Keysight AC6800 Series

This manual provides the memory declassification and sanitation procedures for the following instruments:

Keysight AC6801A, AC6802A, AC 6803A, AC6804A
Keysight AC6801B, AC6802B, AC 6803B, AC6804B

Instrument Security Information Manual

KEYSIGHT TECHNOLOGIES

Notices

Trademark Acknowledgements

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Warranty

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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.

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Contacting Keysight Sales and Service Offices

Assistance with test and measurement needs, and information on finding a local Keysight office, is 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 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.

Products Covered by this Document

Product Family Name	Product Names	Model Numbers
AC6800 Series	AC Source	AC6801A, AC6802A, AC 6803A, AC6804A AC6801B, AC6802B, AC 6803B, AC6804B

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

For additional information, go to:

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

NOTE 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.

Security Terms and Definitions

Term	Definition
Clearing	As defined in Section 8-301a **of** DoD **5220.22-M**, 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.
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**, Chapter 8.
Sanitization	As defined in Section 8-301b of **DoD 5220.22-M**, 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 specified in the "Clearing and Sanitization Matrix" in Section 5.2.5.5.5 of the **Error! Reference source not found.**.
Secure Erase	Secure Erase is a term that is used to refer to either the clearing or sanitization features of Keysight instruments.

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.

Table 1: Summary of instrument memory

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
On-Chip RAM 64 Kbytes	Yes	No	Used for hardware processing	When the instrument boots up, the firmware automatically uploads the DSP program, which is embedded in the Main Flash memory as a part of instrument firmware data.	CPU board U29 (TMS320VC5502) (embedded in the DSP chip)	Power cycle
Flash 1 Mbyte	Yes	Yes	Operating system, instrument firmware	Factory install, firmware update	CPU board U4 (STM32F427) (embedded in the DSP chip)	N/A contains no application-specific information
SRAM 256 Kbytes	Yes	No	Temporary execution data	By operating system or instrument firmware	CPU board U4 (STM32F427) (embedded in the DSP chip)	Power cycle
EEPROM 1 Kbyte	Yes	Yes	Model Info (1st 256-byte block) Calibration Info (2nd 256-byte block) (3rd & 4th blocks are unused)	Factory Install, or by service personnel	CPU board U9 (BR24G08FVM)	N/A contains no application-specific information

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
EEPROM 1 Kbyte	Yes	Yes	Recall Panel Info (1st~3rd 256-byte blocks) User Preference Info (4th 256-byte block)	User-saved data (regardless of implicit or explicit SAVE operations	CPU board U10 (BR24G08FVM)	See "User EEPROM #1 Sanitization"

Summary of Memory Declassification Procedures

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

NOTE Read this entire document before using any sanitization procedure. Failure to do so may necessitate returning the instrument to an Authorized Keysight Service Center for firmware downloads and recalibration.

Table 2: User EEPROM #1 Clearing and Sanitization

Description and purpose	This is the user's partition of internal storage that uses an EEPROM device. It contains user preferences and instrument panel settings.
Size	1 Kbyte
Memory clearing	No.
Memory sanitization	On front panel, press **System > Admin > Sanitize**. From a remote interface, send: SYSTem:SECuriry:IMMediate This procedure clears all instrument memory except for instrument firmware, model info, and calibration info. It then automatically reboots the instrument. This routine writes all zeros to the entire EEPROM memory.

User and Remote Interface Security Measures

Administrative Password

To reset an instrument's administrative password, follow the procedure in the AC6800A Operating and Service Guide. This involves removing power and other connections to the instrument, removing the instrument cover (requires tools), changing a switch position, and cycling power.

The password never expires.

This instrument does not track or report invalid password attempts, nor does it lock-out password entry following a number of invalid password entries.

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.

1. The LAN port provides the following services, which can be selectively disabled:
    a. VXI-11
    b. Sockets
    c. Telnet
    d. Web instrument control
    e. mDNS
    f. HiSLIP

To disable LAN services:

On the front panel press [Menu] > System > LAN > Modify > Services.

To disable USB or GPIB:

On the front panel press [Menu] > System > Admin > IO.

Controlling the front panel display

The front panel display can be turned off from the remote interface by sending the command:

DISPlay OFF

The display is enabled when power is cycled.

Calibration regulation

The instrument requires a password to allow calibration. The instrument's calibration count will increment each time calibration data is saved.

Firmware update regulation

The user is allowed to update the instrument firmware. Follow the procedure in the AC6800A Operating and Service Guide. Depending on the combination of old and new firmware versions, user preference info and recall panel info may or may not be erased (not strictly sanitized), if the new layout of user's data is different than the old version.

The instrument may be configured to require a password to allow updating the firmware.

On the front panel press [Menu] > System > Admin > Login and log in with the administrative password.

Navigate to System > Admin > Update and check the box:

- ☐ Must log in as admin to allow firmware update

The instrument’s calibration count will increment with each successful update.

Procedure for Declassifying a Faulty Instrument

If the instrument is not functioning and you are unable to use the security functions, you must physically remove the processor board from the insstrument. Refer to the operating and service guide for disassembly instructions.

Once the processor board is removed:

1. Destroy the CPU board and send the instrument to a repair facility

   or

2. Unsolder the two EEPROMs (U9 and U10) from the CPU board and destroy these chips. Send the instrument and the removed CPU board to a repair facility

References

1. **DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)"**

United States Department of Defense. Revised February 28, 2006.

May be downloaded in Acrobat (PDF) format from:

http://www.dss.mil/isp/fac_clear/download_nispom.html