sets the mains voltage to **230V**, and executes a class 1 frequency variations test.

4-28_Class2_230V.s11 - Sets the mains voltage to **230V**, and executes a class 2 frequency variations test.

4-28_Class3_230V.s11 -Sets the mains voltage to **230V**, and executes a class 3 frequency variations test.

Warranty

This Agilent Technologies software product is warranted against defects in materials and workmanship for a period of 90 days from date of delivery. During the warranty period, Agilent Technologies will, at its option either repair or replace parts which prove to be defective.

Agilent Technologies makes no express or implied warranty of any kind, including, but not limited to the implied warranties of merchantability or fitness for a particular purpose, with regard to the program material contained herein. Agilent Technologies shall not be liable for incidental or consequential damages in connection with or arising out of the furnishing, performance, or use of this software.

Use of the supplied manual and software is restricted to Agilent Technologies ac source products only. The software is copyrighted and may not be copied except for archival purposes, to replace a defective copy, or for program error verification. Agilent Technologies warrants that this software designed for use with a personal computer, will execute its programming instructions when properly installed on that personal computer. Agilent Technologies does not warrant that the operation of the personal computer , software, or ac source will be uninterrupted or error free.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from: misuse, unauthorized modification, operation or storage outside the environmental specifications for the product, in-transit damage, improper maintenance, or defects resulting from use of non-Agilent Technologies software, accessories, media, or such items not designed for use with the product.

Notice

This document contains proprietary information protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated into another language without the prior consent of Agilent Technologies. The information contained in this document is subject to change without notice.

Windows is a registered trademark of Microsoft Corporation.