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Keysight E5063A

Keysight E5063A Troubleshooting Guide 9018-04067

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Keysight E5063A Network Analyzer

Troubleshooting Guide

KEYSIGHT TECHNOLOGIES

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

NOTE

This **NOTE** sign denotes important information. It calls attention to a procedure, practice, or condition that is essential for the user to understand.

Caution

Do not exceed the operating input power, voltage, and current level and signal type appropriate for the instrument being used, refer to your instrument's Function Reference.

Electrostatic discharge (ESD) can damage the highly sensitive microcircuits in your instrument. ESD damage is most likely to occur as the test fixtures are being connected or disconnected. Protect them from ESD damage by wearing a grounding strap that provides a high resistance path to ground. Alternatively, ground yourself to discharge any static charge built-up by touching the outer shell of any grounded instrument chassis before touching the test port connectors.

Safety Summary

When you notice any of the unusual conditions listed below, immediately terminate operation and disconnect the power cable.

Contact your local Keysight Technologies sales representative or authorized service company for repair of the instrument. If you continue to operate without repairing the instrument, there is a potential fire or shock hazard to the operator.

- Instrument operates abnormally.
- Instrument emits abnormal noise, smell, smoke or a spark-like light during operation.
- Instrument generates high temperature or electrical shock during operation.
- Power cable, plug, or receptacle on instrument is damaged.
- Foreign substance or liquid has fallen into the instrument.

Manufacturer’s Declaration

Herstellerbescheinigung

GERA- USCHEMISSION

LpA < 70 dB

am Arbeitsplatz

normaler Betrieb

nach DIN 45635 T. 19

Manufacturer’s Declaration

ACOUSTIC NOISE EMISSION

LpA < 70 dB

operator position

normal operation

per ISO 7779

Regulatory Compliance Information

This product complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:

- The Low Voltage Directive 2006/95/EC
- The EMC Directive 2004/108/EEC

To obtain Declaration of Conformity, please contact your local Keysight Technologies sales office, agent or distributor.

Safety Notice Supplement

- This equipment complies with EN/IEC61010-1:2001.
- This equipment is of MEASUREMENT CATEGORY I (CAT I). Do not use for CAT II, III, or IV.
- Do not connect the measuring terminals to mains.
- This equipment is a POLLUTION DEGREE 2, INDOOR USE product.
- This equipment is tested in stand-alone condition and in combination with the accessories supplied by Keysight Technologies against the requirement of the standards described in the Declaration of Conformity. If it is used as a system component, compliance of related regulations and safety requirements are to be confirmed by the builder of the system.

General Safety Precautions

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific WARNINGS elsewhere in this manual may impair the protection provided by the equipment. Such noncompliance would also violate safety standards of design, manufacture, and intended use of the instrument. Keysight Technologies assumes no liability for the customer's failure to comply with these precautions.

NOTE

The E5063A complies with INSTALLATION CATEGORY II as well as POLLUTION DEGREE 2 in IEC61010-1. The E5063A is an INDOOR USE product.

NOTE

The LEDs in the E5063A are Class 1 in accordance with IEC60825-1, CLASS 1 LED PRODUCT.

- Ground the Instrument

  To avoid electric shock, the instrument chassis and cabinet must be grounded with the supplied power cable's grounding prong.

- Do NOT Operate in an Explosive Atmosphere

  Do not operate the instrument in the presence of inflammable gases or fumes. Operation of any electrical instrument in such an environment clearly constitutes a safety hazard.

- Keep Away from Live Circuits

  Operators must not remove instrument covers. Component replacement and internal adjustments must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltage levels may remain even after the power cable has been disconnected. To avoid injuries, always disconnect the power and discharge circuits before touching them.

- DO NOT Service or Adjust the Instrument Alone

  Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

- Do NOT Substitute Parts or Modify the Instrument

  To avoid the danger of introducing additional hazards, do not install substitute parts or perform unauthorized modifications to the instrument. Return the instrument to a Keysight Technologies Sales and Service Office for service and repair to ensure that safety features are maintained in operational condition.

- Dangerous Procedure Warnings

  Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

WARNING **Dangerous voltage levels, capable of causing death, are present in this instrument. Use extreme caution when handling, testing, and adjusting this instrument.**

Safety Symbols

General definitions of safety symbols used on the instrument or in manuals are listed below.

⚠	Instruction Manual symbol: the product is marked with this symbol when it is necessary for the user to refer to the instrument manual.
~	Alternating current.
⎓	Direct current.
I	On (Supply).
O	Off (Supply).
⏚	A chassis terminal; a connection to the instrument's chassis, which includes all exposed metal structure.
⏻	Standby.

Certification

Keysight Technologies certifies that this product met its published specifications at the time of shipment from the factory. Keysight Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institution's calibration facility or by the calibration facilities of other International Standards Organization members.

Caution
Safety Symbols

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Assistance

Product maintenance agreements and other customer assistance agreements are available for Keysight Technologies products.

For any assistance, contact your nearest Keysight Technologies Sales and Service Office. Addresses are provided at the back of this manual.

Manuals for E5063A

Keysight provides the following three manuals for E5063A. The latest version of all documentations can be downloaded from http://www.keysight.com/manual/e5063a.

Installation Guide

The installation guide (this manual) provides start up setup information when you use the E5063A for the first time and troubleshooting information when the Windows cannot be boot up. See this manual first when you use the E5063A for the first time.

Troubleshooting Guide

The troubleshooting guide (this manual) provides troubleshooting information when operational problems are encountered on the E5063A. See this manual when you need to troubleshoot the E5063A.

Online Help

The online help provides the information about the quick start, measurement operation, programming, built-in VBA, I/O interface This is pre-installed in the E5063A. Press **[Help]** hard key on the front panel to open. Quick Start helps in understanding the E5063A operation quickly.

The latest version of online help is available at:
http://www.keysight.com/manuals/e5063a.

The online help has context sensitive help, which is a great feature of the E5063A help. It allows you to get information about the selected softkey by pressing the Help key in the E5063A or by pressing F1 in a keyboard attached to the E5063A or by clicking the help button in a dialog box. With context sensitive help, users can receive information quickly about the area the user is working in the firmware of the E5063A. It provides information relevant to the task that needs to be accomplished and reduces the time to search relevant information required to complete a task.

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1 Troubleshooting

This chapter provides the procedure to isolate a faulty assembly in the E5063A.

Introduction

WARNING These servicing instructions are for use by qualified personnel only. To avoid possible electrical shock, do not perform any servicing unless you are qualified to do so.

WARNING The opening of covers or removal of parts are likely to expose dangerous voltages. Disconnect the instrument from its power supply beforehand.

CAUTION Many of the assemblies in the instrument are very susceptible to damage from ESD (electrostatic discharge). Perform the following procedures only at a static-safe workstation and wear a grounding strap.

CAUTION DO NOT operate without following instructions. Program or files in the instrument may be broken.

How to exit from the E5063A Measurement View

Some troubleshooting procedures require you to exit from the E5063A Measurement View. The following procedure describes the steps to exit from the E5063A Measurement View.

Step 1. Connect a mouse to the connectors on the E5063A rear panel.

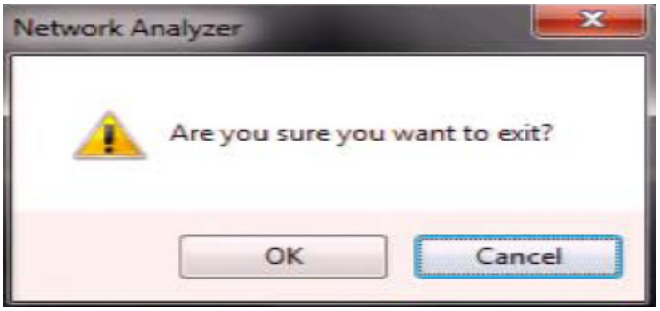
Step 2. Turn the instrument on.

Step 3. Press System key.

Step 4. Click **Service**.

Step 5. Click **Exit**.

Figure 1-1 Exit dialog box



Step 6. Click **Yes** in **Exit** menu. The E5063A exits from Measurement View to Windows desktop.

NOTE If you want to return to the Measurement View, double-click the" E5063A" icon on the desktop.

NOTE if you need to shut down the E5063A, press the standby switch on the front panel.

To Troubleshoot the Instrument

This section describes the basic troubleshooting procedural flow when servicing the E5063A. The primary procedural tool in this section is the flowchart. The flowchart contains the entire troubleshooting path from the failure symptom to the isolation of faulty assembly, and will direct you through the repair in an orderly manner through the possible failure symptoms. Reference letters (Yes/No) on the flowchart point to procedural steps that briefly explain the next troubleshooting method to be performed.

Primary Trouble Isolation

The primary trouble isolation procedure can be performed without disassembling the E5063A. Figure 1-2 shows the trouble isolation flow chart.

Step 1. Turn the instrument power on.

A few minutes after the E5063A is turned on, the measurement view is displayed on the screen. The display screen should be similar to Figure 1-11 on page 26.

Step 2. Check the display.

- If no display appears on the LCD after the E5063A is turned on, go to “No Display Troubleshooting” on page 17.
- If the E5063A stops during booting process despite something being displayed on the LCD, go to “Booting Process Troubleshooting” on page 22.

Step 3. Check the basic function.

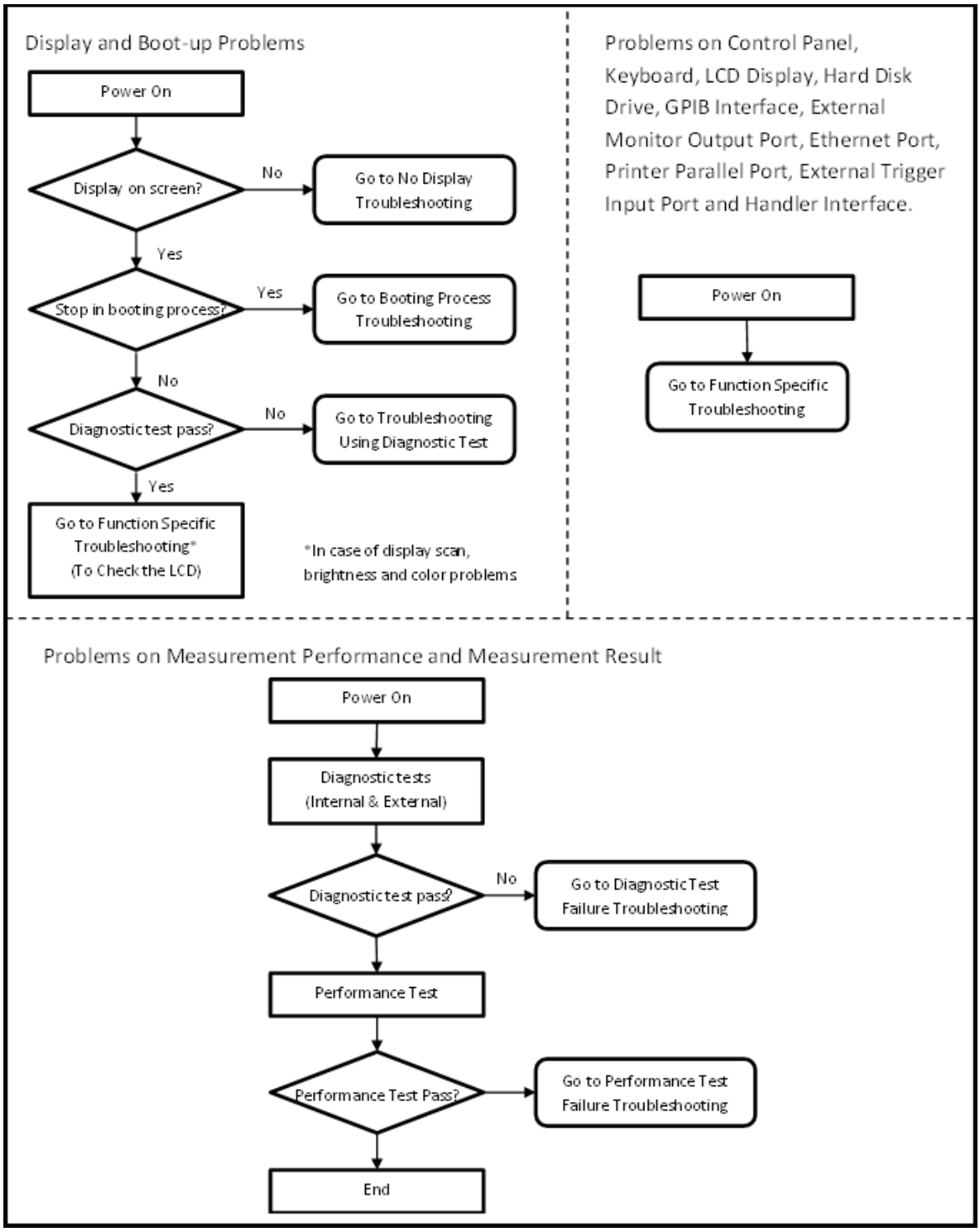
If the front-panel/keyboard/mouse controls, LCD display, data storage, remote interface or other function (except the measurement function) does not work correctly, go to “Function Specific Troubleshooting” on page 30.

Step 4. Check the measurement function.

If the instrument fails performance test, go to “Performance Test failure Troubleshooting” on page 35.

If the measurement function does not work correctly, perform the diagnostic tests provided in the E5063A’s service function. If the diagnostic tests fail, go to “Troubleshooting Using Diagnostic Test” on page 27.

Figure 1-2 Primary trouble isolation flowchart

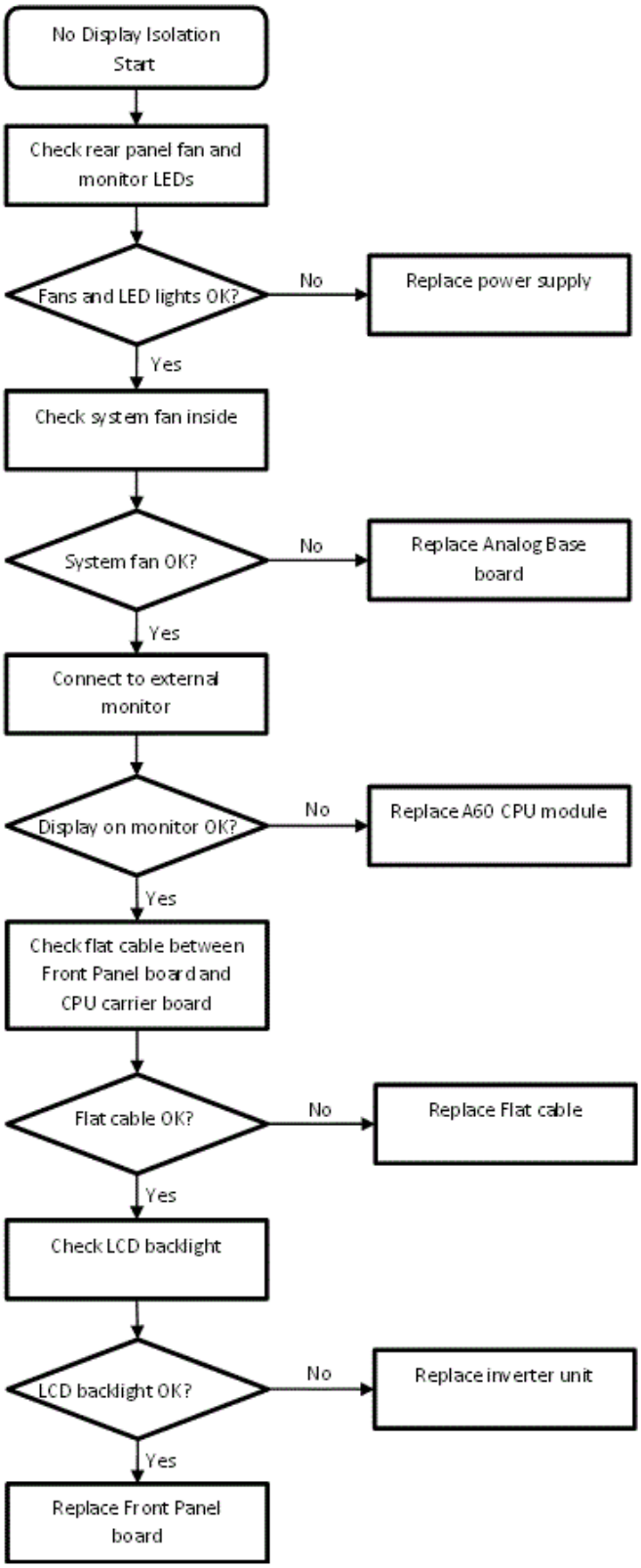


No Display Troubleshooting

If the E5063A displays nothing despite being powered from proper ac power line, isolate the failure in accordance with the procedure shown in Figure 1-3.

Connect the keyboard to the E5063A rear panel connector and start trouble isolation. The methods of trouble isolation are described in the procedural step 1 to 6.

Figure 1-3 No display trouble isolation procedure



Step 1. Check fan operation and DC monitor LED.

If the rear panel fan (blower) doesn't run, a failure in power supply is assumed. Remove the E5063A outer cover and check if the following LEDs light:

- +3.3 V and +5 V DC monitor LEDs on A60 CPU module as shown in Figure 1-4.
- LEDs on A51 DSP module as shown in Figure 1-5.

Figure 1-4 LEDs on CPU module

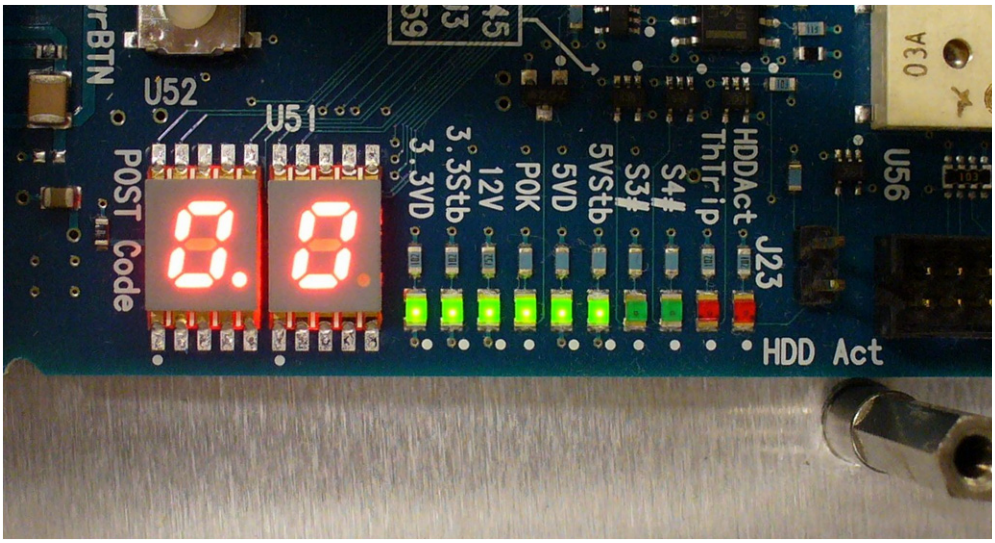
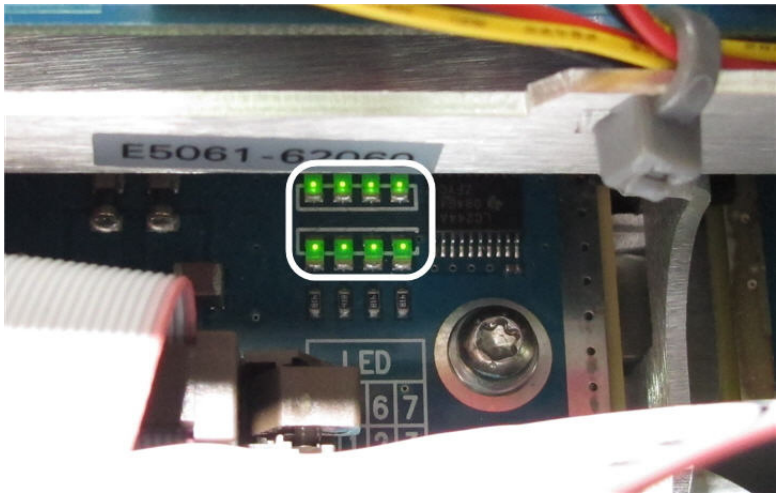


Figure 1-5 LEDs on DSP module



Step 2. Check system fan inside.

If the system fan, located on the left side of the chassis inside the E5063A, does not run, the problem seems to be in the A51 DSP board or the flat cable between the A51 DSP board and A60 CPU module. In this case, remove the E5063A outer cover and determine if the fan runs or not.

If a beep and power shutdown occurs immediately after the power is turned on, there is a possibility that the fan would not run. The power shutdown occurs the moment the system fan stops by any anomaly. In this case, check the fan.

If the power shutdown occurs without a beep, the problem seems to be with the A51 DSP board or the A60 CPU module.

Step 3. Check LED of “Num Lock” key.

Press the **Num Lock** key on the keyboard. If the LED on the keyboard does not light as shown in Figure 1-6, a problem seems to be in the A60 CPU module.

Figure 1-6 LED of the Num Lock key

e5061ase048

Check the following before replacing the A60 CPU module.

- Connections to the A60 CPU Module are normal
- There are no disconnections or loose connections

Step 4. Check the external monitor

Connect an external VGA monitor to the External Monitor Output Port on the E5063A rear panel.

- If something is displayed on the external monitor, the problem seems to be related to the LCD display. Also, check the A52 Front Panel I/F board because the ON/OFF setting of the LCD backlight is controlled by the A52 Front Panel I/F board.
- If nothing is displayed even on the external monitor, the problems seems to be in the A60 CPU module.

Step 5. Check the flat cable

Check the flat cable between the A60 CPU Module and A52 Front Panel I/F board.

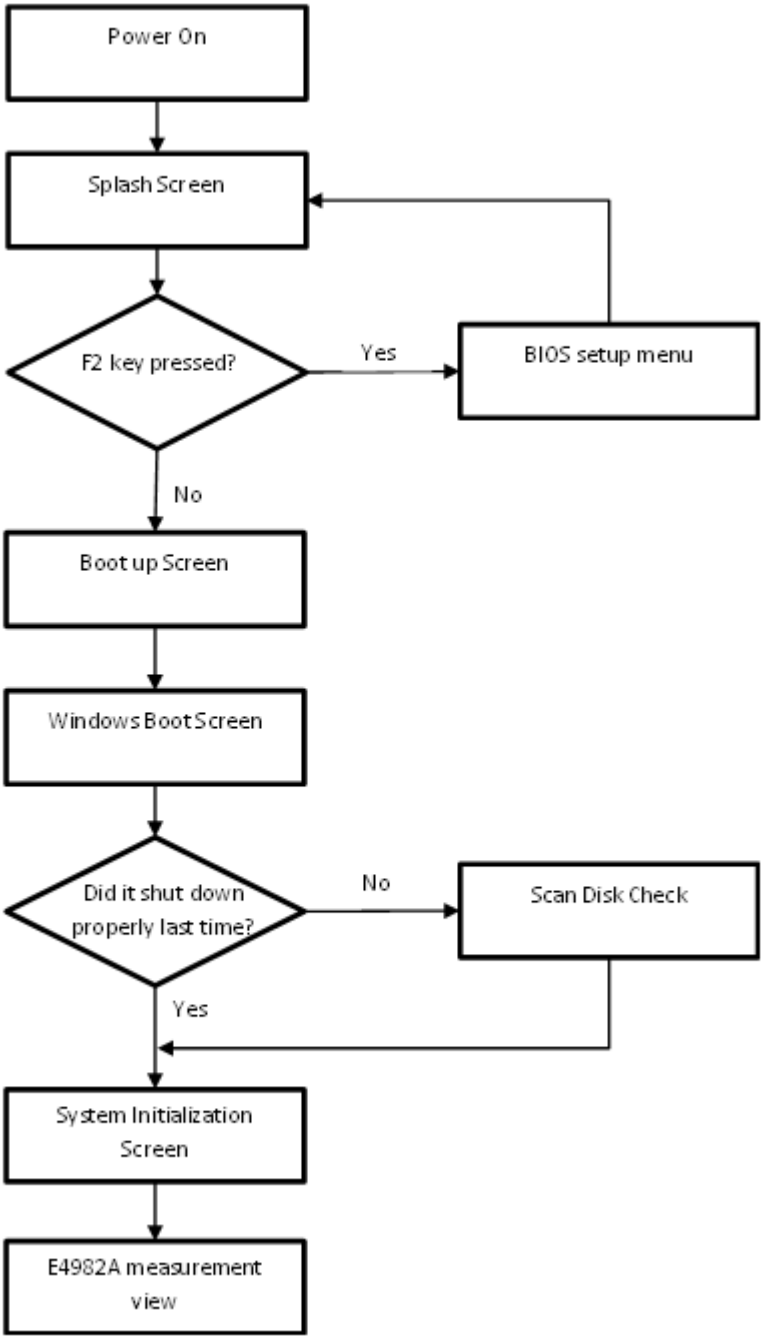
Step 6. Check around the backlight

Check the inverter board and the cable between the inverter board and A52 Front Panel I/F board. Also check the cables between the LCD and A52 Front Panel I/F board. If the cables are normal, check the LCD display.

Booting Process Troubleshooting

Figure 1-7 represents the booting process flow in the E5063A. If the E5063A stops in the booting process, troubleshoot using the following step-by-step procedure.

Figure 1-7 Booting process flowchart



Step 1. Splash Screen.

The splash screen is displayed with Keysight logo as shown in Figure 1-8.

If the splash screen is displayed, you can assume that the A60 CPU Module is functioning correctly.

NOTE

While the splash screen is displayed, if you want to run the BIOS setup utility, push F2 key on the attached external keyboard as soon as you see the splash screen. The password to enter BIOS setup utility is agt0nly (0 is Zero).

Changing BIOS setting may cause malfunction or lower performance of the instrument.

Figure 1-8 Splash Screen

Step 2. Boot up Screen.

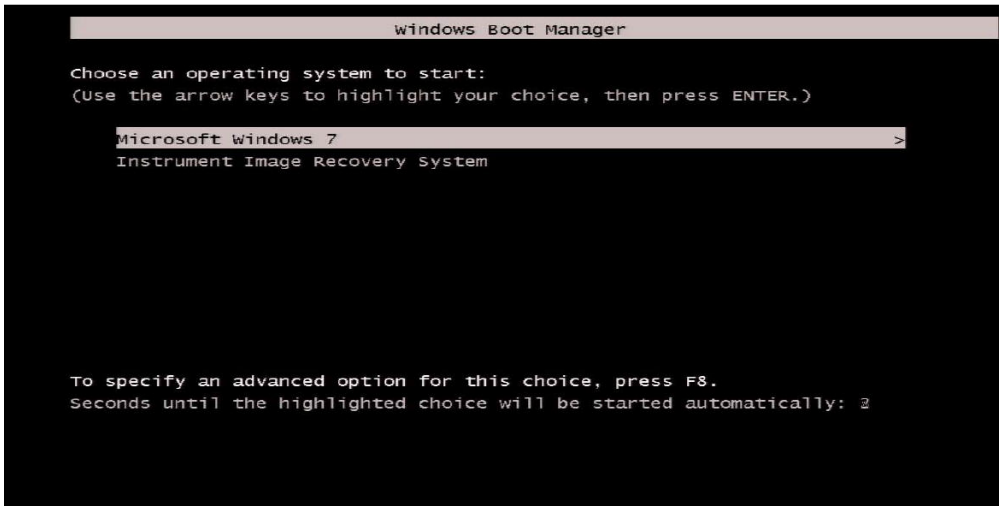
The boot up screen is displayed as shown in Figure 1-9.

If no selection is made, the system will continue the boot up process after 3 seconds.

NOTE

While the Boot up screen is displayed, if you want to perform system recovery, select **Keysight Recovery System** as soon as the **Windows Boot Manager** screen is displayed. For details of the system recovery, refer to the **Installation Guide**.

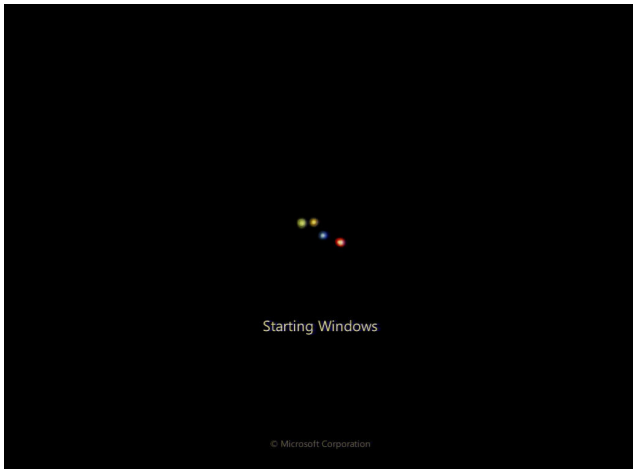
Figure 1-9 Boot up Screen



Step 3. Windows boot screen.

The Windows boot screen is displayed as shown in Figure 1-10. If the Windows boot screen is displayed, it is assumed that the HDD works and the Windows operating system is starting up.

Figure 1-10 Windows boot screens



If you encounter the following problems, try to execute the system recovery before replacing the HDD.

- “xxx file is missing” message is displayed on DOS screen.
- The window boot screen is not displayed after the splash screen.
- Windows always boots up in Safe Mode.

NOTE

If the E5063A was turned off without proper shutdown process, **Microsoft Scandisk** runs while the windows boot screens are displayed. If a serious problem is found during the scan, execute the system recovery. For details on executing the system recovery, refer to the **Installation Guide**. If the operating system still does not boot up properly after reinstallation, replace the HDD.

NOTE

The operating system automatically checks the device drivers which are necessary for use in the E5063A and are installed in the system before the E5063A is shipped from Keysight factory. If the operating system does not detect them, a message box is displayed. In this case, install the device driver.

Step 4. System Initialization Screen.

The system initialization screen is displayed. If the display whites out, is entirely blue or a dialog box appears, a mass storage problem is suspected. Try to perform the mass storage recovery procedure.

NOTE

If the message “Will Shut Down in Five Seconds” is displayed and shutdown occurs, the A51 DSP board has failed to start up. The following messages may be displayed before the shutdown occurs:

“Fatal Error: Failed to Initialize DSP Driver”

or “Fatal Error: Failed to Initialize DSP”

This message indicates that the DSP board does not work or is not properly connected to the DSP DSP board.

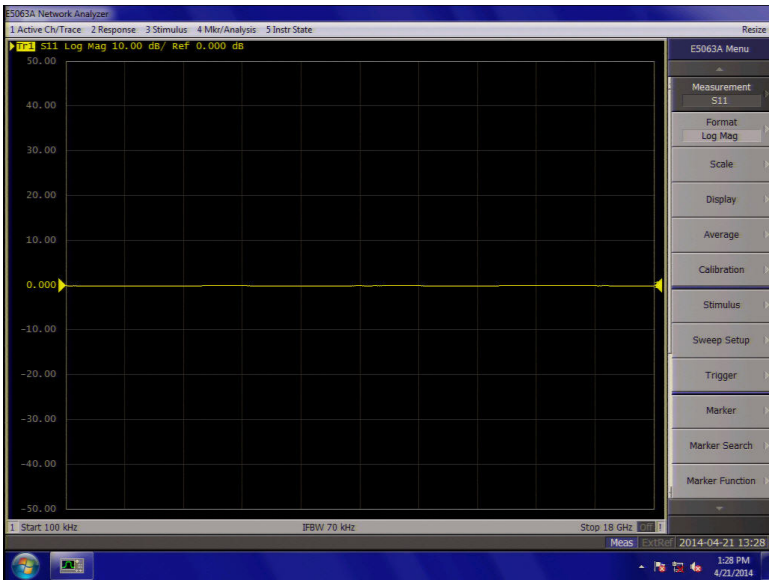
“Fatal Error: Failed to Update DSP Code”

If this happens, the DSP board has failed to write the DSP program into the flash ROM when the firmware was first installed or after being updated to the latest version. A problem with the A51 DSP board or A60 CPU Module is suspected.

Step 5. E5063A Application view.

The E5063A application is executed as shown in Figure 1-11 after the system initialization is completed without problem.

Figure 1-11 E5063A application



Troubleshooting Using Diagnostic Test

The E5063A has diagnostic test function to diagnose the analog measurement section and internal dc power supply voltages. The diagnostic tests make it possible to isolate a faulty board assembly. The following paragraphs describe the procedure to perform the diagnostic tests.

Diagnostic Test

To execute the diagnostic test

To isolate faulty board assembly modules, execute the diagnostic test in accordance with the following procedure.

NOTE

To perform the diagnostic test properly, the following conditions must be met:

Environmental temperature: 23°C ±5°C

Warm up time: > 30 minutes

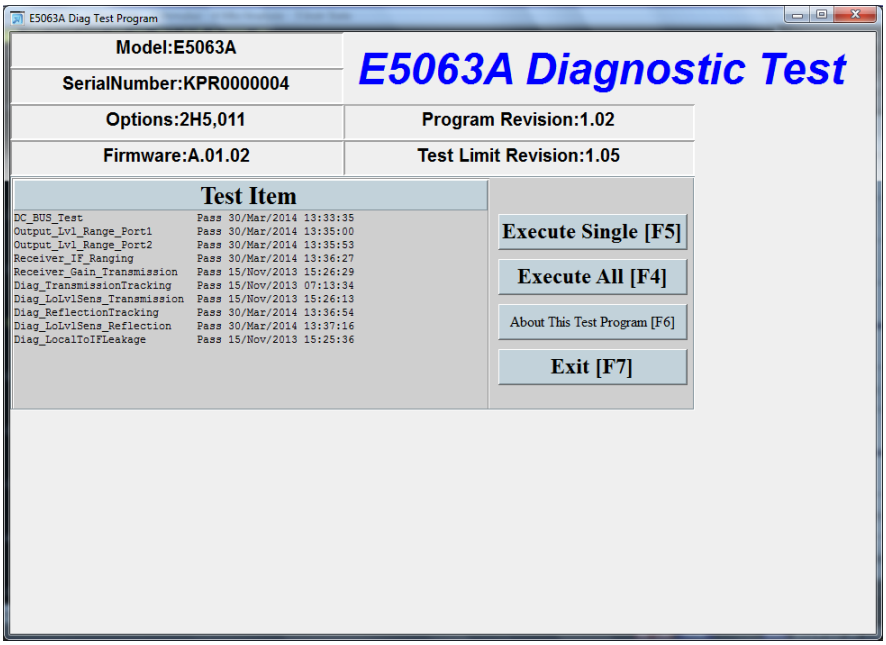
NOTE

Do not operate front panel keys, keyboard and mouse during the diagnostic test. Changing the instrument setting while the diagnostic test is in progress will cause incorrect test results.

Step 1. Press System key.

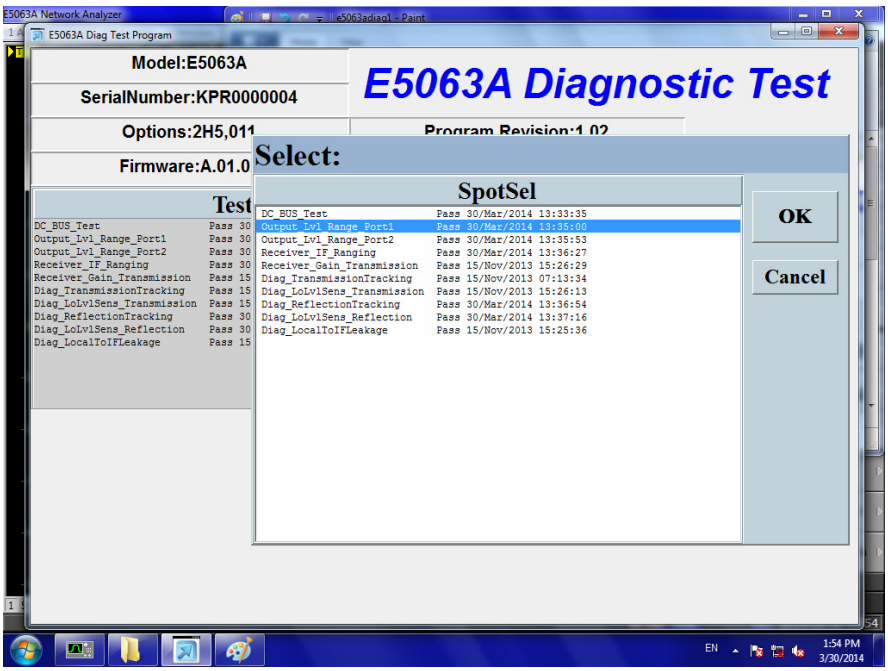
Step 2. Click **Service Menu** > **Test Menu** > **Diagnostic Test**.

Figure 1-12 Diagnostic Test 1/3



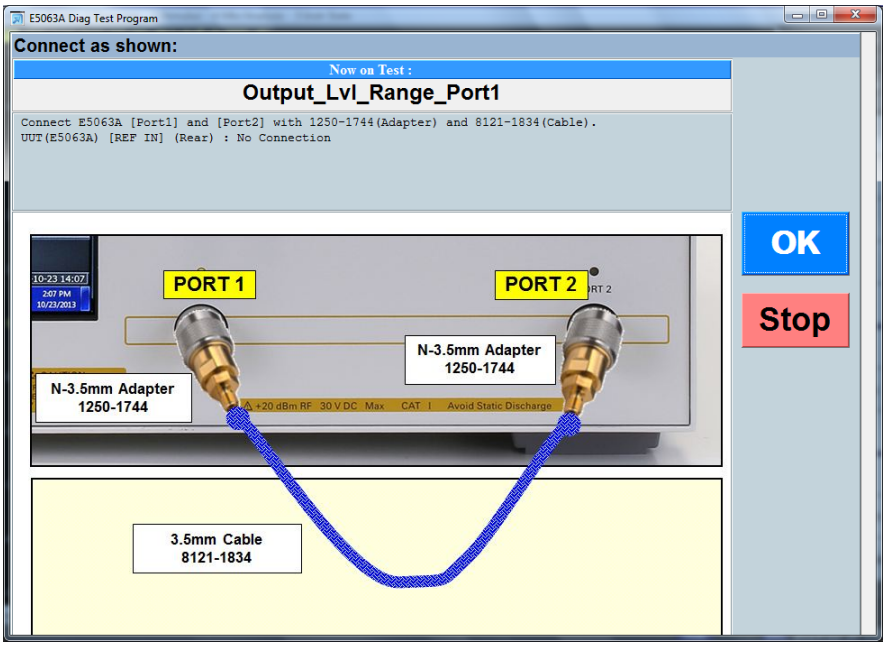
Step 3. Select **Execute All**.

Figure 1-13 Diagnostic Test 2/3



Follow the instruction for connection, then click OK to execute the test.

Figure 1-14 Diagnostic Test 3/3



Step 4. Click **Exit** to exit the diagnostic test.

Diagnostic Test Failure Troubleshooting

Replace the A1 or A3 Analog Module when any test in diagnostic test is failed as the A1 or A3 module is only one analog board which include both source and receiver in the E5063A.

Function Specific Troubleshooting

If the E5063A exhibits a failure symptom that is related to a specific function or control such as a front panel key control, data storage, remote control interface, external trigger, external keyboard or mouse, isolate the trouble using the Function Specific Troubleshooting procedures described below. The major functions of the E5063A and the troubleshooting procedure for each function are shown in Table 1-1.

Table 1-1 Major functions and troubleshooting procedures

Function	Description	Troubleshooting
Front panel keys	All E5063A functions can be set and controlled via the front panel keys.	Refer to "To Check the Front Panel" on page 31
Touch panel	The touch screen display on the E5063A allows all functions in the menu bars, setup windows and dialog boxes to be set by a touch to the screen panel.	Refer to "To Check the Touch Panel" on page 32
LCD display	Almost all the information including the measurement value, setup state, result data processing, menu bar, softkey label and others are indicated on the 10.4-inch color LCD display.	Refer to "To Check the LCD" on page 33
External keyboard	The external keyboard can be used for the entry of numerical and character data when it is connected to the USB connector on the front or rear panel.	Refer to "To Check the External Keyboard" on page 33
Mouse	The mouse can be used to move the pointer on the LCD display, select functions and change settings, when it is connected to the USB connected on the front or rear panel.	Refer to "To Check the Mouse" on page 33
External monitor	An external color monitor can be used to display the same information as the E5063A LCD display, when it is connected to the External Monitor Output Port (15-pin VGA connector) on the rear panel.	Refer to "To Check the External Monitor Output Port" on page 34
GPIB Interface	The GPIB compatibility allows the E5063A to be operated as a talker/listener on IEEE 488 interface bus.	Refer to "To Check the GPIB" on page 34

Table 1-1 Major functions and troubleshooting procedures

Function	Description	Troubleshooting
Handler Interface	The Handler Interface port can be used to transfer comparator decision output data and perform timing synchronization with an external handler.	Refer to "To execute the diagnostic test" on page 27

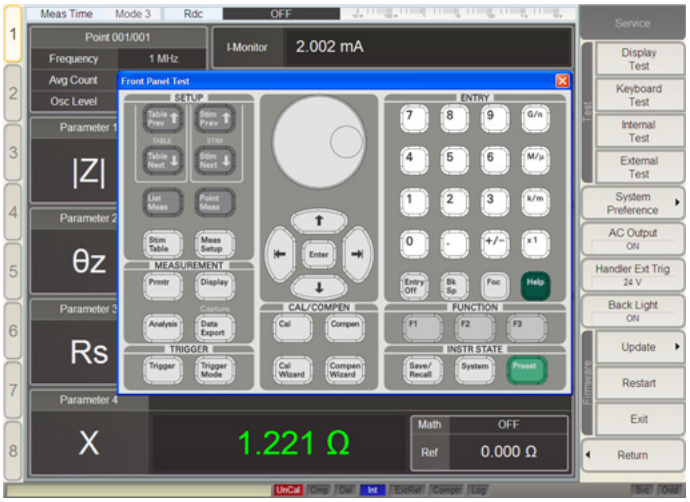
To Check the Front Panel

Procedure

Step 1. Press System key.

Step 2. Click **Service Menu** - **Test Menu** - **Front Panel**. This opens the Front Panel Test window as shown in Figure 1-15.

Figure 1-15 Front Panel Test window 1/2



Step 3. Press the front panel keys. Red ticks will appear on the Front Panel Test window whenever the corresponding key on the front panel is pressed as shown in Figure 1-16. Turn the rotary knob clockwise or counterclockwise. Red ticks will appear on the left of the rotary knob on the Front Panel Test window when you turn counterclockwise and on the right of the rotary knob when you turn clockwise.

Figure 1-16 Front Panel Test window 2/2

Step 4. To exit the front panel test, click the button.

- If multiple keys fail to work, a problem in the A52 Front Panel I/F board or A60 CPU Module is suspected. Also, check the flat cable between the A52 Front Panel I/F board and A60 CPU Module.
- If only a specific key fails to work, check first if the key is subsided in the panel.
- If the rotary knob fails to work, check the A52 Front Panel I/F board involving the RPG.

To Check the Touch Panel

Procedure

Using the LCD display panel, select or change the setting of a function in the softkey menu and then, perform the same operation using the hardkeys.

- If the touch panel does not work correctly when the hardkeys function normally, a failure seems to be in the touch screen controller assembly or touch-panel LCD assembly. (The touch panel is not replaceable independently of the LCD.)
- Check the cable between the touch screen controller and the serial interface connector on the A60 CPU module.
- If no problem is found in the above checks, a failure in the A60 CPU Module is suspected.

To Check the LCD

Procedure

Step 1. Press System key.

Step 2. Click **Service** - **Display Test**. The whole LCD screen turns RED.

Step 3. Tap anywhere on the LCD to go through the color test screen of RED, GREEN, BLUE, WHITE and BLACK. You can also use the rotary knob turned clockwise or press the **ENTRY** keys on the E5063A front panel.

If the color test screen does not appear, perform Step 4.

Step 4. Connect an external VGA monitor to the External Monitor Output Port on the E5063A rear panel.

- If the monitor screen view is the same as the LCD display, the problem seems to be in the A60 CPU module.
- If only the LCD display has a problem, check the flat cable between the A52 Front Panel I/F board and A60 CPU Module.
- If the cables are normal, check the A51 LCD module.

To Check the External Keyboard

Procedure

Step 1. Connect an external keyboard to the E5063A rear panel USB port.

Step 2. Press Meas key.

Step 3. Press ↑ and ↓ keys on the external keyboard, and verify that the cursor on the menu bar moves up and down. If it doesn't work, the external keyboard or the A60 CPU Module may be faulty.

To Check the Mouse

Procedure

Step 1. Connect a mouse to the E5063A rear panel USB port.

Step 2. Verify that the mouse buttons work normally. If any button does not work or the mouse pointer does not move, a failure in the mouse or the A60 CPU Module is suspected.

To Check the External Monitor Output Port

Procedure

Step 1. Connect an external VGA color monitor to the External Monitor Output Port on the E5063A rear panel.

Step 2. Turn the external monitor on.

Step 3. Verify that the monitor screen view is the same as the display on the LCD. If the monitor screen view is abnormal, a failure seems to be in the A60 CPU module.

To Check the External Trigger Input

Procedure

Step 1. Press Preset key.

Step 2. Press **Trigger Mode** key.

Step 3. Click **External** in the menu bar to set the trigger mode to External.

Step 4. Connect a BNC Short or 50 ohm termination to the External Trigger Input Port on the rear panel and disconnect it. A measurement trigger should be generated and a measurement result should be refreshed.

Step 5. If no trigger occurs, a failure in the A51 DSP board is suspected.

To Check the GPIB

Procedure

Perform the E5063A Performance Test program. If the controller cannot detect the E5063A, the problem seems to be in the A60 CPU module.

To Check the USB

Procedure

Connect a USB cable between controller PC and USB Interface port (USBTMC) on the rear panel of the E5063A. Turn the controller PC on. If the E5063A cannot detect the controller PC, the problems seems to be in the CPU module. Keysight I/O Library should be installed on the PC.

Performance Test failure Troubleshooting

This section describes the adjustment and troubleshooting procedures used when the E5063A fails the performance tests. If the performance of the instrument is critical for the test limits and seems adjustable, perform first the adjustment(s) related to the failed test. When the test result are far from the tolerance of the test or the performance is not adjustable, isolate the faulty assembly in accordance with the “Performance Test failure Troubleshooting” procedure.

Recommended Adjustment for Performance Test failure

Table 1-2 shows the recommended adjustments when the performance test fails. Select the adjustment program corresponding to the recommended adjustment and perform the adjustment.

You can execute the adjustment for Option 2H5 only. When the performance test fails on the unit with option 245 or 285, replace A1 or A3 board.

Table 1-2 **Recommended adjustment for performance test failure**

Failed Performance test item	Recommended Adjustment
Frequency Accuracy	PLL Sub-band Reference Frequency
RF Output Level Accuracy Test	PLL Sub-band Reference Frequency Source Max. Output Power Check Synthesizer Gain Source Output Power
RF Output Level Linearity Test	PLL Sub-band Reference Frequency Source Max. Output Power Check Synthesizer Gain Source Output Power

Table 1-2 Recommended adjustment for performance test failure

Failed Performance test item	Recommended Adjustment
Crosstalk & System Dynamic Range Test	PLL Sub-band Reference Frequency Source Max. Output Power Check Mixer Local Input Level Synthesizer Gain Receiver IF Flatness Source Output Power Receiver IF Range Receiver Port Characteristics Virtual Bridge Coefficient Receiver Absolute Gain
Trace Noise Test	PLL Sub-band Reference Frequency Source Max. Output Power Check Mixer Local Input Level Synthesizer Gain Receiver IF Flatness Source Output Power Receiver IF Range Receiver Port Characteristics Virtual Bridge Coefficient Receiver Absolute Gain
Uncorrected System Performance Test	PLL Sub-band Reference Frequency Source Max. Output Power Check Mixer Local Input Level Synthesizer Gain Receiver IF Flatness Source Output Power Receiver IF Range Receiver Port Characteristics Virtual Bridge Coefficient Receiver Absolute Gain

Table 1-2 Recommended adjustment for performance test failure

Failed Performance test item	Recommended Adjustment
Dynamic Accuracy Test(1)	PLL Sub-band Reference Frequency Mixer Local Input Level Receiver IF Flatness Receiver IF Range Receiver Port Characteristics Virtual Bridge Coefficient Receiver Absolute Gain
Dynamic Accuracy Test(2)	PLL Sub-band Reference Frequency Mixer Local Input Level Receiver IF Flatness Receiver IF Range Receiver Port Characteristics Virtual Bridge Coefficient Receiver Absolute Gain
Noise Floor	PLL Sub-band Reference Frequency Source Max. Output Power Check Mixer Local Input Level Synthesizer Gain Receiver IF Flatness Receiver IF Range Receiver Port Characteristics Virtual Bridge Coefficient Receiver Absolute Gain

Adjustment failure Troubleshooting

Replace the A1 or A3 Analog Module when any adjustment in diagnostic test is failed as the A1 or A3 module is only analog board which includes both source and receiver in the E5063A.

Performance Test failure Troubleshooting

Replace the A1 or A3 Analog Module when any adjustment in diagnostic test is failed as the A1 or A3 module is only one analog board which includes both source and receiver in the E5063A.

2 Post Repair Procedures

Table 2-1 lists the required procedures that must be performed after the replacement of an assembly. These are the recommended minimum procedures to ensure that the replacement is successfully completed.

Table 2-1 Post Repair Procedures

Replaced Assembly or Part	Required Adjustment Correction Constants (CC)	Verification
A1 or A3 Analog Board	When you replace the defective analog module, it is not necessary to performing the adjustment. The boards are adjusted at factory. Correction Constant data is stored in A1 or A3 Analog board itself and uploaded to SSD automatically.	"Troubleshooting Using Diagnostic Test" on page 27 Perform all of the Performance Test.
A51 DSP Board	Perform the following required adjustments using "A51 DSP Board" in Spot Adjustment of the program.	"Troubleshooting Using Diagnostic Test" on page 27 Inspect the Booting Process
SSD (Solid State Drive)	Perform the following required adjustments using "SSD (Solid State Drive" in Spot Adjustment in the program. Copy from license file (.lic) under E:/license	Inspect the Booting Process

License file

The license code for the frequency option (either 245, 285 or 2H5) and generation ID (G01) must be installed in E:/license, or the error message will be displayed.

The license code can be downloaded from the Keysight Software Manager (ASM) or Keysight Software Licensing (ASL).

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