ENA Security Features

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Contacting Agilent Sales and Service Offices

Assistance with test and measurements needs and information on finding a local Agilent office is available on the internet at, *http://www.agilent.com/find/assist*. If you do not have access to the internet, please contact your field engineer.

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

Product Declassification and Security

Model Number(s): E5070B, E5071B
Product Name: RF Network Analyzer
Product Family Name: ENA

This document describes instrument security features and the steps to declassify an instrument through memory sanitization or removal. For additional information please go to **www.agilent.com/find/ad** and click on the security instrument tab.

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Terms and Definitions

Definitions:

Clearing – Clearing is the process of eradicating the data on media before reusing the media so that the data can no longer be retrieved using the standard interfaces on the instrument. Clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection.

Sanitization – Sanitization is the process of removing or eradicating stored data so that the data cannot be recovered using any known technology. 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. (The instrument is declassified) Agilent memory sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS). These requirements are outlined in the "Clearing and Sanitization Matrix" issued by the Cognizant Security Agency (CSA) and referenced in National Industrial Security Program Operating Manual (NISPOM) DoD 5220.22M ISL 01L-1 section 8-301.

Security Erase – Refers to either the clearing or sanitization features of Agilent instruments.

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 will include memory sanitization and or memory removal. Agilent declassification procedures are designed to meet the requirements specified by the DSS NISPOM security document (DoD 5220.22M chapter 8)

Instrument Memory

This section contains information on the types of memory available in your instrument. It explains the size of memory, how it is used, its location, volatility, and the sanitization procedure.

Summary of instrument memory - base instrument

Memory Type and Size	Writable During Normal Operation?	Data Retained When Powered Off?	Purpose/Contents	Data Input Method	Location in Instrument and Remarks	Sanitization Procedure
Main Memory (RAM) 512 MB	Yes	No	Windows Operating system memory	Operating system (not user)	Digital mother board	Cycle power
Video memory (RAM) 1 MB	Yes	No	Windows Operating system memory	Operating system (not user)	LCD interface card	Cycle power
Media Storage (Built-in Hard Disk) 10 GB, 20 GB or 40 GB (4 GB is user usable in all cases)	Yes	Yes	Windows Operating system boot device, factory correction data, and users file including saved traces data, settings, or images.	User-saved data	As an A27 assembly in the instrument, connected to Digital mother board.	Remove
Non-volatile memory (Flash) 1MB	No	Yes	Product serial number, options, correction constants, offsets, DAC values	Adjustment program performed by Agilent factory personnel or by calibration labs	Analog interface board	N/A

Memory Clearing, Sanitization and/or Removal Procedures

This section explains how to clear, sanitize, and remove memory from you instrument for all memory that can be written to during normal operation and for which the clearing and sanitization procedure is more than trivial such as rebooting your instrument.

<Memory type>

Description and purpose	Main Memory (RAM) 512 MB for Windows Operating system memory
Size	512 MB
Memory clearing	Power rebooting. This is a volatile memory.
Memory sanitization	Power rebooting. This is a volatile memory.
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

Description and purpose	Video memory (RAM) 1 MB for Windows Operating system memory
Size	1 MB
Memory clearing	Power rebooting. This is a volatile memory.
Memory sanitization	Power rebooting. This is a volatile memory.
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	None

Description and purpose	Media Storage (Built-in Hard Disk) for Windows Operating system boot device, factory correction data, and users file including saved traces data, settings, or images.
Size	10 GB, 20 GB, or 40 GB (4 GB usable in all cases) depending on the shipping time.
Memory clearing	N/A
Memory sanitization	N/A
Memory removal	Built-in hard disk is removable. Refer to the below note for the detail information for remove/replace/re-store the disk.
Write protecting	N/A
Memory validation	N/A
Remarks	

Hard Disk removal: Because it is virtually impossible to completely and selectively erase all user data on a hard drive without also destroying the operating system, the best method for maintaining security when the ENA must be removed from a secure area is to replace the hard drive with a "non-secure" hard drive, i.e. a drive that has never had any sensitive data placed on it. This allows the ENA to still function properly in non-secured areas or for use when servicing.

For Serial prefix JP1KK. MY421, MY422 and MY423 (E5070B and E5071B) user:
Before taking the following steps, the user must be applied the E5071BU-017 (REMOVABLE HARD DISK DRIVE UPGRADE KIT).

Hard disk remove. Step-by-step procedure
These steps should be followed to maintain security:

1. Purchase the appropriate spare hard drive (E5071BU Option 018). Clearly mark this hard drive as "Unsecured!". In the event the secure ENA needs to be used elsewhere, or, if it needs servicing:
2. Remove the secure hard drive (label it as secured if desired) and keep it in a secured area.
3. Remove the ENA from the secured area and install the "unsecured" hard drive.
4. Connect the external keyboard and mouse to the connectors on the ENA's rear panel. Then, turn on the ENA.
5. Press [Macro Setup] and press Load Project... in the softkey menu.
6. A dialog box appears for you to select the program to be loaded. Select RestoreSysCorFile.vba from the D:\Agilent\Service folder and then press the Open button.
7. Press [Macro Run]. The RestoreSysCorFile dialog box appears (Figure 18-3). Then click OK.

The ENA can now be used elsewhere or sent for servicing without fear of leaking any sensitive information.

Hard disk re-installation. Step-by-step procedure
When the ENA needs to be returned to the secured area, follow the steps listed below. Any servicing of the ENA may include the regeneration of correction constants.

1. Remove the unsecured hard drive, transport the ENA to the secured area, and replace the hard drive with the secured version
2. Connect the external keyboard and mouse to the connectors on the ENA's rear panel. Then, turn on the ENA.
3. Press [Macro Setup] and press Load Project... in the softkey menu.
4. A dialog box appears for you to select the program to be loaded. Select RestoreSysCorFile.vba from the D:\Agilent\Service folder and then press the Open button.
5. Press [Macro Run]. The RestoreSysCorFile dialog box appears (Figure 18-3). Then click OK.

Note: If your secured HDD does not have the “RestoreSysCorFile.vba” program on it, copy the program from the unsecured HDD.

Description and purpose	Non-volatile memory (Flash) for Product serial number, options, correction constants, offsets, DAC values
Size	1 MB
Memory clearing	Adjustment program performed by Agilent factory personnel or by calibration labs only.
Memory sanitization	Adjustment program performed by Agilent factory personnel or by calibration labs only.
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

User and Remote Interface Security Measures

Screen and Annotation Blanking

The frequency-blanking feature is available via firmware revision A.05.00 or higher. This function provides three security levels:
"OFF" during normal operation;
"Low" deletes frequency information from the display, but can be turned "OFF" by front panel operation; and
"High" deletes frequency information from the display, and cannot be turned "OFF" except rebooting.

The operator can perform the following keystrokes to control this frequency-blanking feature,
[System] > Service Menu > Security Level > None|Low|High,

or set the levels by the following SCPI command:
:SYSTem:SECurity:LEVel {NONE|LOW|HIGH}

Note:
Any SCPI/COM commands that read the frequency data are not influenced by this function. All commands can read frequency data regardless of the security level.
To update older revision firmware to revision A.05.00 or higher, download the new firmware from http://agilent.com/find/ena > Software & Firmware Downloads, then follow the instructions.

USB Mass Storage Device Security

Users can disable any USB-compatible external mass storage devices in order to ensure confidentiality. The following procedure shows how to disable a USB Mass Storage Device.

1. [Save/Recall] > Explorer….
2. Double-click "DisableUsbStorage.exe" from D"\Agilent\Service.
3. Click OK in the SUCCEEDED message window that appears. If any USB mass storage device is connected to the E5070B/E5071B under this condition, the Hardware Wizard will start, but the USB mass storage device will not work.

The following procedure shows how to enable a USB Mass Storage Device.

1. [Save/Recall] > Explorer….
2. Double-click "EnableUsbStorage.exe" from D"\Agilent\Service.
3. Click OK in the SUCCEEDED message window that appears.

Note: If you do not want any USB mass storage device to ever be enabled at any time, delete EnableUsbStorage.exe from the E5070B/E5071B after DisableUsbStorage.exe has been completed. These two programs will not be recovered automatically by applying the firmware update or other such action. Before deleting any of these programs, you should make a backup copy to a recording medium such as a floppy disk and store it separately.

Note: If the program fails to run, it is possible that you have not logged in as a user in the Administrators Group. When you want to execute any of the above programs, make sure to log in as a user in the Administrators Group.

For the users who have E507xBs with a serial prefix of MY423, MY422, MY421, or JP1KK

These units do not contain the necessary programs in their HDD at shipment.
Visit the following URL to obtain the program.
http://www.agilent.com/find/ena > E507xB > Software & Firmware downloads > ENA RF Network Analyzers Firmware Update > Other Issues: download USB program

Remote Access Interfaces

The user is responsible for providing security for the I/O ports for remote access by controlling physical access to the I/O ports. The I/O ports must be controlled because they provide access to all user settings, user states and the display image.
The I/O ports include RS-232, GPIB and LAN.
The LAN port provides the following services, which can be selectively disabled:
http
ftp
sockets
telnet
There is also a 'ping' service, which presently cannot be selectively disabled. The concern here might be that it is possible to discover IP addresses of connected instruments in order to query their setups over the net or break into the code.

Procedure for Declassifying a Faulty Instrument

To declassify an ENA if it needs to be removed from a secure area, follow the procedure for "Hard disk removal. Step-by-step procedure" on page 6.

When the ENA needs to be returned to the secure area, follow the procedure for "Hard disk re-installation. Step-by-step procedure" on page 6.