E4990A/E4991B Security Feature

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Contacting Keysight Sales and Service Offices

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

Note: In any correspondence or telephone conversations, refer to the signal generator 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.

Product Declassification and Security

Model Number(s): E4990A/E4991B
Product Name: Impedance Analyzer
Product Family Name: Impedance Analyzer

This document describes instrument security features and the steps to declassify an instrument through memory sanitization or removal.

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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. 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 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 – Security erase is a term that is used to refer to either the clearing or sanitization features of Keysight 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. Keysight 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	Yes	No	Windows Operating system memory	Operating system (not user defined)	CPU Module	Cycle power
Media Storage	Yes	Yes	Windows Operating system boot device, factory correction data, and users file including saved traces data, settings, or images.	User-Saved Data Operating system (not user defined)	SSD assembly	Remove
Memory for DSP module (RAM)	Yes	Yes	Data Processing for measurement	Measurement (not user defined)	A51 DSP Module	Cycle power
Non-volatile Memory (Flash)	No	Yes	Product serial number, Options System calibration data (not user defined calibration data)	Adjustment Program performed by Keysight factory personnel or by calibration labs	A51 DSP Module	N/A (The data is not stored by user under normal operation.)
Non-volatile Memory	No	Yes	Module serial number, Revision number	Calibration at factory	E4990A: A21, A5, A7 and A8 Module E4991B: A21.A9 and A10 Module	N/A (The data is not stored by user under normal operation.)

Memory Clearing, Sanitization and/or Removal Procedures

This section explains how to clear, sanitize, and remove memory from your instrument for all memory types.

<Memory type>

Description and purpose	Main Memory for Windows Operating system memory
Size	4 GB
Memory clearing	Power rebooting. This is a volatile memory.
Memory sanitization	Power rebooting. This is a volatile memory.
Memory removal	This memory cannot be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

Description and purpose	Media Storage (Solid State Drive)
Size	80 GB
Memory clearing	N/A
Memory sanitization	N/A
Memory removal	The storage drive needs to be removed and replaced with a new or unused hard disk drive part as per the service manual.
Write protecting	N/A
Memory validation	N/A
Remarks	

Description and purpose	Memory for DSP (RAM) for A51 DSP Module
Size	1.8M bit
Memory clearing	Power rebooting. This is a volatile memory.
Memory sanitization	Power rebooting. This is a volatile memory.
Memory removal	This memory cannot be removed without damaging the instrument.
Write protecting	N/A
Memory validation	N/A
Remarks	

Description and purpose	Non-volatile memory (Flash) for A51 DSP Module. This memory is for product serial number.
Size	64 MB
Memory clearing	N/A
Memory sanitization	N/A
Memory removal	The A51 DSM module needs to be removed and replaced with a new or unused module as per the service manual.
Write protecting	N/A
Memory validation	N/A
Remarks	

Description and purpose	Non-volatile memory (EEPROM) for A11, A5, A7 and A8 Modules. These memories are for board serial number, board revision number. (Any user data is not stored in these memories)
Size	256 M Bit

Memory clearing	N/A
Memory sanitization	N/A
Memory removal	E4990A (A11, A5, A7 and A8) and E4991B (A21.A9 and A10) modules need to be removed and replaced with a new or unused module as per the service manual.
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. 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.

USB Mass Storage Device Security

Refer to the following site.
http://ena.support.keysight.com/e4990a/manuals/webhelp/eng/index.htm#using_windows/enablingdisabling_usb_storage.htm

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 USB, GPIB and LAN.
The LAN port provides the following services, which can be selectively disabled:

a) http
b) ftp
c) sockets
d) telnet

There is also a 'ping' service, which presently cannot be selectively disabled. The concern 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.