Declassification of the InfiniiVision 2000, 3000, and 4000 X-Series Oscilloscopes**

DTD Security Features

Agilent Technologies

InfiniiVison 2000 X-Series, 3000 X-Series, and 4000 X-Series Oscilloscopes
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Product Declassification and Security

Model number	Bandwidth	Sample rate	Memory	Analog Channels	Digital Channels
DSOX2002A	70 MHz	2 GSa/s	100 Kpts	2	–
MSOX2002A	70 MHz	2 GSa/s	100 Kpts	2	8
DSOX2004A	70 MHz	2 GSa/s	100 Kpts	4	–
MSOX2004A	70 MHz	2 GSa/s	100 Kpts	4	8
DSOX2012A	100 MHz	2 GSa/s	100 Kpts	2	–
MSOX2012A	100 MHz	2 GSa/s	100 Kpts	2	8
DSOX2014A	100 MHz	2 GSa/s	100 Kpts	4	–
MSOX2014A	100 MHz	2 GSa/s	100 Kpts	4	8
DSOX2022A	200 MHz	2 GSa/s	100 Kpts	2	–
MSOX2022A	200 MHz	2 GSa/s	100 Kpts	2	8
DSOX2024A	200 MHz	2 GSa/s	100 Kpts	4	–
MSOX2024A	200 MHz	2 GSa/s	100 Kpts	4	8
DSOX3012A	100 MHz	2 GSa/s	2 Mpts	2	–
MSOX3012A	100 MHz	2 GSa/s	2 Mpts	2	16
DSOX3014A	100 MHz	2 GSa/s	2 Mpts	4	–
MSOX3014A	100 MHz	2 GSa/s	2 Mpts	4	16
DSOX3024A	200 MHz	2 GSa/s	2 Mpts	4	–
MSOX3024A	200 MHz	2 GSa/s	2 Mpts	4	16
DSOX3032A	350 MHz	2 GSa/s	2 Mpts	2	–
MSOX3032A	350 MHz	2 GSa/s	2 Mpts	2	16
DSOX3034A	350 MHz	2 GSa/s	2 Mpts	4	–
MSOX3034A	350 MHz	2 GSa/s	2 Mpts	4	16
DSOX3052A	500 MHz	2 GSa/s	2 Mpts	2	–
MSOX3052A	500 MHz	2 GSa/s	2 Mpts	2	16
DSOX3054A	500 MHZ	2 GSa/s	2 Mpts	4	–
MSOX3054A	500 MHz	2 GSa/s	2 Mpts	4	16

Product Name: X-Series Oscilloscope
Product Family Name: InfiniiVision 2000 X-Series and 3000 X-Series 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

Product Declassification and Security

Model number	Bandwidth	Sample rate	Memory	Analog Channels	Digital Channels
DSOX4022A	200 MHz	5 GSa/s	4 Mpts	2	–
MSOX4022A	200 MHz	5 GSa/s	4 Mpts	2	16
DSOX4024A	200 MHz	5 GSa/s	4 Mpts	4	–
MSOX4024A	200 MHz	5 GSa/s	4 Mpts	4	16
DSOX4032A	350 MHz	5 GSa/s	4 Mpts	2	–
MSOX4032A	350 MHz	5 GSa/s	4 Mpts	2	16
DSOX4034A	350 MHz	5 GSa/s	4 Mpts	4	–
MSOX4034A	350 MHz	5 GSa/s	4 Mpts	4	16
DSOX4052A	500 MHz	5 GSa/s	4 Mpts	2	–
MSOX4052A	500 MHz	5 GSa/s	4 Mpts	2	16
DSOX4054A	500 MHz	5 GSa/s	4 Mpts	4	–
MSOX4054A	500 MHz	5 GSa/s	4 Mpts	4	16
DSOX4104A	1 GHz	5 GSa/s	4 Mpts	4	–
MSOX4104A	1 GHz	5 GSa/s	4 Mpts	4	16
DSOX4154A	1.5 GHz	5 GSa/s	4 Mpts	4	–
MSOX4154A	1.5 GHz	5 GSa/s	4 Mpts	4	16

Product Name: X-Series Oscilloscope
Product Family Name: InfiniiVision 4000 X-Series 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

Product Declassification and Security

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 – Security erase is a term that is used to refer 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)

Product Declassification and Security

Product Name: 2000 X-Series, 3000 X-Series, and 4000 X-Series
Model Number(s): DSOX2XXXA, MSOX2XXXA, DSOX3XXXA, MSOX3XXXA, DSOX4XXXA, MSOX4XXXA

Instrument Memory [2000 X-Series, 3000 X-Series and 4000 X-Series Oscilloscope]

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 (2000 X-, 3000 X-, and 4000 X-Series)

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
Acquisition Memory 4/8 MB	Yes	No	Scope channel acquisition memory for analog and digital channels.	Input signal data (ADC output).	System ASIC(s).	Cycle Power
Display Memory 1MB	Yes	No	Display/screen memory	Input signal data and system software.	System ASIC(s).	Cycle Power
DDR2	Yes	No	Holds GUI display planes and caches	Input signal data	System ASIC (S)	Cycle power
Main Memory 128 MB (2000/3000X) 256 MB (4000X)	Yes	No	CPU system firmware and variables memory	Operating system	Main system board in CPU area	Cycle power
NAND Flash 128 MB (2000/3000X) 256 MB (4000X)	Yes	Yes	See NAND Flash Organization Table	See NAND Flash Organization Table	Main system board in CPU area	Secure Erase
NOR Flash 512K	No	Yes	Boot loader and MAC address	Firmware upgrades	Main system board in CPU area	No user data is stored

NAND Flash Organization Table

Partition size	Writable during normal operation?	Data retained when powered off?	Purpose/contents	Data input method	Sanitization procedure
Public FAT File System 40 MB (2000/3000X) 64 MB (4000X)	Yes	Yes	User settings, masks, labels, and reference waveforms	Firmware operations	Secure Erase
Internal FAT File System 40 MB (2000/3000X) 124 MB (4000X)	No	Yes	System software, calibration data, license data, and FPGA firmware backup	Firmware upgrades, license installations, and calibration	No user data is stored
Windows CE Image 42 MB (2000/3000X) 64 MB (4000X)	No	Yes	Windows CE kernel image loaded by boot loader	Firmware upgrade	No user data is stored
Software Database 2.5 MB	No	Yes	Model and serial numbers (not user modifiable), factory sealed state (not user modifiable), and Autoscale Disable state (user modifiable)	Firmware operation	
FPGA Firmware 1.1 MB	No	Yes	FPGA Firmware loaded into the FPGA by boot loader	Firmware upgrade	No user data is stored
Unused 2.3 MB (2000/3000X) 0.4 MB (4000X)					

Memory Clearing, Sanitization, and/or Removal Procedures for 2000 X-Series and 3000 X-Series

Table: NAND Flash

Description and purpose	Main persistent memory used to store system firmware, calibration data, and user data.
Size	128 MB (2000/3000X), 256 MB (4000X)
Memory clearing	User data via Secure Erase
Memory sanitization	User data via Secure Erase
Memory removal	No
Write protecting	No
Memory validation	No
Remarks	See NAND Flash Organization Table

Description and purpose	Secondary persistent memory used to store boot loaders and MAC address.
Size	512 KB
Memory clearing	Not necessary
Memory sanitization	Not necessary
Memory removal	Not necessary
Write protecting	The memory is not accessible
Memory validation	Not necessary
Remarks	N/A

Description and purpose	Used to store setups, masks, and reference waveforms when the oscilloscope is powered on.
Size	128 MB (2000/3000X), 256 MB (4000X)
Memory clearing	Memory is cleared upon power down
Memory sanitization	Not necessary
Memory removal	Not necessary
Write protecting	The memory is not accessible
Memory validation	Not necessary
Remarks	N/A

User and Remote Interface Security Measures

USB Mass Storage Device Security

The user is responsible for providing security for the I/O ports for remote access by controlling physical access to the USB ports.

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. Instrument should only be connected to a secure network or left unconnected. The I/O ports must be controlled because they provide access to all user settings, user states and the display images.

The I/O ports include USB device, GPIB (2000 X- and 3000 X-Series only) and LAN.

Procedure for Declassifying a Faulty Instrument

If the instrument is not functioning, proceed with one of the following options:

1. Insert USB mass storage device with the latest firmware version loaded in the USB's root directory and attempt to recover the instrument to full functionality. If this works, skip step 2.

2. Power the oscilloscope off and send the oscilloscope to your local Agilent service center for repair if option 1 fails.