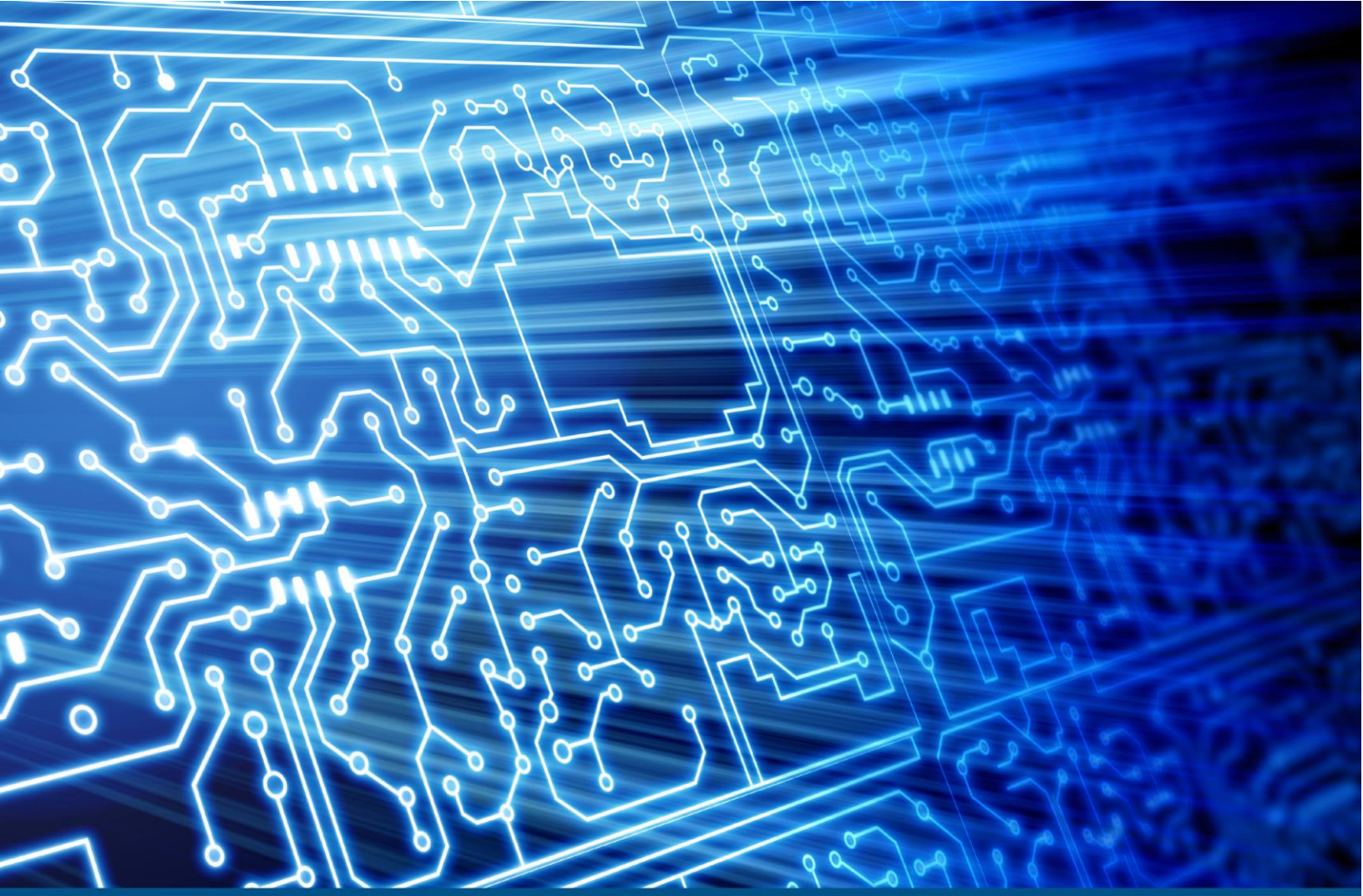

Electronic Evidence Examiner Device Seizure v1.0.9466.18457

Test Results for Mobile Device Acquisition Tool

April 28, 2017

Homeland Security

Science and Technology

This report was prepared for the Department of Homeland Security Science and Technology Directorate Cyber Security Division by the Office of Law Enforcement Standards of the National Institute of Standards and Technology.

For additional information about the Cyber Security Division and ongoing projects, please visit http://www.dhs.gov/science-and-technology/cyber-security-division.

April 2017

Test Results for Mobile Device Acquisition Tool:
Electronic Evidence Examiner - Device Seizure (E3:DS) v1.0.9466.18457

Contents

Introduction

The Computer Forensics Tool Testing (CFTT) program is a joint project of the Department of Homeland Security (DHS), the National Institute of Justice (NIJ), and the National Institute of Standards and Technology Special Program Office (SPO) and Information Technology Laboratory (ITL). CFTT is supported by other organizations, including the Federal Bureau of Investigation, the U.S. Department of Defense Cyber Crime Center, U.S. Internal Revenue Service Criminal Investigation Division Electronic Crimes Program, and the U.S. Department of Homeland Security's Bureau of Immigration and Customs Enforcement, U.S. Customs and Border Protection and U.S. Secret Service. The objective of the CFTT program is to provide measurable assurance to practitioners, researchers, and other applicable users that the tools used in computer forensics investigations provide accurate results. Accomplishing this requires the development of specifications and test methods for computer forensics tools and subsequent testing of specific tools against those specifications.

Test results provide the information necessary for developers to improve tools, users to make informed choices, and the legal community and others to understand the tools' capabilities. The CFTT approach to testing computer forensics tools is based on well-recognized methodologies for conformance and quality testing. Interested parties in the computer forensics community can review and comment on the specifications and test methods posted on the CFTT Web site (http://www.cftt.nist.gov/).

This document reports the results from testing E3:DS v1.0.9466.18457 across supported mobile devices and associated media e.g., smart phones, feature phones, UICCs.

Test results from other tools can be found on the DHS S&T-sponsored digital forensics web page, http://www.dhs.gov/science-and-technology/nist-cftt-reports.

How to Read This Report

This report is divided into four sections. Section 1 identifies and provides a summary of any significant anomalies observed in the test runs. This section is sufficient for most readers to assess the suitability of the tool for the intended use. Section 2 identifies the mobile devices used for testing. Section 3 lists testing environment, the internal memory data objects used to populate the mobile devices. Section 4 provides an overview of the test case results reported by the tool. The full test data is available at http://www.cftt.nist.gov/mobile_devices.htm.

Test Results for Mobile Device Acquisition Tool

Tool Tested:	Electronic Evidence Examiner Device Seizure (E3:DS)
Software Version:	v1.0.9466.18457
Supplier:	Paraben
Address:	39344 John Mosby Hwy Ste 277 Aldie VA 20105-2000
Tel:	(801) 796-0944
WWW:	http://www.paraben.com

1 Results Summary

Paraben's E3:DS is a stand-alone mobile device data extraction and analysis solution that supports a large variety of mobile device types containing over 26,000+ device profiles. E3:DS supports data extraction for all smartphone operating systems, a variety of feature phones, tablets, GPS, PDAs and UICCs.

E3:DS was tested for its ability to acquire active data from the internal memory of supported mobile devices and associated media (i.e., smart phones, tablets, feature phones, UICCs/SIMs). Except for the following anomalies, the tool acquired all supported data objects completely and accurately for all mobile devices tested.

Physical Acquisition:

- If a corrupt portion of memory is encountered when performing a Physical data extraction, a message is not provided to the examiner, resulting in no readable data. *Note: This has been addressed in the most recent version of E3:DS.*

***Personal Information Management (PIM) data*:**

- Metadata (i.e., graphics) for Address Book/Contact entries were not reported with the associated entry. (Devices: *iPhone 5S, iPhone 6S Plus, iPad Air, iPad Mini, iPad Pro, Samsung Rugby III*)
- Memo entries were not reported. (Devices: *Galaxy S6 Edge Plus, Galaxy Tab-E, Galaxy Tab S2*)
- Long memo entries are truncated in the preview-pane. (Devices: *Galaxy S3, Galaxy S5, Motorola Droid Turbo 2, iOS*)
- MMS attachments (audio, video, graphic) were not viewable within the preview-pane with the corresponding textual portion of the message. (Devices: *Galaxy S3, Galaxy S5, Galaxy S6 Edge Plus, Motorola Droid Turbo 2, iOS*)

Stand-alone Files:

- Video files are not reported. (Device: *iPhone 4*)

Internet Related Data:

- Internet related data (i.e., bookmarks, history) were not reported. (Devices: *Galaxy Tab-E, Galaxy Tab S2*)
- Internet related data (i.e., history) was not reported. (Device: *iPhone 4*)

Social media Data:

- Social media related data (i.e., Facebook, LinkedIn, Twitter, Instagram) was not reported. (Device: *Motorola Droid Turbo 2*)
- Social media related data (i.e., Facebook, LinkedIn) was not reported. (Devices: *Galaxy Tab-E, Galaxy Tab S2*)
- Social media related data (i.e., Facebook, Twitter, Instagram) was not reported. (Devices: *iPhone 6S Plus, iPad Mini, iPad Pro*)
- Partial social media related data (i.e., only emoticons, user pics) for Twitter was reported. (Device: *Galaxy S6 Edge Plus*)
- Partial social media related data (i.e., only emoticons, pictures, video) for Instagram and Twitter was reported. (Devices: *Galaxy Tab-E, Galaxy Tab S2*)
- Partial social media related data (i.e., only graphic files) for Facebook was reported. (Device: *iPhone 5S*)
- Partial social media related (i.e., only graphic files) for Facebook and LinkedIn was reported. (Device: *iPad Air*)
- Partial social media related (i.e., only graphic files) for Facebook and Twitter was reported. (Device: *iPhone 4*)

GPS:

- GPS related data (i.e., longitude, latitude coordinates) was not reported. (Devices: *Motorola Droid Turbo 2, Galaxy Tab-E, Galaxy Tab S2*)

For more test result details see section 4.

2 Mobile Devices

The following table lists the mobile devices used for testing E3:DS v1.0.9466.18457.

Make	Model	OS	Firmware	Network
Apple iPhone	4	iOS v4.3.3 (8J2)	04.10.01	GSM
Apple iPhone	5S	iOS 7.1 (11D167)	2.18.02	CDMA
Apple iPhone	6S Plus	iOS 9.2.1 (13C75)	1.23.00	CDMA
Apple iPad	Air	iOS 7.1 (11D167)	2.18.02	CDMA
Apple iPad	Mini	iOS 9.2.1 (13B143)	4.32.00	CDMA
Apple iPad	Pro	iOS 9.2.1 (13C75)	4.52.00	CDMA
Samsung Galaxy	S3 SGH-1747	Android 4.1.2	1747UCDMG2	GSM
Samsung Galaxy	S5 SM-G900V	Android 4.2.2	G900V.05	CDMA
Samsung Galaxy	S6 Edge Plus	Android 5.1.1	LMY47X.G928VVRU2AOJ2	CDMA
Motorola Droid	Turbo2	Android 5.1.1	LCK23.130-23	CDMA
LG	G4	Android 5.1.1	LMY47D	CDMA
Samsung Galaxy	Tab-E	Android 5.1.1	LMY47X.T567VVRU1AOH1	CDMA
Samsung Galaxy	Tab S2	Android 5.1.1	LMY47X.T817BVRU2AOJ2	CDMA
Nokia Lumia	735	Win 8.0	02171.00002.15194.03079	CDMA
HTC Win 8x	HTC PM23300	Win 8.0	3030.0.34101.502	GSM
Samsung Rugby III	SGH-A997	A997UCMG1	REV0.2	GSM

Table 1: Mobile Devices

3 Testing Environment

The tests were run in the NIST CFTT lab. This section describes the selected test execution environment, and the data objects populated onto the internal memory of mobile devices.

3.1 Execution Environment

E3:DS v1.0.9466.18457 was installed on Windows 7 v6.1.7601.

3.2 Internal Memory Data Objects

E3:DS v1.0.9466.18457 was measured by analyzing acquired data from the internal memory of pre-populated mobile devices. Table 2 defines the data objects and elements used for populating mobile devices provided the mobile device supports the data element.

Data Objects	Data Elements
Address Book Entries	*Regular Length*
	Maximum Length
	Special Character
	Blank Name
	Regular Length, email
	Regular Length, graphic
	Regular Length, Address
	Deleted Entry
	Non-Latin Entry
	Contact Groups
PIM Data: Datebook/Calendar; Memos	*Regular Length*
	Maximum Length
	Deleted Entry
	Special Character
	Blank Entry
Call Logs	*Incoming*
	Outgoing
	Missed
	Incoming – Deleted
	Outgoing – Deleted
	Missed - Deleted
Text Messages	*Incoming SMS – Read*
	Incoming SMS – Unread
	Outgoing SMS
	Incoming EMS – Read
	Incoming EMS – Unread
	Outgoing EMS
	Incoming SMS – Deleted
	Outgoing SMS – Deleted
	Incoming EMS – Deleted

Data Objects	Data Elements
Text Messages, continued	*Outgoing EMS – Deleted*
	Non-Latin SMS/EMS
MMS Messages	*Incoming Audio*
	Incoming Graphic
	Incoming Video
	Outgoing Audio
	Outgoing Graphic
	Outgoing Video
Application Data	*Device Specific App Data*
Stand-alone data files	*Audio*
	Graphic
	Video
	Audio – Deleted
	Graphic - Deleted
	Video - Deleted
Internet Data	*Visited Sites*
	Bookmarks
	E-mail
Location Data	*GPS Coordinates*
	Geo-tagged Data
Social Media Data	*Facebook*
	Twitter
	LinkedIn
	Instagram

Table 2: Internal Memory Data Objects

4 Test Results

This section provides the test cases results reported by the tool. Sections 4.1 – 4.4 identify the mobile device operating system type, media (e.g., Android, iOS, Windows Mobile, UICC) and the make and model of mobile devices used for testing E3:DS v1.0.9466.18457.

The *Test Cases* column (internal memory acquisition) in sections 4.1 - 4.4 are comprised of two sub-columns that define a particular test category and individual sub-categories that are verified when acquiring the internal memory for supported mobile devices and UICCs within each test case. Each individual sub-category row results for each mobile device/UICC tested. The results are as follows:

As Expected: the mobile forensic application returned expected test results – the tool acquired and reported data from the mobile device/UICC successfully.

Partial: the mobile forensic application returned some of data from the mobile device/UICC.

Not As Expected: the mobile forensic application failed to return expected test results – the tool did not acquire or report supported data from the mobile device/UICC successfully.

NA: Not Applicable – the mobile forensic application is unable to perform the test or the tool does not provide support for the acquisition for a particular data element.

4.1 Android Mobile Devices

The internal memory contents for Android devices were acquired and analyzed with E3:DS v1.0.9466.18457.

All test cases pertaining to the acquisition of supported Android devices were successful with the exception of the following.

- Long memo entries are truncated for the Galaxy S3, Galaxy S5 and the Motorola Droid Turbo 2 within the preview pane. The long memo entries are reported completely in the generated report.
- Memo entries were not reported for the Galaxy S6 Edge Plus, Galaxy Tab-E or the Galaxy Tab S2.
- Unable to view MMS attachments (i.e., audio, graphics, video) with the corresponding textual portion of the message. MMS attachments should be viewable/playable within the preview-pane alongside the acquired text message. When attempting to open the attachment (graphic, video, audio) the following message occurs: unable to cast object of type for the Galaxy S3, Galaxy S5, Galaxy S6 Edge Plus and the Motorola Droid Turbo 2.
- Internet related data (i.e., bookmarks, browser history) were not reported for the Galaxy Tab-E or the Galaxy Tab S2.
- GPS related data was not reported for the Motorola Droid Turbo 2, Galaxy Tab-E or the Galaxy Tab S2.
- Partial social media (i.e., Twitter) related data (i.e., emoticons, users pics) was reported for the Galaxy S6 Edge Plus.
- Social media related data (i.e., Facebook, LinkedIn, Twitter, Instagram) was not reported for the Motorola Droid Turbo 2.
- Social media related data (i.e., Facebook, LinkedIn) was not reported for the Galaxy Tab-E or the Galaxy Tab S2.
- Partial social media related data for Instagram and Twitter (i.e., emoticons, pictures, video) were reported for the Galaxy Tab-E and the Galaxy Tab S2.

See Table 3 below for more details.

E3:DS v1.0.9466.18457								
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Android*						
		Galaxy S3	Galaxy S5	Galaxy S6 Edge Plus	Motorola Droid Turbo 2	LG G4	Galaxy Tab-E	Galaxy Tab S2
Acquisition	Acquire All	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Disrupted	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Reporting	Preview-Pane	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Equipment/ User Data	IMEI	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
	MEID/ESN	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	MSISDN	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
PIM Data	Contacts	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
	Calendar	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
	Memos/Notes	*Partial*	*Partial*	*Not As Expected*	*Partial*	*NA*	*Not As Expected*	*Not As Expected*
Call Logs	Incoming	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
	Missed	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
SMS Messages	Incoming	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
MMS Messages	Graphic	*Partial*	*Partial*	*Partial*	*Partial*	*NA*	*NA*	*NA*
	Audio	*Partial*	*Partial*	*Partial*	*Partial*	*NA*	*NA*	*NA*
	Video	*Partial*	*Partial*	*Partial*	*Partial*	*NA*	*NA*	*NA*
Stand-alone Files	Graphic	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Audio	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Video	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Application Data	Documents (txt, pdf files)	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
Social Media Data	Facebook	*As Expected*	*As Expected*	*Not As Expected*	*Not As Expected*	*NA*	*Not As Expected*	*Not As Expected*

E3:DS v1.0.9466.18457								
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Android*						
		Galaxy S3	Galaxy S5	Galaxy S6 Edge Plus	Motorola Droid Turbo 2	LG G4	Galaxy Tab-E	Galaxy Tab S2
Social Media Data, continued	Twitter	*As Expected*	*As Expected*	*Partial*	*Not As Expected*	*NA*	*As Expected*	*As Expected*
	LinkedIn	*As Expected*	*As Expected*	*Not As Expected*	*Not As Expected*	*NA*	*Not As Expected*	*Not As Expected*
	Instagram	*NA*	*NA*	*As Expected*	*Not As Expected*	*NA*	*Partial*	*Partial*
Internet Data	Bookmarks	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*Not As Expected*	*Not As Expected*
	History	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*Not As Expected*	*Not As Expected*
	Email	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
GPS Data	Coordinates/ Geo-tagged	*As Expected*	*As Expected*	*As Expected*	*Not As Expected*	*NA*	*Not As Expected*	*Not As Expected*
Non-Latin Character	Reported in native format	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
Hashing	Case File/ Individual Files	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Case File Data Protection	Modify Case Data	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*

Table 3: Android Mobile Devices

4.2 iOS Mobile Devices

The internal memory contents for iOS devices were acquired and analyzed with E3:DS v1.0.9466.18457.

All test cases pertaining to the acquisition of supported iOS devices were successful with the exception of the following across all iOS devices.

- Graphic files associated with Contact/Address Book entries were not reported with the associated entry for the iPhone 4, iPhone 5S, iPhone 6S Plus, iPad Air, iPad Mini, iPad Pro.
- Address metadata (address, city, state) associated with Contacts are not reported for the iPhone4.
- Long memo entries are truncated for all iOS devices within the preview pane. The long memo entries are reported completely in the generated report.
- Stand-alone video files are not reported for the iPhone 4.
- Partial Facebook related data was reported for the iPhone 5S. *Note: Only graphic files associated with profile and wall posts were reported.*
- Facebook and Twitter related data was not reported for the iPhone 4.
- Facebook, Twitter or Instagram related data was not reported for the iPhone 6S Plus, iPad Mini, or iPad Pro.
- Partial Facebook and LinkedIn related data are reported for the iPad Air. *Note: Only graphic files associated with profile and wall posts were reported.*

NOTES:

- If a corrupt portion of memory is encountered when performing a Physical data extraction, a message is not provided to the examiner, resulting in no readable data. *Note: This has been addressed in the most recent version of E3:DS.*

See Table 4 below for more details.

E3:DS v1.0.9466.18457							
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: iOS*					
		iPhone 4	iPhone 5S	iPhone 6S Plus	iPad Air	iPad Mini	iPad Pro
Acquisition	Acquire All	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Disrupted	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Reporting	Preview-Pane	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*

E3:DS v1.0.9466.18457							
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: iOS*					
		iPhone 4	iPhone 5S	iPhone 6S Plus	iPad Air	iPad Mini	iPad Pro
Equipment/ User Data	IMEI	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	MEID/ESN	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	MSISDN	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
PIM Data	Contacts	*Partial*	*Partial*	*Partial*	*Partial*	*Partial*	*Partial*
	Calendar	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Memos/Notes	*Partial*	*Partial*	*Partial*	*Partial*	*Partial*	*Partial*
Call Logs	Incoming	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
	Missed	*As Expected*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
SMS Messages	Incoming	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
MMS Messages	Graphic	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Audio	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Video	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Stand-alone Files	Graphic	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Audio	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Video	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Application Data	Documents (txt, pdf files)	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Social Media Data	Facebook	*Partial*	*Partial*	*Not As Expected*	*Partial*	*Not As Expected*	*Not As Expected*
	Twitter	*Partial*	*As Expected*	*Not As Expected*	*As Expected*	*Not As Expected*	*Not As Expected*
	LinkedIn	*NA*	*As Expected*	*As Expected*	*Partial*	*As Expected*	*As Expected*
	Instagram	*NA*	*NA*	*Not As Expected*	*NA*	*Not As Expected*	*Not As Expected*

E3:DS v1.0.9466.18457							
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: iOS*					
		iPhone 4	iPhone 5S	iPhone 6S Plus	iPad Air	iPad Mini	iPad Pro
Internet Data	Bookmarks	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	History	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Email	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
GPS Data	Coordinates/ Geo-tagged	*NA*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Non-Latin Character	Reported in native format	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Hashing	Case File/ Individual Files	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Case File Data Protection	Modify Case Data	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*

Table 4: iOS Mobile Devices

4.3 Windows Mobile / Feature Devices

The internal memory contents for the feature phone was acquired and analyzed with E3:DS v1.0.9466.18457.

All test cases pertaining to the acquisition of supported mobile devices were successful with the exception of the following.

- Graphic files associated with Contact/Address Book entries were not reported with the associated entry for the Rugby III.

NOTES:

- E3:DS only supports the acquisition of media files for the Nokia Lumia 735 and the HTC Win 8x.

See Table 5 below for more details.

E3:DS v1.0.9466.18457				
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Windows Mobile / BlackBerry*		
		Nokia Lumia 735	HTC Win 8x	Rugby III
Acquisition	Acquire All	*As Expected*	*As Expected*	*As Expected*
	Disrupted	*As Expected*	*As Expected*	*As Expected*
Reporting	Preview-Pane	*As Expected*	*As Expected*	*As Expected*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*
Equipment/ User Data	IMEI/IMSI	*As Expected*	*As Expected*	*As Expected*
	MEID/ESN	*As Expected*	*As Expected*	*As Expected*
	MSISDN	*As Expected*	*As Expected*	*As Expected*
PIM Data	Contacts	*NA*	*NA*	*Partial*
	Calendar	*NA*	*NA*	*As Expected*
	Memos/Notes	*NA*	*NA*	*As Expected*
Call Logs	Incoming	*NA*	*NA*	*Not As Expected*
	Outgoing	*NA*	*NA*	*Not As Expected*
	Missed	*NA*	*NA*	*Not As Expected*
SMS Messages	Incoming	*NA*	*NA*	*As Expected*
	Outgoing	*NA*	*NA*	*As Expected*
MMS Messages	Graphic	*NA*	*NA*	*NA*
	Audio	*NA*	*NA*	*NA*
	Video	*NA*	*NA*	*NA*
Stand-alone Files	Graphic	*As Expected*	*As Expected*	*As Expected*
	Audio	*NA*	*NA*	*As Expected*
	Video	*As Expected*	*As Expected*	*As Expected*

E3:DS v1.0.9466.18457				
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Windows Mobile / BlackBerry*		
		Nokia Lumia 735	HTC Win 8x	Rugby III
Application Data	Documents (txt, pdf files)	*NA*	*NA*	*As Expected*
Social Media Data	Facebook	*NA*	*NA*	*NA*
	Twitter	*NA*	*NA*	*NA*
	LinkedIn	*NA*	*NA*	*NA*
	Instagram	*NA*	*NA*	*NA*
Internet Data	Bookmarks	*NA*	*NA*	*NA*
	History	*NA*	*NA*	*NA*
	Email	*NA*	*NA*	*NA*
GPS Data	Coordinates/ Geo-tagged	*NA*	*NA*	*NA*
Non-Latin Character	Reported in native format	*NA*	*NA*	*NA*
Hashing	Case File/ Individual Files	*As Expected*	*As Expected*	*As Expected*
Case File Data Protection	Modify Case Data	*As Expected*	*As Expected*	*As Expected*

Table 5: Windows Mobile and BlackBerry Devices

4.4 Universal Integrated Circuit Cards (UICCs)

The internal memory contents for Universal Integrated Circuit Cards (UICCs) were acquired and analyzed with E3:DS v1.0.9466.18457.

All test cases pertaining to the acquisition of UICCs were successful.

NOTES:

- If the UICC is inserted into the PC/SC reader incorrectly, E3:DS completes the acquisition without error or user notification. No data is acquired.

See Table 6 below for more details.

E3:DS v1.0.9466.18457		
Test Cases – UICC Acquisition		*Universal Integrated Circuit Card*
Connectivity	Non Disrupted	*As Expected*
	Disrupted	*As Expected*
Equipment/ User Data	Service Provider Name (SPN)	*As Expected*
	ICCID	*As Expected*
	IMSI	*As Expected*
	MSISDN	*As Expected*
PIM Data	Abbreviated Dialing Numbers (ADNs)	*As Expected*
	Last Numbers Dialed (LNDs)	*As Expected*
	SMS Messages	*As Expected*
	EMS Messages	*As Expected*
Location Related Data	LOCI	*As Expected*
	GPRSLOCI	*As Expected*
Acquisition	Acquire All	*As Expected*
	Selected All	*As Expected*
	Select Individual	*As Expected*
Case File Data Protection	Modify Case Data	*As Expected*
Password Protected SIM Acquire	Acquisition of Protected SIM	*As Expected*
PIN/PUK Attempts	PIN attempts reported	*As Expected*
	PUK attempts reported	*As Expected*
Non-ASCII Character	Non-ASCII characters	*As Expected*
Hashing	Hashes reported for acquired data objects	*As Expected*

Table 6: Universal Integrated Circuit Cards