

Keysight Signal Generators

This manual provides documentation for the following instruments:

PSG Signal Generator

Notice: This document contains references to Agilent. Please note that Agilent's Test and Measurement business has become Keysight Technologies. For more information, go to www.keysight.com.



Security
Features and
Document of
Volatility

Notices

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Safety Notices

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.

Warranty

This Keysight technologies instrument product is warranted against defects in material and workmanship for a period of three years from the date of shipment. During the warranty period, Keysight Technologies will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Keysight Technologies. Buyer shall prepay shipping charges to Keysight Technologies, and Keysight Technologies shall pay shipping charges to return the product to Buyer. For products returned to Keysight Technologies from another country, Buyer shall pay all shipping charges, duties, and taxes.

Where to Find the Latest Information

Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, see the following URLs:

<http://www.keysight.com/find/psg>

To receive the latest updates by email, subscribe to Keysight Email Updates:

<http://www.keysight.com/find/emailupdates>

Information on preventing instrument damage can be found at:

<http://www.keysight.com/find/PreventingInstrumentRepair>

Is your product software up-to-date?

Periodically, Keysight releases software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Keysight Technical Support website at:

<http://www.keysight.com/find/techsupport>

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1 Contacting Keysight Sales and Service Offices

Assistance with test and measurement needs, and information to help you find a local Keysight office, is available via the internet at, <http://www.keysight.com/find/assist>. If you do not have internet access, please contact your designated Keysight representative.

NOTE In any correspondence or telephone conversation, refer to the instrument by its model number and full serial number. With this information, the Keysight representative can determine whether your unit is still within its warranty period.

Contacting Keysight Sales and Service Offices

2 Products Covered by this Document

| Product Family Name | Product Name | Model Number | Firmware Revision |
|----------------------------|----------------------|---------------------|-------------------|
| Keysight Signal Generators | PSG Signal Generator | E8663D | All |
| | | E8663B ^a | All |
| | | E8267D ^a | All |
| | | E8267C | C.03.40 or higher |
| | | E8257N | All |
| | | E8257D ^a | All |
| | | E8257C | C.03.40 or higher |
| | | E8247C | C.03.40 or higher |

a. See “Recommended Software Upgrades” on page 10 for important firmware version information.

Document Purpose

This document describes instrument memory types and security features. It provides a statement regarding the volatility of all memory types, and specifies the steps required to declassify an instrument through memory clearing, sanitization, or removal.

For additional information, go to:

<http://www.keysight.com/find/security>

IMPORTANT

Be sure that all information stored by the user in the instrument that needs to be saved is properly backed up before attempting to clear any of the instrument memory. Keysight Technologies cannot be held responsible for any lost files or data resulting from the clearing of memory.

Be sure to read this document entirely before proceeding with any file deletion or memory clearing.

Recommended Software Upgrades

CAUTION

Do not use the **Erase All, Erase and Overwrite All, Erase and Sanitize All, Erase, Overwrite, or Sanitize** procedures with any of the firmware revisions listed in [Table 2-1](#) below.

If your instrument's current firmware revision is among those listed, please upgrade **immediately** to newer firmware. For details, see "[Firmware Update Procedure](#)" on [page 29](#).

Table 2-1 Firmware revisions that require upgrades

| Instrument model number | Current firmware revision | Upgrade to firmware revision |
|-------------------------|---------------------------|------------------------------|
| E82x7D | C.04.81, C.04.85, C.04.92 | C.04.94 or later |
| E8663B | C.04.90 | C.04.93 or later |

Signal Generator Products covered in Other Documents

Prior to August 2014, security details for these products were described in the document E4400-90621. Coverage has now been split across several documents. [Table 2-2](#) below provides details of the documents covering other Signal Generator models..

Table 2-2 Other Security Features Documents

| Product Names | Model Numbers | Security Features Document |
|-----------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------|
| MXG Microwave Analog Signal Generator MXG RF Vector Signal Generator MXG RF Analog Signal Generator | N5183B | Security Features and Document of Volatility (MXG Series B, EXG Signal Generators) |
| | N5182B | |
| | N5181B | |
| | | |
| EXG Microwave Analog Signal Generator EXG RF Vector Signal Generator EXG RF Analog Signal Generator | N5173B | |
| | N5172B | |
| | N5171B | |
| | | |
| MXG Signal Generator (Series A) | N5183A | Security Features and Document of Volatility (MXG Series A, ESG Signal Generators) |
| | N5182A | |
| | N5181A | |
| | N5162A | |
| | N5161A | |
| ESG Signal Generator | E4438C | |
| | E4428C | |

Products Covered by this Document
Signal Generator Products covered in Other Documents

3 Security Terms and Definitions

| Term | Definition |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Clearing | As defined in Section 8-301a of DoD 5220.22-M, “National Industrial Security Program Operating Manual (NISPOM)”, clearing is the process of eradicating the data on media before reusing the media in an environment that provides an acceptable level of protection for the data that was on the media before clearing. Hence, clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection. |
| Instrument Declassification | A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment, such as is the case when the instrument is returned for calibration. Declassification procedures include memory sanitization or memory removal, or both. Keysight declassification procedures are designed to meet the requirements specified in DoD 5220.22-M, “National Industrial Security Program Operating Manual (NISPOM)”, Chapter 8. |
| Sanitization | <p>As defined in Section 8-301b of DoD 5220.22-M, “National Industrial Security Program Operating Manual (NISPOM)”, sanitization is the process of removing the data from media before reusing the media in an environment that does not provide an acceptable level of protection for the data that was in the media before sanitizing. Hence, instrument sanitization is typically required when an instrument is moved from a secure to a non-secure environment, such as when it is returned to the factory for calibration.</p> <p>Keysight memory sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS). These requirements are specified in the “Clearing and Sanitization Matrix” in Section 5.2.5.5.5 of the ISFO Process Manual for the Certification and Accreditation of Classified Systems under the NISPOM.</p> |
| Secure Erase | Secure Erase is a term that is used to refer to either the clearing or sanitization features of Keysight instruments. |

4 Instrument Memory & Volatility

This chapter contains information on the memory components in your instrument.

The tables provide details of the size of each memory component, its type, how it is used, its location, volatility, and the sanitization procedure.

Table 4-1 Base Instrument (All models and options)

| Memory Component, Type and Size | Writable During Normal Operation? | Data Retained When Powered Off? | Purpose/Contents | Data Input Method | Location in Instrument and Remarks | Sanitization Procedure ^a |
|------------------------------------|-----------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Main Memory (SDRAM) 64 MByte | Yes | No | Firmware operating memory | Operating system (not user) | CPU board. Not battery backed. | Turn off instrument power. |
| 2. Main Memory (Flash) 20 MByte | Yes | Yes | Factory calibration/ configuration data User file system, which includes instrument status backup, flatness calibration, IQ calibration, instrument states, waveforms (including header and marker data), modulation definitions, and sweep lists | Firmware upgrades and user-saved data | CPU board (same chip as firmware memory, but managed separately) User data is not stored in this memory if hard disk (Option 005) or flash drive (Option 008/009) is installed. | Because this 32 MB memory chip contains 20 MB of user data (described here) and 12 MB of firmware memory, a selective chip erase is performed. User data areas are selectively and completely sanitized by the procedure "Erase and Sanitize All" on page 22. |

Instrument Memory & Volatility

Table 4-1 Base Instrument (All models and options)

| Memory Component, Type and Size | Writable During Normal Operation? | Data Retained When Powered Off? | Purpose/Contents | Data Input Method | Location in Instrument and Remarks | Sanitization Procedure ^a |
|---------------------------------------------------|-----------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Firmware Memory (Flash) 12 MByte | No | Yes | Main firmware image | Factory installed or firmware upgrade | CPU board (same chip as main flash memory, but managed separately) During normal operation, this memory cannot be overwritten except for LAN configuration. | Because this 32 MB memory chip contains 20 MB of user data and 12 MB of firmware memory (described here), a selective chip erase is performed. User data areas are selectively and completely sanitized by the procedure "Erase and Sanitize All" on page 22. |
| | Yes | Yes | LAN configuration | Front panel entry or remotely | | |
| 4. Battery Backed Memory (SRAM) 512 KByte | Yes | Yes | User-editable data (table editors) Last instrument state, last instrument state backup, and persistent instrument state and instrument status | Firmware operations | CPU board The battery is located on the CPU board. | Sanitized by the procedure described in "Erase and Sanitize All" on page 22. |
| 5. Bootrom Memory (Flash) 128 KByte | No | Yes | CPU bootup program and firmware loader/updater | Factory programmed | CPU board During normal operation, this memory cannot be overwritten or erased. | None required (no user data) |
| 6. Calibration Backup Memory (Flash) 512 KByte | No | Yes | Factory calibration/ configuration data backup | Factory or service only | Motherboard | None required (no user data) |
| 7. Boards Memory (Flash) 512 Bytes | No | Yes | Factory calibration and information files, code images, and self-test limits | Factory or service only | All RF boards, baseband generator, and motherboard | None required (no user data) |
| 8. Micro-processor Cache (SRAM) 3 KByte | Yes | No | CPU data and instruction cache | Memory is managed by CPU, not user | CPU board, not battery backed. | Turn off instrument power. |

a. Sanitization procedures mentioned in this table are **not** available in E8257N instruments, unless Option 340 has been installed.

Table 4-2 Vector Models with Baseband Generator (E8267D with Options 601 or 602)

| Memory Component, Type and Size | Writable During Normal Operation? | Data Retained When Powered Off? | Purpose/Contents | Data Input Method | Location in Instrument and Remarks | Sanitization Procedure |
|------------------------------------------------------|-----------------------------------|---------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1. Waveform Memory (SDRAM) 40 MByte– 320 MByte | Yes | No | Waveforms (including header and marker data) and PRAM | Normal user operation | Not battery backed. | User data is completely sanitized by the procedure "Erase and Sanitize All" on page 22. |
| 2. BBG Firmware Memory (Flash) 32 MByte | No | Yes | Firmware image for baseband generator | Firmware upgrade | | None required (no user data) |
| 3. Coprocessor Memory (SRAM) 32 MByte | Yes | No | Operating memory of baseband coprocessor CPU | During normal operation, some user information, such as payload data, can remain in the memory. | This memory is used during normal baseband generator operation. It is not directly accessible by the user. Not battery backed. | Turn off instrument power. |
| 4. Buffer Memory (SRAM) 5 x 512 KByte | No | No | Support buffer memory for ARB and real-time applications | Normal user operation | This memory is used during normal baseband generator operation. It is not directly accessible by the user. Not battery backed. | Turn off instrument power. |

Instrument Memory & Volatility

Table 4-3 Hard Disk (E8267C/E8267D with Option 005)

| Memory Component, Type and Size | Writable During Normal Operation? | Data Retained When Powered Off? | Purpose/Contents | Data Input Method | Location in Instrument and Remarks | Sanitization Procedure |
|---------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Media Storage (Built-in Hard Disk) 6 GByte or 10 GByte (4 GByte usable in both cases) | Yes | Yes | User files, including flatness calibrations, IQ calibration, instrument states, waveforms (including header and marker data), modulation definitions, and sweep lists | User-saved data | The hard disk is an option for vector instruments (E8267D Option 005, and E8267C Option 005) and is therefore not installed in some instruments. If it is installed, these files are stored on the hard disk instead of in flash memory. | The magnetic residue requires several rewrite cycles or drive removal and destruction. User data is completely sanitized by the procedure "Erase and Sanitize All" on page 22. |
| 2. Buffer Memory (DRAM) 512 KByte | No | No | Buffer (cache) memory | Normal operation, via hard disk | | Turn off instrument power. |

Table 4-4 Flash Drive (E8257N with Options 008 and 340, E8257D/E8663D with Option 008, and E8267D with Option 009)

| Memory Component, Type and Size | Writable During Normal Operation? | Data Retained When Powered Off? | Purpose/Contents | Data Input Method | Location in Instrument and Remarks | Sanitization Procedure |
|-------------------------------------------------------------|-----------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 1. Memory Storage (Removable Flash drive) Size varies | Yes | Yes | User files, including flatness calibrations, IQ calibration, instrument states, waveforms (including header and marker data), modulation definitions, and sweep lists | User-saved data | The flash drive, E8267D Option 009, replaces the hard drive, E8267D Option 005, on E8267D instruments with serial prefixes \geq US/MY4829. It is, therefore, not installed in some instruments. If it is installed, these files are stored on the flash drive instead of in flash memory. | User data is completely sanitized by the procedure "Erase and Sanitize All" on page 22. ^a |

- a. Removing the Flash Drive card from an instrument with one of these options sanitizes the instrument, but also renders it inoperative for data collection, calibration, repair, etc.

5 Memory Clearing, Sanitization and Removal Procedures

This chapter describes several security functions you can use to remove sensitive data stored in the instrument before moving it from a secure development environment. The functions described are:

- “Erase All” on page 20
- “Erase and Overwrite All” on page 21
- “Erase and Sanitize All” on page 22
- “Clear Persistent State Information” on page 23

NOTE The functions described in this chapter are **not** available in the E8257N instrument, unless Option 340 has been installed.

CAUTION These functions do **not** erase or sanitize external media connected to the instrument’s USB port.

CAUTION Do not use the **Erase All, Erase and Overwrite All, Erase and Sanitize All, Erase, Overwrite, or Sanitize** procedure with any of these firmware revisions:

E82x7D: C.04.81, C.04.85, C.04.92

E8663B: C.04.90

If your instrument’s current firmware revision is among those listed above, please upgrade **immediately** to newer firmware. For details, see “[Firmware Update Procedure](#)” on page 29.

Memory Clearing, Sanitization and Removal Procedures

Erase All

Erase All

This function removes all user files, user flatness calibrations, user I/Q calibrations, and resets all table editors with original factory values, ensuring that user data and configurations are not accessible or viewable. The instrument appears as if it is in its original factory state, however, the memory is not sanitized. This action is relatively quick, typically taking less than one minute (the exact time depends on the number of files).

Key Sequence: **Utility > Memory Catalog > More > Security > Erase All > Confirm Erase**

Note that there is a similar but distinct function, as described below, that deletes all user files but does **not** reset the table editors:

Key Sequence: **Utility > Memory Catalog > More > Delete All Files**

Erase and Overwrite All

This function performs the same actions as **Erase All**, plus it clears and overwrites various memory types, as described below.

| Memory Type | Models | Description |
|-------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU Flash | All | User data is erased with flash chip block-erase commands. No overwrite is performed. During erasure, the system files are temporarily moved to main memory and are then restored to CPU Flash when erasure is complete. |
| Hard Disk | PSG E8267C, E8267D with Option 005 only | All addressable locations are overwritten once with a random character. |
| Flash Drive | PSG E8257N with Options 008 and 340 PSG E8257D, E8663D with Option 008 PSG E8267D with Option 009 | All addressable locations are overwritten once with a random character. |

| Model | Key Sequence |
|-------|------------------------------------------------------------------------------------------|
| PSG | Utility > Memory Catalog > More > Security > Erase and Overwrite All > Confirm Overwrite |

Memory Clearing, Sanitization and Removal Procedures

Erase and Sanitize All

Erase and Sanitize All

This function performs the same actions as **Erase All**, plus it clears and overwrites the various memory types, as described below.

| Memory Type | Models | Description |
|---------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SRAM (Battery- backed) | PSG | All addressable locations are overwritten once with random characters. |
| CPU Flash | PSG | User data is erased with flash chip block-erase commands. No overwrite is performed. During erasure, the system files are temporarily moved to main memory and are then restored to CPU Flash when erasure is complete. |
| Hard Disk | PSG E8267C, E8267D with Option 005 only | All addressable locations are overwritten with a random character three times. |
| Flash Drive | PSG E8257N with Options 008 and 340 PSG E8257D, E8663D with Option 008 PSG E8267D with Option 009 | All addressable locations are overwritten with a random character three times. |

NOTE The Erase and Sanitize All operation resets the instrument's LAN settings to their factory defaults. For more details, see "[LAN Setup](#)" on page 23.

Key Sequence: **Utility** > **Memory Catalog** > **More** > **Security** > **Erase and Sanitize All** > **Confirm Sanitize**

Clear Persistent State Information

Persistent State

The persistent state settings contain instrument setup information that can be toggled within predefined limits such as display intensity, contrast and the GPIB address. In vector models, the user IQ Cal is also saved in this area.

The following key sequences or SCPI commands can be used to clear the IQ Cal file and to set the operating states that are not affected by an instrument power-on, preset, or *RST command to their factory default:

Instrument Setup

| | | |
|--------------|------------|----------------------------------------------------------------------------------------------------|
| Key Sequence | PSG | Utility > Power On/Preset > Restore System Defaults > Confirm Restore Sys Defaults |
| SCPI Command | All Models | :SYSTem:PRESet:PERSiStent |

LAN Setup

The LAN setup (hostname, IP address, subnet mask, and default gateway) information is not modified by an instrument power-on or *RST command. This information can be changed or cleared by entering new data, or can be reset to the factory default settings by performing an **Erase and Sanitize All** operation.

User IQ Cal File (Vector Models Only)

When a user-defined IQ Calibration has been performed, the cal file data is removed by setting the cal file to default, as follows:

| | | |
|--------------|------------|---------------------------------------------------------------------|
| Key Sequence | All Models | I/Q > I/Q Calibration > Revert to Default Cal Settings |
| SCPI Command | PSG | :CAL:IQ:DEF |

Memory Clearing, Sanitization and Removal Procedures
Clear Persistent State Information

6 Using Secure Mode

NOTE The "Secure Mode" procedure described here is **not** available on PSG E8257N instruments (unless Option 340 is installed), or on E82x7C instruments with firmware revisions earlier than C.03.76.

Secure Mode automatically applies the selected **Security Level** action the next time the instrument's power is cycled. To activate Secure Mode, do the following:

| Step | Action | Notes |
|------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Open the Security Level menu | Press: Utility > Memory Catalog > More > Security > Security Level |
| 2 | Select the Security Level | Available options: <ul style="list-style-type: none"> • None – equivalent to a factory preset, no user information is lost • Erase – equivalent to Erase All • Overwrite – equivalent to Erase and Overwrite All • Sanitize – equivalent to Erase and Sanitize All |
| 3 | Activate Secure Mode | <p>CAUTION Once you activate secure mode (by pressing Confirm), you cannot deactivate or decrease the Security Level; the erasure actions for the selected Security Level execute at the next power cycle. Once you activate Secure Mode, you can only increase the Security Level until you cycle power. For example, you can change Erase to Overwrite, but not the reverse.</p> <p>After the power cycle, the Security Level selection remains the same, but the secure mode is not activated.</p> <p>For PSG, press: Utility > Memory Catalog > More > Security > Enter Secure Mode > Confirm</p> <p>The Enter Secure Mode softkey changes to Secure Mode Activated.</p> |

7 Using Secure Display

NOTE

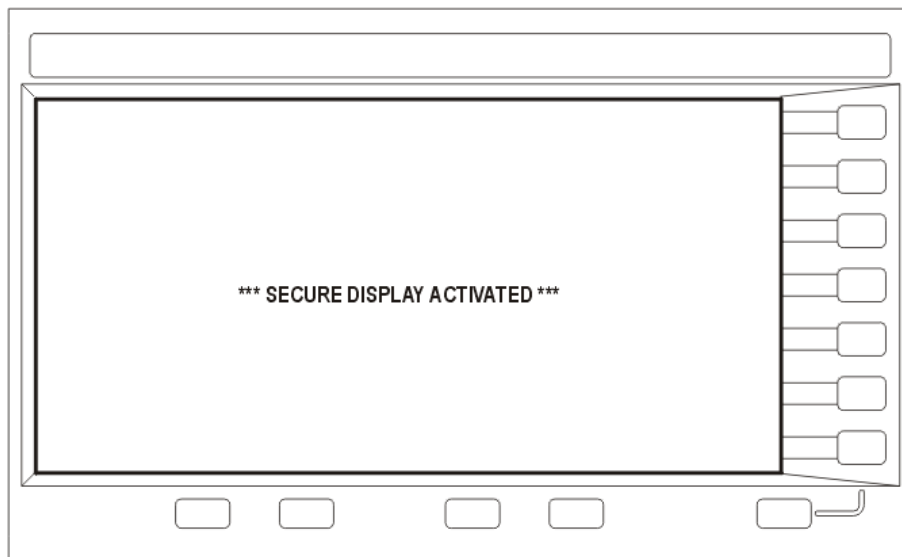
Front panel control of this feature is **not** available on PSG E8257N instruments (unless Option 340 is installed), or on E82x7C instruments with firmware revisions earlier than C.03.76. The feature can be activated remotely, however, using SCPI commands. Refer to the “System Commands” chapter of the instrument’s **SCPI Command Reference** for more information.

This function prevents unauthorized personnel from reading the instrument display or tampering with the current configuration via the front panel. When Secure Display is active, the display is blank, except for an advisory message, as shown in [Figure 7-1](#) below. All front panel keys are disabled.

To set Secure Display, press: **Utility > Display > More > Activate Secure Display > Confirm Secure Display**

Once Secure Display has been activated, the power must be cycled to re-enable the display and front panel keys.

Figure 7-1 Signal Generator Screen with Secure Display Activated



8 Security Issues for Certain Firmware Revisions

If your instrument currently has one of the firmware revisions listed in [Table 8-1](#), using certain security features may cause the deletion of some of the instrument's system files. Before using the security features, update your firmware to the appropriate revision listed in the "Update to" column of [Table 8-1](#).

Table 8-1 Firmware Revisions by Instrument Model

| Model | Affected firmware revisions | Update to |
|--------|------------------------------|------------------|
| E8257D | C.04.81, C.04.85, or C.04.92 | C.04.94 or later |
| E8267D | C.04.81, C.04.85, or C.04.92 | C.04.94 or later |
| E8663B | C.04.90 | C.04.93 or later |

Firmware Update Procedure

To obtain the latest firmware online, perform the following steps:

1. Access the instrument's web page: www.keysight.com/find/<model_number> (Example: www.keysight.com/find/E4438C).
2. Under the **Technical Support Tab**, select **Drivers and Software**, and follow the remaining links to the firmware upgrade page.

If web access is not available, Keysight can provide the new firmware on CD-ROM. To obtain the CD-ROM, contact Keysight or your Keysight representative, as described in ["Contacting Keysight Sales and Service Offices"](#) on [page 7](#).

Security Issues for Certain Firmware Revisions Error Messages and Secure Environments

Error Messages and Secure Environments

If you cannot upgrade the firmware prior to using the security features, Keysight will help you to recover from error messages that may appear after executing the security functions. The error messages indicate that instrument system files have been erased. The following list shows some possible error messages:

- 256, File name not found; /SYS/LICENSE.TXT
- 617, Configuration Error; License file not found. Creating empty one.
- A missing or damaged system file was encountered while trying to diagnose the system.

Even if these error messages appear, the security function has completely sanitized the instrument. If the instrument is located in a secure environment, it is safe to remove it. After removing it from the secure area, follow the process below to recover the lost system files.

Recovering Erased System Files

To recover the lost files, perform the following steps:

1. Obtain your instrument's model and serial number.
2. Contact Keysight and request a replacement license file.
The Keysight representative will ask for the model and serial number.
3. Update the firmware to the revision specified in the "Update to" column of [Table 8-1 on page 29](#).
 - a. If problems occur when upgrading the firmware, manually enter as many license keys as possible using **Utilities Instrument Info > Options Info > Auxiliary Software Options**
 - b. Upgrade the firmware again.
4. Open Internet Explorer and enter `http://<instrument IP address>/update`.
5. Locate **Recover Self-test System Files** and click **Execute**.
6. Locate **Overwrite LICENSE.TXT**, cut and paste the replacement license file (obtained in Step 2) into the text box, and click **Execute**.
7. Cycle the power on the instrument.
8. If configuration errors persist after completing the previous steps, contact Keysight again.

Security Issues for Certain Firmware Revisions
Recovering Erased System Files

9 Procedure for Declassifying a Faulty Instrument

If the instrument is not functional, and you are unable to use the security functions, you may physically remove the Processor board and Hard Disk or Solid State Drive (if installed).

For removal and replacement procedures, refer to the [Service Guide](#) for your instrument.

Once the Processor and Hard Disk assemblies have been removed, proceed as in [Table 9-1](#) below:

Table 9-1 Assembly Disposal Procedures

| Assembly | Procedure |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor (CPU) Board | <p>Either</p> <p>Discard the processor board and send the instrument to a repair facility. A new Processor Board will be installed, then the instrument will be repaired and calibrated. If the instrument is still under warranty, you will not be charged for the new Processor Board.</p> <p>or</p> <p>If you have another working instrument, install the Processor Board into that instrument and erase the memory. Then reinstall the Processor Board back into the non-working instrument and send it to a repair facility for repair and calibration. If you discover that the Processor Board does not function in the working instrument, discard the Processor Board and note that it caused the instrument failure on the repair order. If the instrument is still under warranty, you will not be charged for the new Processor Board.</p> |
| Hard Disk (E8267D Option 005, and E8267C Option 005 only) | <p>Either</p> <p>Discard the Hard Disk and send the instrument to a repair facility. Indicate on the repair order that the Hard Disk was removed and must be replaced. A new Hard Disk will be installed, then the instrument will be repaired and calibrated. If the instrument is still under warranty, you will not be charged for the new hard disk.</p> <p>or</p> <p>Keep the Hard Disk and send the instrument to a repair facility. When the instrument is returned, reinstall the Hard Disk.</p> |
| Solid State (Flash) Drive (E8257N Option 008, E8257D/E8663D Option 008, and E8267D Option 009 only) | <p>Remove the Solid State Drive from the instrument, then send the instrument to a repair facility. Indicate on the repair order that the Solid State Drive was removed and must be replaced. When the instrument is returned, reinstall the original Solid State Drive.</p> |

Procedure for Declassifying a Faulty Instrument

A: References

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DSS-cleared industries may request a copy of this document via email, by following the instructions at:
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3. **Greenliant NANDrive Security Erase Feature, Purge Command Specification**
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4. **AT Attachment 8 - ATA/ATAPI Command Set (ATA8-ACS)**
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5. **Installation Guide**
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10. **Security Features and Document of Volatility (MXG Series B, EXG Signal Generators)**
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