Keysight Technologies
Declassification of the M924XA Modular Oscilloscopes
DTD Security Features

White Paper

Product declassification and security
Model number(s):
M9241A, M9242A, M9243A
Product Declassification and Security

<table>
<thead>
<tr>
<th>Model number</th>
<th>Bandwidth</th>
<th>Sample rate</th>
<th>Memory</th>
<th>Analog channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>M9241A</td>
<td>200 MHz</td>
<td>5 GSa/s</td>
<td>4 Mpts</td>
<td>2</td>
</tr>
<tr>
<td>M9242A</td>
<td>500 MHz</td>
<td>5 GSa/s</td>
<td>4 Mpts</td>
<td>2</td>
</tr>
<tr>
<td>M9243A</td>
<td>1 GHz</td>
<td>5 GSa/s</td>
<td>4 Mpts</td>
<td>2</td>
</tr>
</tbody>
</table>

Product name: Oscilloscope
Product family name: M924XA Modular Oscilloscope
Alternate product numbers: N/A

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

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) Keysight Technologies, Inc. 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.

<table>
<thead>
<tr>
<th>Memory type and size</th>
<th>Writable during normal operation?</th>
<th>Data retained when powered off?</th>
<th>Purpose/contents</th>
<th>Data input method</th>
<th>Location in instrument and remarks</th>
<th>Sanitization procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition memory 4 MB</td>
<td>Yes</td>
<td>No</td>
<td>Scope channel acquisition memory for analog channels</td>
<td>Input signal data (ADC output)</td>
<td>System ASIC</td>
<td>Cycle power</td>
</tr>
<tr>
<td>Display memory</td>
<td>Yes</td>
<td>No</td>
<td>Waveform area display/screen memory</td>
<td>Input signal data and system software</td>
<td>System ASIC</td>
<td>Cycle power</td>
</tr>
<tr>
<td>DDR2</td>
<td>Yes</td>
<td>No</td>
<td>Holds waveform area GUI display planes and caches</td>
<td>Input signal data</td>
<td>System ASIC</td>
<td>Cycle power</td>
</tr>
<tr>
<td>FPGA DDR 64 MB</td>
<td>Yes</td>
<td>No</td>
<td>FPGA intermediate (scratchpad) RAM</td>
<td>Input signal data (ADC output)</td>
<td>Carrier board</td>
<td>Cycle power</td>
</tr>
<tr>
<td>FPGA configuration flash 8 MB No</td>
<td>Yes</td>
<td>No</td>
<td>Scope system FPGA configuration</td>
<td>Firmware upgrade or Update Module Firmware utility</td>
<td>Carrier board</td>
<td>No user data is stored</td>
</tr>
<tr>
<td>MCU program code memory for AutoProbe/LEDs 48 KB No</td>
<td>Yes</td>
<td>No</td>
<td>Program code for running AutoProbe interface and controlling LEDs</td>
<td>Factory programming and firmware update</td>
<td>Carrier board and inside R5F212A MCU</td>
<td>No user data is stored</td>
</tr>
<tr>
<td>MCU program data memory for AutoProbe/LEDs (2.5 KB) Yes</td>
<td>No</td>
<td>No</td>
<td>MCU intermediate RAM</td>
<td>Probe ID and current operating mode</td>
<td>Carrier board and inside R5F212A MCU</td>
<td>No user data is stored</td>
</tr>
<tr>
<td>NOR flash 32 MB No</td>
<td>Yes</td>
<td>No</td>
<td>Calibration data Model and serial numbers License data</td>
<td>Instrument calibration SCPI command License installations</td>
<td>Carrier board</td>
<td>No user data is stored</td>
</tr>
</tbody>
</table>
Memory Clearing, Sanitization, and/or Removal Procedures

M924XA oscilloscope drivers

The M924XA oscilloscope driver installs the IVI-C, IVI-COM, and MATLAB driver components, as well as the soft front panel and kernel device driver on your controller.

<table>
<thead>
<tr>
<th>Memory type: Controller hard drive</th>
<th>Memory size: Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory function: Stores device drivers, example programs, example waveforms, help system, user documentation, module calibration data, user settings, masks, labels, reference waveforms, and license data.</td>
<td></td>
</tr>
<tr>
<td>User modifiable? Yes</td>
<td>Volatile? No</td>
</tr>
<tr>
<td>Memory erase processes: To uninstall the M924XA oscilloscope instrument driver from the controller, perform the relevant procedure below.</td>
<td></td>
</tr>
</tbody>
</table>

Windows 7:
1. Select Start > Control Panel > Programs and Features
2. Select Keysight M924X InfiniiVision Oscilloscope
3. Select Uninstall

To remote customer-specific instrument data:
Navigate to C:\ProgramData\Keysight\<Model#> and C:\Users\<account name>\keysight\InfiniiVision and delete the contents. Where <Module#> is:
- M9241A
- M9242A
- M9243A

To clear all information from the controller used with M924XA oscilloscope, follow the memory erase procedure for the controller as recommended by the manufacturer.
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