# Agilent M9703A AXIe Digitizer

## Product Security Document

**Agilent Technologies**

# Notices

## Manual Part Number

**M9703-90004**

## Edition

**Edition 1.0, January 2012**
Agilent Technologies, Inc.

## Sales and Technical Support

To contact Agilent for sales and technical support, refer to the "support" links on the following Agilent web resources:

- [www.agilent.com/find/Digitizers](http://www.agilent.com/find/Digitizers)

- [www.agilent.com/find/assist](http://www.agilent.com/find/assist)
  (worldwide contact information for repair and service)

## Warranty

# Product Declassification and Security

The following products / families are covered by this document:

## Model Number(s):

M9703A

## Product Name:

AXIe Digitizer

# Table of Contents

# Introduction

This document details the internal memory locations of the instrument and describes instrument security features and the steps to declassify an instrument through memory sanitization or removal. For additional information on a particular product, the Agilent Instrument Security Database may be accessed here: www.agilent.com/find/security
For general information the Agilent Aerospace and Defense web page may be found here: www.agilent.com/find/ad

# Terms and 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. As defined in Section 8-301a of DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)", |
| 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. Agilent declassification procedures are designed to meet the requirements specified in DoD 5220.22-M (NISPOM), Chapter 8. |
| 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. |
| Secure Erase | Secure Erase is a term that is used to refer to either the clearing or sanitization features of Agilent 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.

## Instrument memory locations - Base Instrument

| Description | PCIe configuration memory |
| --- | --- |
| Purpose / Contents | Options, Module capability, Serial number |
| Size / Technology | 4 kb EEPROM |
| Location in instrument | Base card |
| Written by | Factory only |
| User accessible? | No |
| Sanitization method | None |
| Non-volatile? | Yes |

| Description | Parameter storage |
| --- | --- |
| Purpose / Contents | Factory calibration/configuration data, look-up table. |
| Size / Technology | 1 Mb EEPROM |
| Location in instrument | Base card |
| Written by | Factory only |
| User accessible? | No |
| Sanitization method | None |
| Non-volatile? | Yes |

| Description | PCIe Switch configuration memory |
| --- | --- |
| Purpose / Contents | PCIe switch configuration |
| Size / Technology | 256 kb EEPROM |
| Location in instrument | Base board, on PCIe switch IC |
| Written by | Factory only |
| User accessible? | No |
| Sanitization method | None |
| Non-volatile? | Yes |

| Description | FRU ID memory |
| --- | --- |
| Purpose / Contents | AXIe product FRU ID |
| Size / Technology | 256 kb |
| Location in instrument | Base card |
| Written by | Factory only |
| User accessible? | No |
| Sanitization method | None |
| Non-volatile? | Yes |

| Description | Front End parameter memory |
| --- | --- |
| Purpose / Contents | Channel parameters |
| Size / Technology | 4x 1 Mb EEPROM's |
| Location in instrument | On FE mezzanine cards |
| Written by | Factory only |
| User accessible? | No |
| Sanitization method | None |
| Non-volatile? | Yes |
| Remarks | One per mezzanine card (4x) |

| Description | Control FPGA firmware memory |
| --- | --- |
| Purpose / Contents | Instrument operation, Control FPGA firmware |
| Size / Technology | 128 Mb Flash |
| Location in instrument | Base card |
| Written by | Factory, Support, or User firmware upgrade via SFP application. |
| User accessible? | No |
| Sanitization method | None |
| Non-volatile? | Yes |

| Description | DPU FPGA firmware memory |
| --- | --- |
| Purpose / Contents | Instrument operation, DPU (channel) FPGA firmware |
| Size / Technology | 4 Gb NAND Flash |
| Location in instrument | Base card |
| Written by | Factory, User via SFP application. |
| User accessible? | Yes |
| Sanitization method | Erase / Overwrite data (See "Memory Clearing, Sanitization and/or Removal Procedures" on page 9) |
| Non-volatile? | Yes |
| Remarks | Contains standard DPU firmware and/or User generated custom firmware |

| Description | Measurement data memory |
| --- | --- |
| Purpose / Contents | Measurment data acquired during operation |
| Size / Technology | 4x 1 Gb DRAM's |
| Location in instrument | Base card |
| Written by | Acquisition operation |
| User accessible? | Yes |
| Sanitization method | Power removal |
| Non-volatile? | No |
| Remarks | 1 Gb per mezzanine card (4x). |

| Description | Measurement data buffer |
| --- | --- |
| Purpose / Contents | Mesururement data buffer used during operation |
| Size / Technology | 4x 36 Mb SRAM's |
| Location in instrument | Base card |
| Written by | Acquisition operation |
| User accessible? | Yes |
| Sanitization method | Power removal |
| Non-volatile? | No |
| Remarks | 36 Mb per mezzanine card (4x). |

# Memory Clearing, Sanitization and/or Removal Procedures

This section explains how to clear, sanitize, and remove memory from you instrument for any non-volatile memory location that can be written to during normal operation.

## Volatile Memories

The volatile memory in the instrument does not retain any information when power is removed from the instrument. Therefore sanitization may be achieved by removal of the instrument power.

## Non User-accessible Memories

Since these locations may only be programmed by Agilent Technologies in the factory, they cannot contain any user or acquisition data. It is therefore not necessary to perform any sanitization on these areas.

## Non-volatile, User-accessible Memories

| Memory | DPU FPGA firmware memory |
|---|---|
| Description / Purpose | Instrument operation, DPU (channel) FPGA firmware |
| Size | 4 Gb NAND Flash |
| Clearing procedure | Using the Agilent SFP application, from the 'File' menu select the 'Load from or Save to FPGA/CPLD/EEPROM' function.<br>A window will open showing the accessible memory devices on the instrument.<br>The user accessible memory areas are:<br>• FPGADevice 1 to 4<br>  • FlashConfig 1 to 7<br>(28 locations in total)<br>• Flash Storage<br>  • UserZone 1<br>  • UserZone 2<br>  • UserZone 3<br>  • UserZone 4<br>Select each of the above in turn and press the 'Erase' button on the right hand panel.<br>A confirmation dialog will appear confirming the operation. |
| Sanitization procedure | There is currently no automated method of providing sanitization of the memory areas.<br>However the user may implement any required mentod by making sucessive write operations to each location.<br>Using the method detailed above for clearing, but instead of performing an erase, write to each area in turn with the required data patterns. |
| Memory removal | This memory can not be removed without damaging the instrument |
| Write protecting | Not applicable |

# Procedure for Declassification of a Faulty Instrument

If the instrument is malfunctioning to the degree that it is not possible to communicate with it via the SFP application it will not be possible to use the clearing or sanitization procedures detailed. It is also not possible to remove the user-accessible memory integrated circuits without causing damage to the instrument.

Therefore declassification of a faulty instrument will require secure destruction of that instrument.

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

**2**  **ODAA Process Guide for C&A of Classified Systems under NISPOM**
Defense Security Service. DSS-cleared industries may request a copy of this document via email, by following the instructions at: http://www.dss.mil/isp/odaa/request.html
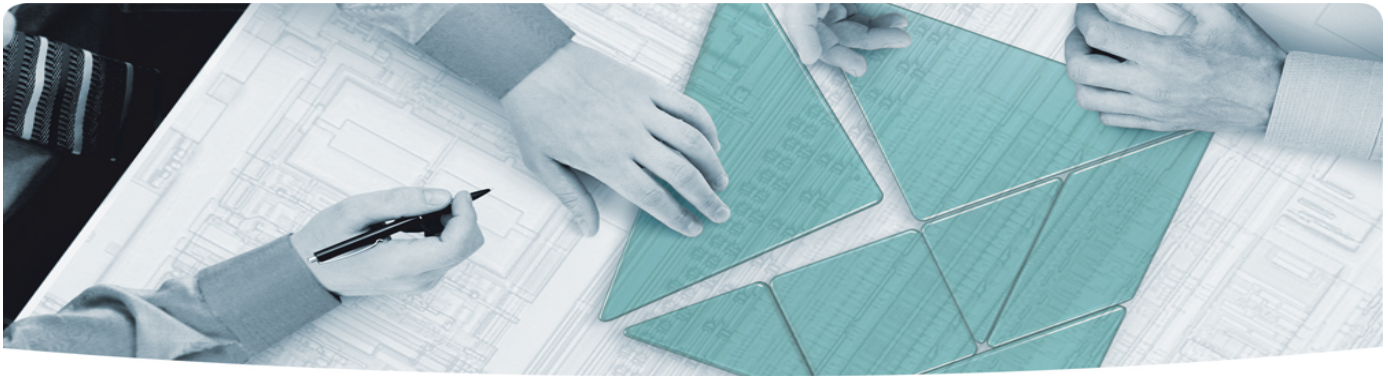
## The Modular Tangram

The four-sided geometric symbol that appears in Agilent modular product literature is called a tangram. The goal of this seven-piece puzzle is to create shapes—from simple to complex. As with a tangram, the possibilities may seem infinite as you begin to create a new test system. With a set of clearly defined elements—hardware, software—Agilent can help you create the system you need, from simple to complex.

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**PXI**    www.pxisa.org

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