
Keysight FieldFox Handheld Analyzers

- Security Features and Volatility Documentation

This document applies to the following models with serial number prefixes ≥ 5607 (CPU2) - (except where indicated):
N9912A/C, N9913A/B/C, N9914A/B/C, N9915A/B/C,
N9916A/B, N9917A/B, N9918A/B,
N9923A, N9923AN, N9925A, N9926A, N9927A, N9928A,
N9933B/C, N9934B/C, N9935A/B/C,
N9936A/B, N9937A/B, N9938A/B,
N9950A/B, N9951A/B, N9952A/B, N9953B
N9960A/B, N9961A/B, N9962A/B, N9963B

This is the FieldFox Security Features and Volatility Document for serial number prefixes ≥ 5607 (CPU2) N9950-90001. The legacy FieldFox Security Features and Volatility Document for serial number prefixes < 5607 (CPU1) N9912-90008 can be found here:
<https://www.keysight.com/us/en/assets/9018-04386/reference-guides/9018-04386.pdf> (N9912-90008).

Notices

© Keysight Technologies, Inc.
2008-2024

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Keysight Technologies, Inc. as governed by United States and international copyright laws.

Trademark Acknowledgments

Manual Part Number

N9950-90001

Edition

Edition 1, March 2024

Supersedes: October 2023

Printed in USA/Malaysia

Published by:
Keysight Technologies
1400 Fountaingrove Parkway
Santa Rosa, CA 95403

Warranty

THE MATERIAL CONTAINED IN THIS DOCUMENT IS PROVIDED “AS IS,” AND IS SUBJECT TO BEING CHANGED, WITHOUT NOTICE, IN FUTURE EDITIONS. FURTHER, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, KEYSIGHT DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED WITH REGARD TO THIS MANUAL AND ANY INFORMATION CONTAINED HEREIN, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. KEYSIGHT SHALL NOT BE LIABLE FOR ERRORS OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, USE, OR PERFORMANCE OF THIS DOCUMENT OR ANY INFORMATION CONTAINED HEREIN. SHOULD KEYSIGHT AND THE USER HAVE A SEPARATE WRITTEN AGREEMENT WITH WARRANTY TERMS

COVERING THE MATERIAL IN THIS DOCUMENT THAT CONFLICT WITH THESE TERMS, THE WARRANTY TERMS IN THE SEPARATE AGREEMENT WILL CONTROL.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

U.S. Government Rights

The Software is “commercial computer software,” as defined by Federal Acquisition Regulation (“FAR”) 2.101. Pursuant to FAR 12.212 and 27.405-3 and Department of Defense FAR Supplement (“DFARS”) 227.7202, the U.S. government acquires commercial computer software under the same terms by which the software is customarily provided to the public.

Accordingly, Keysight provides the Software to U.S. government customers under its standard commercial license, which is embodied in its End User License Agreement (EULA), a copy of which can be found at

<http://www.keysight.com/find/sweula>

The license set forth in the EULA represents the exclusive authority by which the U.S. government may use, modify, distribute, or disclose the Software. The EULA and the license set forth therein, does not require or permit, among other things, that Keysight: (1) Furnish technical information related to commercial computer software or commercial computer software documentation that is not customarily provided to the public; or (2) Relinquish to, or otherwise provide, the government rights in excess of these rights customarily provided to the public to use, modify, reproduce, release, perform, display, or disclose commercial computer software or commercial computer software

documentation. No additional government requirements beyond those set forth in the EULA shall apply, except to the extent that those terms, rights, or licenses are explicitly required from all providers of commercial computer software pursuant to the FAR and the DFARS and are set forth specifically in writing elsewhere in the EULA. Keysight shall be under no obligation to update, revise or otherwise modify the Software. With respect to any technical data as defined by FAR 2.101, pursuant to FAR 12.211 and 27.404.2 and DFARS 227.7102, the U.S. government acquires no greater than Limited Rights as defined in FAR 27.401 or DFAR 227.7103-5 (c), as applicable in any technical data.

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.

Table of Contents

1. Contact Keysight Sales and Service Offices	
2. Product Declassification and Security	
Introduction	7
3. Terms and Definitions	
Definitions	9
4. System Components	
5. Instrument Memory and Volatility Information	
6. Memory Clearing, Sanitization and/or Removal Procedures	
7. User and Remote Interface Security Measures	
Screen and Annotation Blanking	25
USB/SD Card Removable Mass Storage Device Security	26
Remote Access Interfaces	26
8. Procedure for Declassifying a Faulty Instrument	
9. Operating and File System Information	

Contents

1 Contact Keysight Sales and Service Offices

Assistance with test and measurements 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 product 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.

2 Product Declassification and Security

Model Number: N9912A/C, N9913A/B/C, N9914A/B/C, N9915A/B/C, N9916A/B, N9917A/B, N9918A/B, N9923A, N9923AN, N9925A, N9926A, N9927A, N9928A, N9933B/C, N9934B/C, N9935A/B/C, N9936A/B, N9937A/B, N9938A/B, N9950A/B, N9951A/B, N9952A/B, N9953B, N9960A/B, N9961A/B, N9962A/B, N9963B.

Product Name: FieldFox Handheld Analyzer

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

NOTE

This document only applies to N991xA, N992xA, and N993xA models with serial number prefixes 5607 or greater, N995xA, N996xA, and all FieldFox B-Series and C-Series models.

Introduction

This document describes instrument security features and the steps to declassify an instrument through memory sanitization or removal. For additional information please go to <http://www.keysight.com/find/ad> and click on the security instrument tab.

- Service Guide N9912A – (N9912-90003)
(<https://www.keysight.com/us/en/support.html>)
- Service Guide s, N9923AN – (N9923-90018)
(<https://www.keysight.com/us/en/support.html>)
- Service Guide N9913A/B, N9914A/B, N9915A/B, N9916A/B, N9917A/B, N9918A/B, N9925A, N9926A, N9927A, N9928A, N9933B, N9934B, N9935A/B, N9936A/B, N9937A/B, N9938A/B, N9950A/B, N9951A/B, N9952A/B, N9953B, N9960A/B, N9961A/B, N9962A/B, N9963B – (N9927-90003)
(<https://www.keysight.com/us/en/support.html>)

- Service Guide N9912C, N9913C, N9914C, N9915C, N9933C, N9934C, N9935C – (N9915-90021)
(<https://www.keysight.com/us/en/support.html>)
- Service Guide N9913A/B, N9914A/B, N9915A/B, N9916A/B, N9917A/B, N9918A/B, N9925A, N9926A, N9927A, N9928A, N9933B, N9934B, N9935A/B, N9936A/B, N9937A/B, N9938A/B, N9950A/B, N9951A/B, N9952A/B, N9953B, N9960A/B, N9961A/B, N9962A/B, N9963B – (N9927-90003)
(<https://www.keysight.com/us/en/support.html>)
- User’s Guide N9912A – (N9912-90001)
(<https://www.keysight.com/us/en/assets/9018-02280/user-manuals/9018-02280.pdf>)
- User’s Guide N9923A – (N9923-90001)
(<https://www.keysight.com/us/en/assets/9018-02698/user-manuals/9018-02698.pdf>)
- User’s Guide N9913A, N9914A, N9915A, N9916A, N9917A, N9918A, N9925A, N9926A, N9927A, N9928A, N9933A, N9934A, N9935A, N9936A, N9937A, N9938A, N9950A, N9951A, N9952A, N9960A, N9961A, N9962A – (N9927-90001)
(<https://www.keysight.com/us/en/assets/9921-01766/user-manuals/Use rs-Guide-A-Series-N991xA-2xA-3xA-5xA-6xA-Unabridged.pdf>)
- User’s Guide N9912C, N9913B/C, N9914B/C, N9915B/C, N9916B, N9917B, N9918B, N9933B/C, N9934B/C, N9935B/C, N9936B, N9937B, N9938B, N9950B, N9951B, N9952B, N9953B, N9960B, N9961B, N9962B, N9963B – (N9938-90006)
(<https://www.keysight.com/us/en/assets/9921-01763/user-manuals/Use rs-Guide-B-Series-N991xB-3xB-5xB-6xB-Unabridged.pdf>)
- User’s Guide N9912C, N9913C, N9914C, N9915C, N9933C, N9934C, N9935C – (N9915-90020)
(<https://www.keysight.com/us/en/assets/9923-02187/user-manuals/Fiel dFox-C-Series-N991xC-2xC-3xC-Unabridged-User-Guide.pdf>)

3 Terms and Definitions

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

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 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).

4 System Components

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

Product/System includes the following components:

Model number	Name	Description	Reference/Remarks
N9912A/C	FieldFox Handheld Analyzer	Handheld Cable and Antenna Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9913A/B/C	FieldFox Handheld Analyzer	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9914A/B/C	FieldFox Handheld Analyzer	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9915A/B/C	FieldFox Handheld Analyzer	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9916A/B	FieldFox Handheld Analyzer	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9917A/B	FieldFox Handheld Analyzer	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9918A/B	FieldFox Handheld Analyzer	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9923A	FieldFox Handheld Analyzer	Vector Network Analyzer and Cable Tester	Volatile and Non volatile memory on SOM board, system board and RF board
N9925A	FieldFox Handheld Analyzer	Vector Network Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board

System Components

Model number	Name	Description	Reference/Remarks
N9926A	FieldFox Handheld Analyzer	Vector Network Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9927A	FieldFox Handheld Analyzer	Vector Network Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9928A	FieldFox Handheld Analyzer	Vector Network Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9933B/C	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9934B/C	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9935A/B/C	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9936A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9937A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9938A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9950A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9951A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9952A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9953B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9960A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9961A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board

System Components

Model number	Name	Description	Reference/Remarks
N9962A/B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board
N9963B	FieldFox Handheld Analyzer	Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board

5 Instrument Memory and Volatility Information

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and/or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

Table 5-1 Summary of instrument memory - base instrument

Memory Type and Size	Is Memory user accessible as a mass storage device?	Writable During Normal Operation?	Data Retained When Powered Off?	Purpose/Contents	Data Input Method	Location in Instrument and Remarks	Sanitization Procedure
32 MB NAND Flash	No	No	Yes	Factory setting	Volatile and Non volatile memory on SOM board, system board and RF board		Factory Data is not user accessible.

Table 5-1 Summary of instrument memory - base instrument

Memory Type and Size	Is Memory user accessible as a mass storage device?	Writable During Normal Operation?	Data Retained When Powered Off?	Purpose/Contents	Data Input Method	Location in Instrument and Remarks	Sanitization Procedure
Flash memory (microSD), 8 GB	Yes	Yes	Yes	Vector Network Analyzer and Spectrum Analyzer	Volatile and Non volatile memory on SOM board, system board and RF board	System board 8GB microSD is only used in FieldFox models with serial number prefixes ≥ 5607 (except where indicated) N9912C, N9913A/B/C, N9914A/B/C, N9915A/B/C, N9916A/B, N9917A/B, N9918A/B, N9925A, N9926A, N9927A, N9928A, N9933B/C, N9934B, /C, N9935A/B/C, N9936A/B, N9937A/B, N9938A/B, and in all of the following models: N9950A/B, N9951A/B, N9952A/B, N9953B, N9960A/B, N9961A/B, N9962A/B, N9963B Only the UserData partition is accessible by the user.	User Data: Memory erase procedure User Data: Memory erase procedure
RAM, volatile memory 512MB	Yes	Yes	No	Vector Network Analyzer and Spectrum Analyzer	Firmware operating memory	SOM board	External power and main battery both removed
Flash memory, 32 Kb and volatile memory 1 Kb	No	No	Yes	System monitor micro-controller.	Factory default setting	System board	Not writable by the user

Table 5-1 Summary of instrument memory - base instrument

Memory Type and Size	Is Memory user accessible as a mass storage device?	Writable During Normal Operation?	Data Retained When Powered Off?	Purpose/Contents	Data Input Method	Location in Instrument and Remarks	Sanitization Procedure
Flash memory, 128 bytes	No	No	Yes	PCA identification and revision information.	Factory default setting	System board and RF board Each PCA has an ID EPROM that stores PCA identification and revision information	Not writable by the user
Flash memory, 16 Kb, and volatile memory, 2 Kb	No	No	Yes	Front panel interface board micro-controller.	Factory default setting	Front panel interface board.	Not writable by the user
Flash memory, 1Kb	No	No	Yes	Vector Network Analyzer and Spectrum Analyzer	Factory default setting	Main battery	Not writable by the user

6 Memory Clearing, Sanitization and/or Removal Procedures

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

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

- Sanitization Level Type
 - Remove (Only): Removes all User Data.
 - Scrub Data: Not applicable
 - Format Media: Not applicable
 - Full Wipe: Replace all existing data with 1's and 0's multiple times (Not applicable)

Legend for Table 6-1 and Table 6-2 on page 20

- ✓ Erased
- ✗ Preserved
- ✧ Lost when power or battery is removed.
- ✦ Data Lost all power of battery removed AND removed from System Board, OR Front Panel Board disconnected from System Board, OR Coin Cell removed from Front Panel board.

Table 6-1 Sanitization Level Overview

Sanitization Level	SOM								System Board			RF Board		Front Panel		Battery
	8 GB uSDCARD NAND FLASH		32 MB NAND Flash			RAM	EEPROM	RAM (Real Time Clock)	FPGA	EEPROM	MSP430	FPGA	EEPROM	EEPROM	FLASH	FLASH
	User Data	System	Boot	Factory Data	Persistent Data											
Remove (Only)	✓	✗	✗	✗	✗	✧	✗	✧	✗	✗	✗	✗	✗	✗	✗	✗
Scrub Data	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Format Media	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Full Wipe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6-2 Install Memory Effects Overview

Sanitization Level	SOM								System Board			RF Board		Front Panel		Battery
	8 GB uSDCARD NAND FLASH		32 MB NAND Flash			RAM	EEPROM	RAM (Real Time Clock)	FPGA	EEPROM	MSP430	FPGA	EEPROM	EEPROM	FLASH	FLASH
	User Data	System	Boot	Factory Data	Persistent Data											
Install	✗	✗	✗	✓	✗	✓	✧	✓	✓	✗	✓	✓	✗	✗	✓	✗

Table 6-3 32 MB NAND Flash Memory

Description and purpose	Not accessible by the user.
Size	32 MB
Memory clearing	Memory Erase function
Memory sanitization	N/A
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	See Remarks
Remarks	Instrument use only. Reserved for system maintenance information. There is no "full chip erase" function available on the memory chips used for the flash memory on the SOM board.

Table 6-4 8 GB Internal microSD Card

Description and purpose	Stores Operating System, Application Firmware and some User Data. Only the User Data is accessible by the user
Size	8 GB
Memory clearing	<p>The following process completely clears all user accessible data on the FieldFox instrument. This process requires firmware revision A.03.02 or later.</p> <p>Erase User Data only erases data so it is not accessible from the front panel. Data is still on the internal and or external memory (i.e., USB and SD).</p> <p>Press the following keys:</p> <ol style="list-style-type: none"> 1. System(7) 2. Service Diagnostics 3. Advanced 4. Erase User Data 5. Confirm Erase <p>Wait for the instrument to reboot and begin normal operation.</p> <p>The process will completely erase the UserData on the 8GB Internal microSD Card and reboot the instrument. When the reboot is completed, the instrument will be ready for normal operation.</p>
Memory sanitization	N/A
Memory removal	<p>Option N9910HU-011, 012, 013, 014 or 015 (Secure SD Card Option)</p> <p>FieldFox will boot from the External SD card. The External SD card is the primary memory for the unit. All functions are run from the External SD card. The memory card can be removed from the external SD card slot, all operating system, firmware, and user data is removed from the Unit. This SD card can be locked in a secure location or destroyed at this point. When this option is ordered, the Internal SD Card is removed from the Unit.</p>
Write protecting	N/A
Memory validation	N/A
Remarks	8GB microSD is only used in FieldFox model N9913A/B, N9914A/B, N9915A/B, N9916A/B, N9917A/B, N9918A/B, N9925A, N9926A, N9927A, N9928A, N9933B, N9934B, N9935A/B, N9936A/B, N9937A/B, N9938A/B, N9950A/B, N9951A/B, N9952A/B, N9953B, N9960A/B, N9961A/B, N9962A/B, N9963B

Table 6-5 512 MB RAM

Description and purpose	Firmware operating memory
Size	512 MB
Memory clearing	External power and main battery removed
Memory sanitization	External power and main battery removed
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

Table 6-6 System Board Micro-Controller, 32 Kb Flash Memory, 1 Kb Volatile Memory

Description and purpose	For System Board System Monitor Micro-Controller
Size	32 Kb Flash Memory, 1 Kb Volatile Memory
Memory clearing	Not writable by the user
Memory sanitization	N/A
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

Table 6-7 EPROM 128 Bytes

Description and purpose	PCA identification and revision information
Size	128 bytes
Memory clearing	Not writable by the user
Memory sanitization	N/A
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A

Table 6-7 **EPROM 128 Bytes**

Description and purpose	PCA identification and revision information
Remarks	

Table 6-8 **Front Panel Interface Board Micro-Controller, 16 Kb Flash Memory, 2 Kb Volatile Memory**

Description and purpose	Front panel interface board micro-controller
Size	16 Kb Flash Memory, 2 Kb Volatile Memory
Memory clearing	Not writable by the user
Memory sanitization	N/A
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

Table 6-9 **Flash Memory on Main Battery, 1 Kb**

Description and purpose	Smart battery, to maintain information about battery usage and current condition
Size	1 Kb
Memory clearing	Not writable by the user
Memory sanitization	N/A
Memory removal	This memory can not be removed without damaging the instrument
Write protecting	N/A
Memory validation	N/A
Remarks	

7 User and Remote Interface Security Measures

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

Screen and Annotation Blanking

For security reasons, frequency information can be prevented from appearing on the FieldFox by following below procedure. The same information is available in the User's Guide.

How to set Security Level

1. Press **System 7**
2. Then **System Configuration**
3. Then **Security Level**
4. Then choose from the following:
 - **None** All frequency settings are visible.
 - **High** Frequency information is blanked from the following:
 - Display annotation
 - Softkeys
 - Marker display and marker table
 - Calibration properties
 - All settings tables
 - Limit line tables
 - All saved .png files

How to set Security Level

Any of the following will re-display frequency information:

- Set to **None**, Preset, Mode Preset, or FieldFox restart.

USB/SD Card Removable Mass Storage Device Security

There is no capability to control removable USB/SD card mass storage permissions from the FieldFox user interface at this time. The customer is responsible for managing removable storage media in secure locations.

Remote Access Interfaces

The user is responsible for providing security for the LAN port for remote access by controlling physical access to the LAN port. The LAN port must be controlled because they provide access to all user settings, user states and the display image.

The LAN port provides the following services:

- ftp
- sockets
- mini-USB (SCPI commands)

8 Procedure for Declassifying a Faulty Instrument

CAUTION

IMPORTANT: Before storing any data on the FieldFox, if you are in a secure location and or require sanitization of your data, verify that the FieldFox **Preferences > User Device** value is set to **External**. Sanitizing **Internal** memory requires the physical removal of internal instrument memory, which is not recommended due to the potential of damaging the FieldFox. Refer to your model's User's Guide on www.keysight.com.

If the instrument is not functioning and you are unable to use the security functions to clear the User Data, you must physically remove the SOM board and discard and destroy it. And send the instrument to a repair facility. If the repair facility determines that a new SOM board fixes the problem and the instrument is still under warranty, you will not be charged for the new board. If they determine that the failure was caused by something other than the SOM board, you will be charged for the new board even though the instrument is still under warranty.

The 8GB microSD resides in System Board. If the instrument is not functioning and you are unable to use the security functions to clear the User Data, you must physically remove the microSD from the System Board and keep it within secure environment. And send the instrument to a repair facility. If the repair facility determines that a new System Board fixes the problem and the instrument is still under warranty, you will not be charged for the new board. If they determine that the failure was caused by something other than the System Board, you will be charged for the new board even though the instrument is still under warranty.

The customer is responsible for removing and replacing the storage media assemblies at their secure location. Refer to the service guide for assembly replacement procedures.

9 Operating and File System Information

- The FieldFox Instrument utilizes a ROFS (Read Only File System) created for FieldFox Operating System.
- The FieldFox Operating System is a CLOSED system with NO user access.
- FieldFox operates on a custom version of Microsoft Windows CE that is proprietary to Keysight Technologies
- ROFS file systems, in conjunction with our version of the WindowsCE bootloader, is capable of booting a WindowsCE operating system image stored in the ROFS image.
- ROFS is used only on the FieldFox product.
- ROFS supports obfuscation that is intended to make more difficult the task of locating and analyzing file content while attempting to analyze a file system image.
- User access to internal memory is limited to the User Data location. No other access to internal memory is allowed.
- Because of the ROFS (Read Only File System) the FieldFox is far more secure than a standard desktop instrument running an open Operating System.
- The Operating System and Firmware for the FieldFox are built into a single down-loadable file from Keysight.com. This file has a built in Checksum that ensures the file has not been tampered with or corrupted.

