Tektronix®

TSO820 & Modules
Declassification and Security Instructions

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from their instrument.

These products have data storage (memory) devices and data output devices (USB ports). These instructions tell how to clear or sanitize the memory devices and disable the data output devices. The instructions also tell how to declassify an instrument that is not functioning.

Reference

The procedures in this document are written to meet the requirements specified in:

- NISPOM, DoD 5220.22–M, Chapter 8
- ISFO Process Manual for Certification & Accreditation of Classified Systems under NISPOM

Products

This document covers the following Tektronix products:

- TSO820
- TSO8C17
- TSO8C18

Terms

The following terms may be used in this document:

- **Clear.** This removes data on media / memory. All reusable memory is cleared to deny access to previously stored information using standard means of access.
- **Erase.** This is equivalent to clear.
- **Instrument Declassification.** A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment. Declassification procedures involve memory sanitization or memory removal and sometimes both.
- **Media storage/data export.** This refers to any of several devices that can be used to store or export data from the instrument, such as a USB port.
- **Power off.** Some instruments have a “Standby” mode, in which power is still supplied to the instrument. For the purpose of clearing data, putting the instrument in Standby mode does not qualify as powering off. For these products, you will need to either press a rear-panel OFF switch or remove the power source from the instrument.
- **Remove.** This is a physical means to clear the data by removing the memory device from the instrument. Instructions are available in the product service manual.
- **Sanitize.** This eradicates the data from media/memory so that the data cannot be recovered by other means or technology. This is typically used when the device is moved (temporarily or permanently) from a secured area to a non-secured area.
- **User Accessible.** User is able to directly retrieve the memory device contents.
- **User-modifiable.** The user can write to the memory device during normal instrument operation, using the instrument interface or remote control.
- **Nonvolatile memory.** Data is retained when the instrument is powered off.
- **Volatile memory.** Data is lost when the instrument is powered off.

Memory devices

The following tables and procedures identify volatile and non-volatile memory devices in the instrument TSO820 and TSO8C17/C18 modules and how to clear and/or sanitize them.

Terms

The following terms are used in the tables in this section:

- **User data**. Describes the type of information stored in the device. Refers to waveforms or other measurement data representing signals connected to the instrument by users.
- **User settings**. Describes the type of information stored in the device. Refers to instrument settings that can be changed by the user.
- **None**. Describes the type of information stored in the device. It means that neither user data or user settings are stored in the device.
- **Directly**. Describes how data is modified. It means that the user can modify the data.
- **Indirectly**. Describes how data is modified. It means that the instrument system resources modify the data and that the user cannot modify the data.

Volatile memory devices

Table 1: Volatile memory devices

Type & min. size	Function	Type of user info stored	Backed up by battery?	Method of modification	Data input method	Location	User accessible	To clear / sanitize
SOM module – Acquisition board (878-1629-XX)								
DDR4 (2 GB, x32)	ARM system memory, FPGA code, active acquisition data	User data, user settings, ARM program	No	Indirectly	Firmware operations	U24, U25	No	Remove power for 60 seconds
FPGA	ARM CPU, FPGA fabric	None	No	Indirectly	Firmware operations	U1	No	Remove power for 60 seconds
PMU - Acquisition board (878-1629-XX)								
SRAM (4 KB)	CPU system memory	None	No	Indirectly	Firmware only	U802	No	Remove power for 60 seconds
Time Base board (878-1519-XX)								
FPGA	FPGA fabric	None	No	Indirectly	Firmware operations	U2050	No	Remove power for 60 seconds

Nonvolatile memory devices

Table 2: Nonvolatile memory devices

Type & min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear / sanitize
SOM module – Acquisition board (878-1629-XX)							
Dual NOR flash (64 MB)	Calibration and compensation data	None	Indirectly	Firmware operations	U2, U3	No	Remove Acquisition board and send to Tektronix
I2C EEPROM (2 KB)	Calibration and compensation data	None	Indirectly	Firmware operations	U8	No	Remove Acquisition board and send to Tektronix
eMMC (8 GB, x8)	ARM system memory	None	Indirectly	Firmware operations	U4	No	Remove Acquisition board and send to Tektronix
PMU - Acquisition board (878-1629-XX)							
Flash (64 KB)	CPU program memory	None	Programming tool	Programming tool	U802	No	Remove Acquisition board and send to Tektronix
EEPROM (256 B)	CPU system memory	None	Indirectly	Firmware only	U802	No	Remove Acquisition board and send to Tektronix
Acquisition board (878-1629-XX)							
I2C EEPROM (2 KB)	MAC address	None	Indirectly	Indirectly	U1203	No	Remove Acquisition board and send to Tektronix
SD card	Factory initial startup	None	External PC	Firmware only	J3106	No	Remove SD card and erase with PC
Time Base board (878-1519-XX)							
SPI flash memory (16 MB)	Calibration and compensation	None	Indirectly	Firmware operations	U01	No	Remove Timebase board and send to Tektronix
I2C EEPROM memory (64 KB)	Not used	None	Indirectly	Firmware operations	U1650	No	Remove Timebase board and send to Tektronix
Temperature sensor	Temperature sense TLOW and THIGH setpoints	None	Not available	Not available	U1651A	No	Remove Timebase board and send to Tektronix
Digital potentiometer	One-time programmable fuse	None	Not available	Not available	U1604	No	Send module to Tektronix
TSO820 system							

Table continued…

Type & min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear / sanitize
USB flash drive	Software update	None	Programmed via external PC	Programmed via external PC			Remove and destroy
TSO8C17/18 (878-1677-XX/878-1675-XX)							
SPI flash memory (16 MB)	Calibration and compensation	None	Indirectly	Firmware operations	U01, U02	No	Send module to Tektronix
I2C EEPROM Memory (64 KB)	Not used	None	Indirectly	Firmware operations	U27, U28	No	Send module to Tektronix
Temperature sensor	Temperature sense TLOW and THIGH setpoints	None	Not available	Not available	U29A, U30A	No	Send module to Tektronix
Digital potentiometer	One-time programmable fuse	None	Not available	Not available	U19, U21, U304, U404	No	Send module to Tektronix

Clear or sanitize a non-functional instrument

If the instrument is not functioning, perform the following actions and then return the intrument to Tektronix for repair.

Procedure to clear and sanitize the instrument TSO820

To clear the instrument TSO820, perform the following procedure:

1. Remove the power supply from the instrument and wait for 60 seconds.

Note: Main frame calibration and compensation values will be preserved from the last calibration or compensation of the product.

To sanitize the instrument TSO820, perform the following procedure:

1. Remove Acquisition board (878-1629-XX) and Time Base board (878-1519-XX) and return the boards to Tektronix.
2. For removal instructions, refer to the TSO8 Series Service Manual (077-1613-XX), available on the Tektronix website at *www.tektronix.com/manuals*.
3. After you remove the Acquisition and Time Base board, refer to your company's internal policies regarding storage or disposal of the boards.
4. Tektronix will install a new Acquisition and Time Base board or repair, calibrate, and adjust as necessary.

Procedure to sanitize the module TSO8C17/18

To sanitize the module TSO8C17/18, perform the following procedure:

1. Remove the module TSO8C17/18 and return the module to Tektronix.
2. For removal instructions, refer to the TSO8 Series Service Manual (Part number 077-1613-XX), available on the Tektronix website at *www.tektronix.com/manuals*.
3. After you remove the module, refer to your company's internal policies regarding storage or disposal of the module.
4. Tektronix will install a new module or repair, calibrate, and adjust as necessary.

USB flash drive

Remove the USB flash drive and return the instrument to Tektronix for repair.

After you remove the USB flash drive, refer to your organization's internal policies regarding handling or disposal of the flash drive.

Charges

Replacement of any missing hardware will be charged according to the rate at the time of replacement.