Test Report for
EAC 2005 VVSG Certification Testing
Performed on Election Systems & Software Voting System 3.4.1.4

Issue Date: 7/26/2016

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REVISIONS

Revision	Reason for Revision	Date
NR	Initial Release	07/26/2016

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1.0 INTRODUCTION

Election Systems & Software (ES&S), hereafter referred to as manufacturer, submitted the Unity 3.4.1.4 system to the Election Assistance Commission (EAC), for certification testing to the 2002 Voting System Standards (2002 VSS). Unity 3.4.1.4 is a modification to the previously 2002 VSS certified Unity 3.4.1.0 (Certification number: ESSUnity3410), and as such, was tested by National Technical Systems Huntsville (NTS Huntsville) based on the "modified system" requirements set forth in section 4.6.2.3 of the EAC Testing and Certification Program Manual, Version 2.0, herein referred to as the Program Manual. All testing on the submitted modifications was tested to the 2005 Voluntary Voting System Guidelines (2005 VVSG). Pending approval by the EAC, the Unity 3.4.1.4 system will be granted a 2002 VSS certification based on the original full system certification.

1.1 Description of EAC Certified System Being Modified

The following subsection describes the EAC Certified System that is the baseline for the submitted modification. All information was derived from the previous Certification Test Report and/or EAC Certificate of Conformance.

1.1.1 Baseline Certified System

Tables 1-1 and 1-2 describe the hardware and software/firmware versions that were previously certified. For a complete description of the configuration and description of the previously certified product, refer to the Unity 3.4.1.0 Test Report located on the EAC's website at http://www.eac.gov.

Table 1-1. Previously Certified Software

Software	Software/Firmware Version
Proprietary Software	
Audit Manager (AM)	7.5.2.0
Election Data Manager (EDM)	7.8.2.0
ES&S Image Manager (ESSIM)	7.7.2.0
Hardware Programming Manager (HPM)	5.9.0.0
Election Reporting Manager (ERM)	7.9.0.0
Log Monitor Service	1.1.0.0
AutoMARK Information Management System (AIMS)	1.3.257
VAT Previewer	1.3.2907
Proprietary Hardening Scripts	
CreateNewERM_USER_ONLY	1.0.0.0
CreateNewUsers	1.3.0.2
PreInstall	1.3.0.2
PostInstall	1.3.0.2
ServerShare	3.0.4.0
NoNetwork	3.0.3.0
COTS Software	
Windows 7 Professional	7 w/ SP1
Windows Server 2008 R2	2008 R2 w/ SP1
RM/Cobol	12.06
Microsoft Office Excel	2007

1.1.1 Baseline Certified System (Continued)

Table 1-1. Previously Certified Software (Continued)

Software	Software/Firmware Version
Adobe Acrobat Standard	9.0, X, and XI
WSUS Microsoft Windows Offline Update Utility	8.8
Symantec Endpoint Protection	12.1.4
Symantec Endpoint Protection Intelligent Updater	20140130-001-v5i64.exe

Table 1-2. Previously Certified Voting System Equipment

Component	Hardware Version	Firmware Version
Proprietary Hardware		
DS200 Precinct Count Scanner	1.2, 1.2.3, & 1.3	1.7.0.0
M100 Precinct Count Scanner	1.3	5.4.4.5
AutoMARK A100	1.0	1.3.2907
AutoMARK A200	1.1	1.3.2907
AutoMARK A200	1.3(Printer Board 1.70)	1.3.2907
AutoMARK A200	1.3(Printer Board 1.65)	1.3.2907
DS850 Central Count Scanner	1.0	2.9.0.0
M650 Central Count Scanner	1.1 & 1.2	2.2.2.0
Plastic Ballot Box	1.2 & 1.3	N/A
Metal Ballot Box	1.0, 1.1, & 1.2	N/A
COTS Hardware		
EMS Client Laptop – Dell	Latitude E6410 & E6420	N/A
EMS Server – Dell	T110	N/A
EMS Client Desktop – Dell	Optiplex 3010	N/A
Delkin USB Flash Drives	512MB, 1, 2, 4, & 8GB	N/A
Delkin Compact Flash	1GB	N/A
DS850 Report Printer	OKI B430dn & B431dn	N/A
DS850 Audit Printer	OKI Microline 420	N/A
Avid Headphones	Avid FV 60	N/A
SanDisk CF Card Reader	018-6305	N/A

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1.2 References

- Election Assistance Commission 2005 Voluntary Voting System Guidelines, Volume I, Version 1.0, "Voting System Performance Guidelines," and Volume II, Version 1.0, "National Certification Testing Guidelines," dated December 2005
- Election Assistance Commission Testing and Certification Program Manual, Version 2.0, expiration date June 30, 2018
- Election Assistance Commission Voting System Test Laboratory Program Manual, Version 2.0, expiration date June 30, 2018
- National Voluntary Laboratory Accreditation Program NIST Handbook 150, 2006 Edition, "NVLAP Procedures and General Requirements (NIST Handbook 150)," dated February 2006
- National Voluntary Laboratory Accreditation Program NIST Handbook 150-22, 2008 Edition, "Voting System Testing (NIST Handbook 150-22)," dated May 2008
- United States 107th Congress Help America Vote Act (HAVA) of 2002 (Public Law 107-252), dated October 2002
- NTS Quality Assurance Program Manual, Revision 8
- ANSI/ISO/IEC 17025:2005 and ANSI/NCSL Z540.3, "Calibration Laboratories and Measuring and Test Equipment, General Requirements"
- ISO 10012:2003, "Quality Assurance Requirements for Measuring Equipment"
- EAC Requests for Interpretation (RFI) located at:
  http://www.eac.gov/testing_and_certification/request_for_interpretations1.aspx
- EAC Notices of Clarification (NOC) lactated at:
  http://www.eac.gov/testing_and_certification/notice_of_clarifications.aspx
- EAC Quality Monitoring Program located at:
  http://www.eac.gov/testing_and_certification/quality_monitoring_program.aspx
- NTS Test Report No. PR039745-01 Rev B – National Certification Test Report for Certification Testing of the Election Systems & Software Unity 3.4.1.0 Voting System
- ES&S Unity 3.4.1.0 Technical Data Package
- ES&S Unity 3.4.1.4 Technical Data Package

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1.3 Terms and Abbreviations

Table 1-3 defines all terms and abbreviations applicable to this Test Report.

Table 1-3. Terms and Abbreviations

Term	Abbreviation	Definition
Anomaly	---	Any non-repeatable testing event that is not the expected result or interrupts the test operations.
Americans with Disabilities Act 1990	ADA	ADA is a wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability.
AutoMARK Information Management System	AIMS	A windows-based election management system software application to define election parameters for the VAT, including functionality to import election definition files produced by the Unity EMS and create VAT flash memory cards
Audit Manager	AM	A windows-based election management system software application to define election parameters for the VAT, including functionality to import election definition files produced by the Unity EMS and create VAT flash memory cards
Configuration Management	CM	Systems engineering process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design and operational information throughout its life.
Commercial Off-the-Shelf	COTS	Commercial, readily available hardware or software.
Deficiency	---	Any repeatable test result that was not the expected result or violates a requirement of the VVSG.
United States Election Assistance Commission	EAC	Commission created per the Help America Vote Act of 2002, assigned the responsibility for setting voting system standards and providing for the voluntary testing and certification of voting systems.
Election Data Manager	EDM	Unity EMS data entry component
Election Management System	EMS	Within the Unity 3.4.1.4 voting system, the EMS is comprised of eight components: AM, EDM, ESSIM, HPM, ERM, Log Monitor Service, AIMS, and VAT Previewer.
Election Reporting Manager	ERM	EMS reporting component.
Election Systems and Software	ES&S	Identified manufacturer doting the equipment under test as part of this test plan.
ES&S Image Manager	ESSIM	A desktop publishing tool that allows users to design and print ES&S paper ballots.
Engineering Change Order	ECO	---
Equipment Under Test	EUT	Refers to the individual system component or multiple piece of the same component.

1.3 Terms and Abbreviations (Continued)

Table 1-3. Terms and Abbreviations (Continued)

Term	Abbreviation	Definition
Functional Configuration Audit	FCA	Verification of system functions and combination of functions cited in the manufacturer's documentation.
Help America Vote Act	HAVA	Act created by United States Congress in 2002.
Hardware Programming Manager	HPM	Unity component used to create election definition media for voting system equipment.
Institute of Electrical and Electronics Engineers	IEEE	---
Intelligent Mark Recognition	IMR	Visible light scanning technology to detect completed ballot targets.
National Institute of Standards and Technology	NIST	Government organization created to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhances economic security and improves our quality of life.
Notice of Clarification	NOC	Provides further guidance and explanation on the requirements and procedures of the EAC's Voting System Certification or Voting System Testing Laboratory programs.
National Technical Systems, Inc.	NTS	Identified VSTL hosting the testing of the equipment listed in this test plan; facilities located in Huntsville, Alabama.
National Voluntary Laboratory Accreditation Program	NVLAP	Program which provides an unbiased third-party test and evaluation program to accredit laboratories in the respective fields to ISO 17025 standard.
NTS Operating Procedure	OP	NTS Test Method or Test Procedure
Physical Configuration Audit	PCA	Review by accredited test laboratory to compare voting system components submitted for certification testing to the manufacturer's technical documentation, and confirmation the documentation meets national certification requirements
Personal Computer	PC	Computer component of the voting system.
Quality Assurance	QA	Administrative and procedural activities implemented as a way of preventing mistakes or defects
Quantity	QTY	Number/Count of items
Quick Response Code	QR Code	Two-dimensional barcode
Request for Interpretation	RFI	A means by which a registered Manufacturer or VSTL may seek clarification on a specific test requirement.
System Under Test	SUT	Refers to the system as a whole (all components).
Technical Data Package	TDP	Manufacturer documentation related to voting system required to be submitted as a precondition of testing.

1.3 Terms and Abbreviations (Continued)

Table 1-5. Terms and Abbreviations (Continued)

Term	Abbreviation	Definition
Trusted Build	---	Final build of source code performed by a trusted source and overseen by the manufacturer which is delivered to the EAC designated repository; also referred to as a "Witness Build".
Underwriters Laboratories Inc.	UL	Safety consulting and certification company
Uninterruptible Power Supply	UPS	Electrical apparatus providing emergency power when an input power source fails.
Voter Assist Terminal	VAT	Electronic ballot marking device component is the ES&S AutoMARK.
Virtual Review Tool	VRT	Test campaign management software used by the EAC.
Voting System Test Laboratory	VSTL	NTS
Voting System Standards	VSS	---
Voluntary Voting System Guidelines	VVSG	---

2.0 CERTIFICATION TEST BACKGROUND

NTS Huntsville is an independent testing laboratory for systems and components under harsh environments, including dynamic and climatic extremes as well as the testing of electronic voting systems. NTS Huntsville holds the following accreditations:

- ISO-9001:2000
- NVLAP Accredited ISO 17025:2005
- EAC Accredited VSTL, NIST 150,150-22
- A2LA Accredited (Certification No.'s 0214.40, 0214.41, and 0214.42)
- FCC Approved Contractor Test Site (Part 15, 18)

2.1 Revision History

Table 2-1 describes the version history of the submitted voting system.

Table 2-1. Voting System Revision History

System Version	Certification Type	System Modified	Certification Date	Certification Number
Unity 3.2.1.0	New System	Original	03/29/11	ESSUnity3210
Unity 3.4.0.0	Modification	Unity 3.2.1.0	10/31/12	ESSUnity3400
Unity 3.4.1.0	Modification	Unity 3.4.0.0	04/04/14	ESSUnity3410
Unity 3.4.1.4	Modification	Unity 3.4.1.0	TBD	ESSUnity3414

2.2 Known Field Issues

Two technical advisories (see also the EAC Formal investigation Report, dated December 20, 2011) have been issued by the EAC concerning known field issue of the DS200, each of which is summarized below:

- EAC Technical Advisory ESS2011-02: During local acceptance testing in a jurisdiction, multiple DS200 Ballot Scanners exhibited an anomaly where the touch screen interface would stop responding to touches.

- EAC Technical Advisory ESS2011-03: During local acceptance testing, a DS200 Ballot Scanner failed to count a marked ballot position resulting in a lost vote.

In response to the technical advisories, ES&S has published two Technical Bulletins, PRBDS2000013 and FYIDS2000021, both of which are dated August 3, 2011. These issues were corrected in prior EAC test campaigns and the changes were incorporated in this release.

2.3 Scope of Testing

The focus of the test campaign was to verify the modifications submitted by the manufacturer for EAC certification.

2.3.1 Modification Overview

The changes submitted for this modification are presented in this section.

Election Report Manager (ERM)

- Added counters associated with Registered Voter statistics to the file format of the election_name.RCY file.

Hardware Programming Manager (HPM)

- Corrected an issue where users were unable to create DS850 parameters for a Pennsylvania cross endorsed election with more than 8 candidates.

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2.3.2 Test Materials

Unity 3.4.1.4 proprietary and COTS software submitted by the manufacturer for testing are listed in Table 2-2. Proprietary and COTS hardware are listed in Table 2-3.

Table 2-2. Required Voting System Software

Software	Software/Firmware Version
Proprietary Software	
Audit Manager (AM)	7.5.2.0
Election Data Manager (EDM)	7.8.2.0
ES&S Image Manager (ESSIM)	7.7.2.0
Hardware Programming Manager (HPM)	5.9.0.1
Election Reporting Manager (ERM)	7.9.0.1
Log Monitor Service	1.1.0.0
AutoMARK Information Management System (AIMS)	1.3.257
VAT Previewer	1.3.2907
Proprietary Hardening Scripts	
CreateNewERM_USER_ONLY	1.0.0.0
CreateNewUsers	1.3.0.2
PreInstall	1.3.0.2
PostInstall	1.3.0.2
ServerShare	3.0.4.0
NoNetwork	3.0.3.0
COTS Software	
Windows 7 Professional	7 w/ SP1
Windows Server 2008 R2	2008 R2 w/ SP1
RM/Cobol	12.06
Microsoft Office Excel	2007
Adobe Acrobat Standard	9.0, X, and XI
WSUS Microsoft Windows Offline Update Utility	8.8
Symantec Endpoint Protection	12.1.4
Symantec Endpoint Protection Intelligent Updater	20140130-001-v5i64.exe

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2.3.2 Test Materials (Continued)

Table 2-3. Required Voting System Equipment

Component	Hardware Version	Firmware Version
Proprietary Hardware		
DS200 Precinct Count Scanner	1.2, 1.2.3, & 1.3	1.7.0.0
M100 Precinct Count Scanner	1.3	5.4.4.5
AutoMARK A100	1.0	1.3.2907
AutoMARK A200	1.1	1.3.2907
AutoMARK A200	1.3(Printer Board 1.70)	1.3.2907
AutoMARK A200	1.3(Printer Board 1.65)	1.3.2907
DS850 Central Count Scanner	1.0	2.9.0.0
M650 Central Count Scanner	1.1 & 1.2	2.2.2.0
Plastic Ballot Box	1.2 & 1.3	N/A
Metal Ballot Box	1.0, 1.1, & 1.2	N/A
COTS Hardware		
EMS Client Laptop – Dell	Latitude E6410 & E6420	N/A
EMS Server – Dell	T110	N/A
EMS Client Desktop – Dell	Optiplex 3010	N/A
Delkin USB Flash Drives	512MB, 1, 2, 4, & 8GB	N/A
Delkin Compact Flash	1GB	N/A
DS850 Report Printer	OKI B430dn, B431dn, & B431d	N/A
DS850 Audit Printer	OKI Microline 420	N/A
Avid Headphones	Avid FV 60	N/A
SanDisk CF Card Reader	018-6305	N/A

Table 3-3 describes the test materials required to execute the required testing. Test materials may not be fully tested during the campaign, but are used to support the tests conducted during the campaign. The following items listed may not be included in the baseline system or Scope of Certification document.

Table 3-3. Required Test Materials

Test Material	Quantity	Make	Model
Ballot on Demand Printer	1	OKI Data	C9650
ES&S Pens	20	BIC	Grip Roller
Ethernet Switch	1	D-Link	F321387016586

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2.3.3 Block Diagram

Unity 3.4.1.4 is an integrated suite of election management products. Figure 2-1 provides a visual system overview.

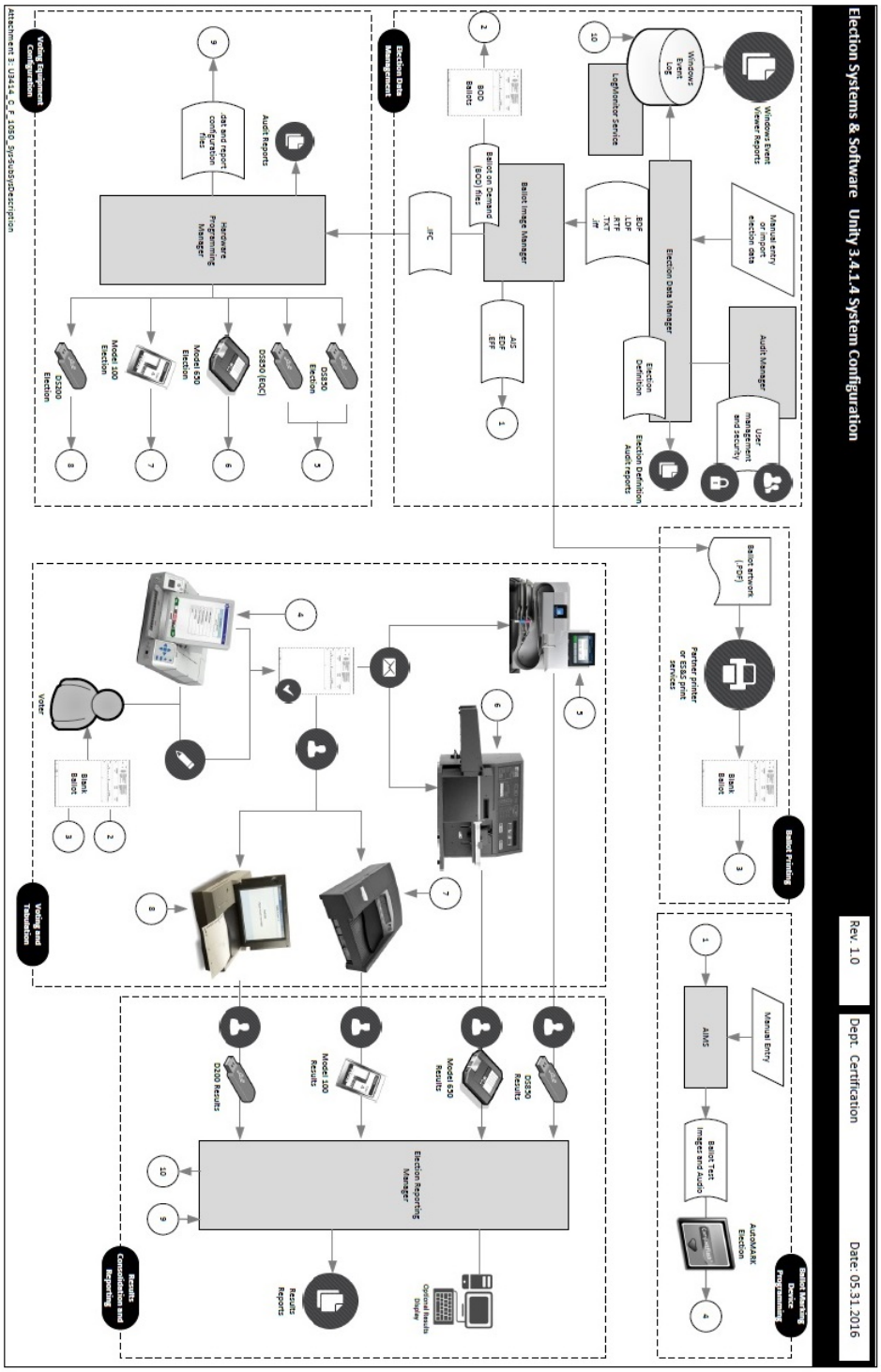

Figure 2-1. Unity 3.4.1.4 System Overview

2.3.4 Supported Languages

The submitted voting system supports English and Spanish.

2.3.5 NOCs

Applicable NOCs released by the EAC as of the date of the Test Plan are listed in Table 2-4.

Table 2-4. Applicable NOCs

NOC ID	Name
2015-01	Test Readiness Review
2016-01	Test Readiness Review
2016-02	Trusted Build

2.3.6 RFIs

Applicable RFIs released by the EAC as of the date of the Test Plan are listed in Table 2-5.

Table 2-5. Applicable RFIs

RFI ID	Name
2008-03	EAC Decision on OS Configuration
2008-05	EAC Decision on Durability
2009-04	EAC Decision on Audit Log Events
2010-02	EAC Decision on Coding Conventions
2010-03	EAC Decision on Database Coding Conventions
2010-05	EAC Decision on Testing of Modifications to a Certified System
2010-07	EAC Decision on Module Length Comments and responses
2010-08	EAC Decision on Calling Sequence
2012-03	EAC Decision on Configuration Management of COTS Products
2012-04	EAC Decision on Software Setup Validation
2013-03	EAC Decision on Timestamps
2013-04	EAC Decision on Usability Testing
2015-05	EAC Decision on Touchscreen Technology

3.0 TEST FINDINGS

The Unity 3.4.1.4, as identified in Section 2.3.2 of this report, was subjected to the tests as summarized in this section.

3.1 Anomalies

NTS Huntsville defines an anomaly as any unexpected result and/or event that deviates from what is standard, normal, or expected in which no root cause has been determined. All anomalies are logged and monitored throughout the test campaign and subsequent testing efforts. Anomalies may become deficiencies when a root cause is established.

Any anomaly identified during testing is described in Appendix C – Anomaly Report.

3.2 Deficiencies and Resolutions

NTS Huntsville defines a deficiency as any repeatable test result or event that is counter to the expected result or violates the specified requirements. Deficiencies are placed into the NTS deficiency tracking system (Jira) and the EAC's Virtual Review Tool (VRT) for disposition and resolution.

Any deficiencies identified during testing are summarized in the summary findings of the respective test section of the test report and their resolutions are presented in their entirety in Appendix B – Deficiency Report.

3.3 Summary Findings

Description of the test and findings are summarized in this section.

3.3.1 Physical Configuration Audit (PCA)

A Physical Configuration Audit (PCA) was performed as part of the testing activities in accordance with Section 6.6 of Volume II of the VVSG. The PCA compares the voting system components submitted for certification with the vendor's technical documentation and confirms that the documentation submitted meets the requirements of the Guidelines. The PCA included the following activities:

- Establishing a configuration baseline of software and hardware to be tested; confirm whether manufacturer's documentation is sufficient for the user to install, validate, operate, and maintain the voting system;
- Verifying software conforms to the manufacturer's specifications; inspect all records of manufacturer's release control system; if changes have been made to the baseline version, verify manufacturer's engineering and test data are for the software version submitted for certification;
- Reviewing drawings, specifications, technical data, and test data associated with system hardware, and to establish system baseline;
- Reviewing manufacturer's documents of user acceptance test procedures and data against system's functional specifications; resolve any discrepancy or inadequacy in manufacturer's plan or data prior to beginning system integration functional and performance tests;
- Subsequent changes to baseline software configuration made during testing, as well as system hardware changes that may produce a change in software operation are subject to re-examination.

3.3.1 Physical Configuration Audit (PCA) (Continued)

Summary Findings

A PCA was performed to baseline the system's hardware and software components that were used during the test campaign. The submitted system matched the description provide in the TDP. No discrepancies were noted during the PCA.

3.3.2 Functional Configuration Audit (FCA)

A Functional Configuration Audit of the Unity 3.4.1.4 was performed in accordance with Section 6.7 of Volume II of the 2005 VVSG. The purpose of the FCA was to verify that the submitted modification listed in Section 2.3.1 performed as documented in the manufacturer supplied technical documentation and to validate that the modifications met the requirements of the EAC 2005 VVSG. The FCA consisted of testing the following:

- Create DS850 parameters for a Pennsylvania cross endorsed election with more than 8 candidates.
- Verify that the counters associated with Registered Voter statistics are present in the election_name.RCY file.

Summary Findings

One deficiency was discovered during FCA. When creating the tabulator parameters for the DS850 with 8 or more candidates in a cross endorsed contest, HPM would present a COBOL error. ES&S corrected this deficiency and upon retest it was demonstrated that the submitted modification performed as documented by the manufacturer and met the requirements 2005 VVSG, Volume II, Section 6.7.

3.3.3 System Integration

In order to further verify that submitted modifications did not negatively impact the system, one general and one open primary election were utilized across system components. The generated test deck was then utilized for system integration testing on the AutoMARK, M100, DS200, M650 and DS850 with all expected results verified within ERM.

Summary Findings

Through System Integration testing, it was demonstrated that the system performed as documented with all components performing their intended functions and the requirements of system integration testing were met.

3.3.4 TDP Review

The Unity 3.4.1.4 TDP was reviewed to the 2005 VVSG. This review was performed as part of the testing activities. The TDP review only included the revised and new documents submitted for this testing campaign. The documents were reviewed for accuracy, completeness, and compliance to the 2005 VVSG.

The review results were recorded in a worksheet that provided the pass/fail compliance to each applicable VVSG requirement. The discovered deficiencies were reported to the manufacturer and internally tracked by NTS Huntsville as test exceptions until verified that the applicable documents had been corrected. The manufacturer corrected nonconformance observations and resubmitted the associated documents for review. This process continued until the TDP complied with the applicable TDP standards in the EAC 2005 VVSG.

Summary Findings

There were three TDP deficiencies discovered during this test campaign. A summary of the TDP issues encountered is provided below:

- Inconsistent Language Support
- Section Headings and Table of Contents did not match
- Section and cross reference numbered incorrectly

All TDP deficiencies were resolved by ES&S prior to completion of testing.

3.3.5 Source Code Review

All code modified or added subsequent to the Unity 3.4.1.0 source code reviews was reviewed as part of the 3.4.1.4 test campaign. This source code review was performed in accordance with the 2005 VVSG and EAC Testing and Certification Program Manual, Version 2.0.

Summary Findings

A total of 1,552 lines of code were reviewed for the Unity 3.4.1.4 test campaign. Fifty-two source code deficiencies were discovered during testing. All identified source code deficiencies were resolved prior to the conclusion of the source code review process. The deficiencies are summarized is in Table 3-1.

Table 3-1. Source Code Review Deficiencies

System Name	Deficiency (Type)	Deficiency (QTY)
ERM	Units Called	8
	Header or File Name Missing	2
	Header Revision History	3
	Header File References	1
HPM	Units Called	4
	Header Globals Missing	1
	Header Return	1
	Header Parameter	1
	Header File References	27
	Header Inputs or Outputs	1
	Non Enumerated Constant	2
	No Message On Exit	1

3.3.6 Quality Assurance /Configuration Management

As part of the modification, NTS Huntsville personnel conducted a QA/CM review to verify that the manufacturer correctly followed their documented processes for a modified system. The QA/CM requirements were spot checked and limited to only the changes included within this modification. NTS Huntsville provided the manufacturer a quality assurance audit list in which the manufacturer was required to complete and deliver within 24 hours. The quality assurance audit utilized the following guidelines as the focus of the review:

The basis of this examination is to ensure:

- Conformance with the requirements to provide information on manufacturer practices required by the 2005 VVSG.
- Conformance of system documentation and other information provided by the manufacturer with the documented practices for quality assurance and configuration management.

The focus of this examination is to assess whether the manufacturer's quality assurance and configuration management program was followed for this modification. The goal of the review was to determine the following:

- Did the manufacturer follow their documented procedures for this modification?
- Was QA and/or Pre-Certification testing performed prior to submitting to the VSTL?
- Were the changes properly communicated to the affected jurisdictions and manufacturer staff?

Summary Findings

ES&S supplied NTS Huntsville with the requested documentation within the allotted 24-hour window. After a review of the information provided, NTS Huntsville determined that ES&S followed their established process for quality assurance and configuration management.

3.3.7 System Identification Tools

The manufacturer submitted system Identification tools are used by elections officials to verify that the hardware and software of systems purchased are identical to the systems certified by the EAC. Section 2.14 of the Voting System Test Laboratory Manual requires that VSTLs test system identification tools during the test campaign to make sure they function properly and as intended. The manufacturer submitted system identification tools were reviewed for compliance with the 2005 VVSG, Volume I, Section 7.4.6 and RFI 2012-04.

Summary Findings

NTS Huntsville used the results of the trusted build process and the Unity 3.4.1.4 system identification tools to verify that the tools provided for HPM and ERM function as described by ES&S. After a review of the information provided, NTS Huntsville determined that the system identification tools did not meet the requirements of the Program Manual and Volume I Section 7.4.6 of the 2005 VVSG. ES&S submitted new tool and after retest is was determined that the tools worked as documented and will allow for proper verification of the installed software for HPM and ERM. In addition, NTS Huntsville determined that the tools meet the requirements of the Program Manual and Volume I Section 7.4.6 of the 2005 VVSG.

4.0 RECOMMENDATION FOR CERTIFICATION

NTS Huntsville performed conformance testing on the Election Systems & Software Voting System 3.4.1.4 to the EAC 2005 VVSG. NTS determined that the modifications met the requirements of the EAC 2005 VVSG and the manufacturer's technical documentation.

This report is valid only for the equipment identified in Section 1.1 of this report. Due to the varying requirements of individual jurisdictions, it is recommended by the EAC 2005 VVSG that local jurisdictions perform acceptance tests on all systems prior to implementation within their jurisdiction.

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APPENDIX A. ADDITIONAL FINDINGS

A.1 ADDITIONAL FINDINGS REPORT

The following tests were performed by NTS Huntsville at the request of the manufacturer. These modifications or additions represent functionality or tools that are outside the scope of the certification.

A.1.1 Election Support Software and Hardware

In addition to the modifications submitted for Unity 3.4.1.4, as described in Section 2.3.1 of this test report, ES&S requested that additional testing be performed to verify that data can be exchanged utilizing the modified .RCY file between Unity 3.4.1.4 voting system and the voting systems previously qualified by the National Association of State Election Directors (NASED), specifically Unity 3.0.1.0 and Unity 3.0.1.1 voting systems. The Unity 3.0.1.0 and 3.0.1.1 voting systems were never tested or certified under the EAC Testing and Certification Program and hold no official status under the EAC Testing and Certification Program. Therefore, any testing, including the data exchange between the submitted Unity 3.4.1.4 system and the NASED qualified systems, is outside the scope of the EAC Testing and Certification Program.

The following software functions were tested:

- Ability to use Unity 3.0.1.0 and 3.0.1.1 equipment with Unity 3.4.1.4 equipment (Unity Bridge) in executing pre-election, election, and post-election activities. These activities include the following:
    - Ability to create elections with Unity 3.0.1.0 and 3.0.1.1 that Unity 3.4.1.4 can recognize
    - Tabulate ballots with M100, DS200, M650, iVotronic and DS850
    - Generate accurate reports with Unity 3.0.1.0 and 3.0.1.1 ERM from all tabulators

NTS Huntsville performed limited testing as requested by the manufacturer. Table A-1 outlines the requested testing. Figure A-1 diagrams the data interchange between Unity 3.0.1.0/3.0.1.1 and Unity 3.4.1.4.

Table A-1. Manufacturer Requested Testing Outside of Certification

Component	Version	Requested Testing
Election Reporting Manager Unity Bridge Guide	1.0	Documentation Review
Unity EMS	3.0.1.0 & 3.0.1.1	Functional Integration Test of Bridge Solution

A.1.1 Election Support Software and Hardware (Continued)

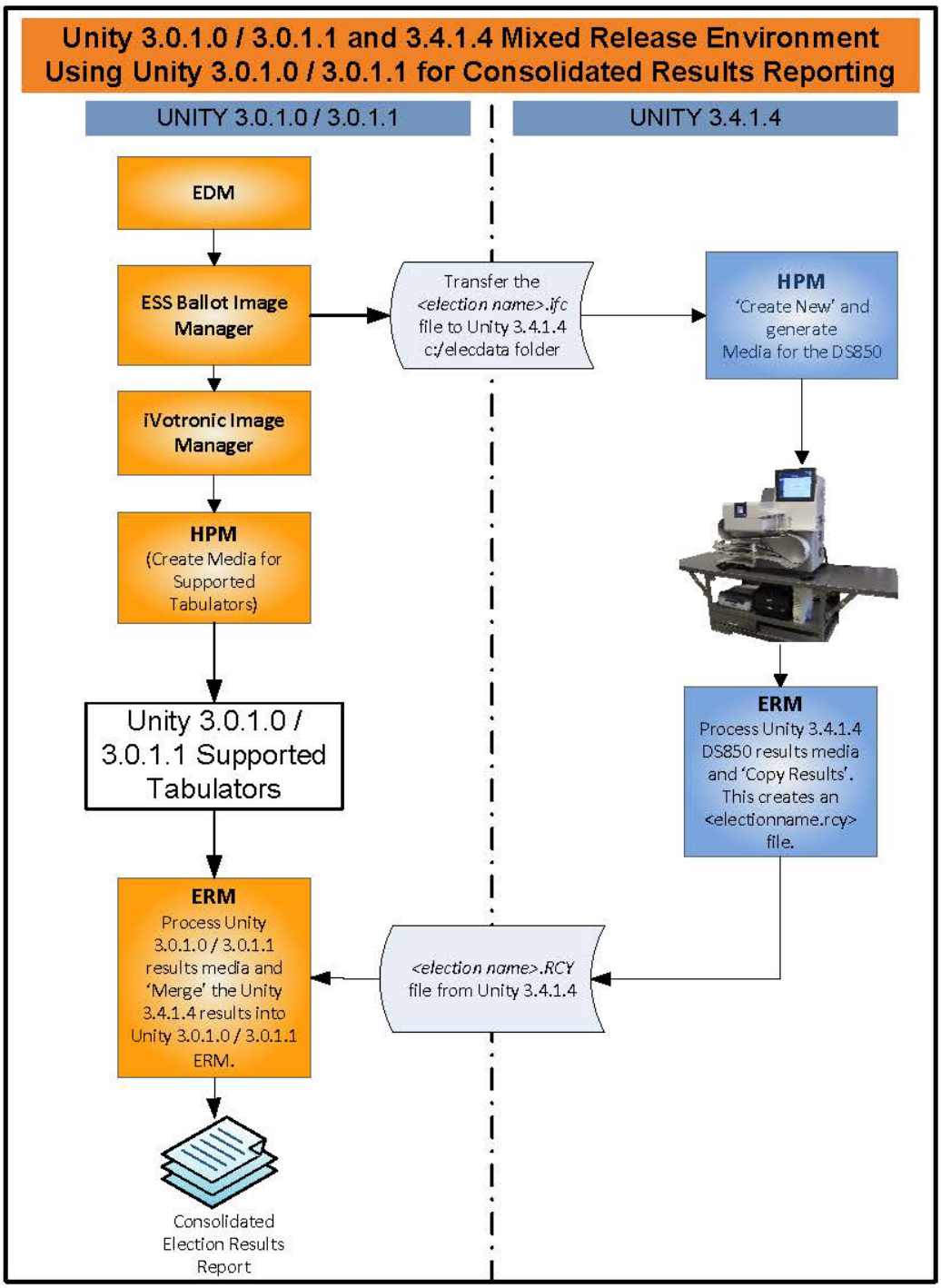

Figure A-1. Unity Bridge Diagram

A.1.2 Summary Findings

The limited testing by NTS determined that the components listed in Table A-1 functioned as described and did not introduce any errors into the certified system.

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APPENDIX B. DEFICIENCY REPORT

B.1 DEFICIENCY REPORT

Table B-1 describes the deficiencies discovered during the Unity 3.4.1.4 test campaign.

Table B-1. Functional Deficiency Report

EAC VRT ID[1]	Deficiency Summary	Resolutions
342	When creating the tabulator parameters for the DS850 with 8 or more candidates in a cross endorsed contest, HPM presents an error. HPM Window displays with COBOL error Return Code window displays with message Program 'hpm' terminated with return code 253. COBOL error code:109.	The source code was modified to address the deficiency. Retesting verified the deficiency was corrected.
343	During source code review fifty-two source code deficiencies were discovered. The deficiencies discovered and the number of occurrences are listed below: • Units Called (8) • Units Called (4) • Header or File Name Missing (2) • Header Revision History (3) • Header File References (28) • Header Globals Missing (1) • Header Return (1) • Header Parameter (1) • Header Inputs or Outputs (1) • Non Enumerated Constant (2) • No Message On Exit (1)	All deficiencies were corrected prior to the trusted build.
344	There were three TDP deficiencies discovered during this test campaign. A summary of the TDP issues encountered is provided below: • Inconsistent Language Support • Section Headings and Table of Contents did not match • Section and cross reference numbered incorrectly	All deficiencies were corrected prior to the final TDP submission.
345	The initial system identification tools for ERM and HPM failed to meet the requirements of Volume I Section 7.4.6 of the 2005 VVSG.	A new tool was submitted. Retesting verified the deficiency was corrected.

[1] The ID numbers may not be sequential. The deficiency tracking system (VRT) that is utilized by the EAC creates unique ID numbers based on overall entries within the database and not within individual projects.

APPENDIX C. ANOMALY REPORT

C.1 ANOMALY REPORT

No anomalies were discovered during the Unity 3.4.1.4 test campaign.

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APPENDIX D. AS-RUN TEST PLAN

D.1 AS-RUN TEST PLAN

Table D-1 details the change made to the test plan during the course of testing. For a complete description see NTS Test Plan PR048887-01 Rev B.

Table D-1. As-Run Test Plan Changes

Test Plan Section	Description of Change	Justification
A.1.1	Added a diagram of the Unity Bridge solution	Provides a clarification of the data interchange between Unity 3.0.1.0/3.0.1.1 and Unity 3.4.1.4

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APPENDIX E. TECHNICAL DATA PACKAGE

E.1 UNITY 3.4.1.4 TECHNICAL DATA PACKAGE

The documents listed in Table E-1 comprise the Unity 3.4.1.4 TDP.

Table E-1. Unity 3.4.1.4 TDP

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
System Overview			
Voting System Overview	1.3	01-01	Unity3414_C_D_0100_SysOvr
System Functionality Description			
System Functionality Description	1.0	02-01	Unity3414_C_D_0200_SFD
System Hardware Specification			
System Hardware Specification – DS200 HW Rev 1.2	3.0	03-01	DS200HW_M_SPC_0312_HWSpec
System Hardware Specification – DS200 HW Rev 1.3	4.0	03-02	DS200HW_M_SPC_0313_HWSpec
System Hardware Specification – DS850 HW Rev 1.0	1.2	03-03	DS850HW_M_SPC_0310_HWSpec
System Hardware Specification – M100 HW Rev 1.3	3.0	03-04	M100HW_M_SPC_0313_HWSpec
System Hardware Specification – M650 HW Rev 1.2	3.0	03-05	M650HW_M_SPC_0312_HWSpec
Software Design and Specification			
ES&S Ballot Image Processing Specification	1.1	04-01	ESSSYS_1'1_SPC_BalImgProc
ES&S System Development Program	1.2	04-02	ESSSYS_SG_P_0400_SystemDevProgram
ES&S Coding Standards	1.1	04-03	ESSSYS_D_P_0400_CodingStandards
Software Design Specifications – Audit Manager	1.0	04-04	U3414_SDS00_AM
Audit Manager County Model	N/A	04-05	U3414_SDS00_AM01_CountyModel
Software Design Specifications DS200	1.0	04-06	U3414_SDS00_DS200
Software Design Specifications DS850	1.0	04-07	U3414_SDS00_DS850
Software Design Specifications – EDM	1.0	04-08	U3414_SDS00_EDM
EDM County Model	N/A	04-09	U3414_SDS00_EDM01_CountyModel
EDM Election Model	N/A	04-10	U3414_SDS00_EDM02_ElectionModel
Software Design and Specification – ERM	1.0	04-11	U3414_SDS00_ERM
Software Design and Specification – ERM Appendices	1.0	04-12	U3414_SDS00_ERM01_Appendices
Software Design and Specification – ESSIM	1.0	04-13	U3414_SDS00_ESSIM
Software Design and Specification – HPM	1.0	04-14	U3414_SDS00_HPM
Software Design and Specification – HPM Appendices	1.0	04-15	U3414_SDS00_HPM01_Appendices
Software Design and Specification – Log monitor	1.0	04-16	U3414_SDS00_LogMonitor
Software Design Specifications M100	1.0	04-17	U3414_SDS00_M100
Software Design Specifications M650	1.0	04-18	U3414_SDS00_M650
Shared File Specifications	-	04-19	01_Shared File Specifications (Folder)
Ballot Data File Specification	N/A	04-20-01	U3414_SDS01_FS_BDF
Ballot Set Collection File Specification	N/A	04-20-02	U3414_SDS02_FS_BSC
EDMXML File Specification	N/A	04-20-03	U3414_SDS03_FS_EDMXML
EL80 File Specification	N/A	04-20-04	U3414_SDS04_FS_EL80
ESSCRYPT Functional Specification	N/A	04-20-05	U3414_SDS05_FS_ESSCRYPT
ESSDECPT Functional Specification	N/A	04-20-06	U3414_SDS06_FS_ESSDECPT
ESSXML File Specification	N/A	04-20-07	U3414_SDS07_FS_ESSXML
IFC File Specification	N/A	04-20-08	U3414_SDS08_FS_IFC
Language Data File Specification	N/A	04-20-09	U3414_SDS09_FS_LDF
M650 Output File Specification	N/A	04-20-10	U3414_SDS10_FS_M650 OUTPUT

E.1 UNITY 3.4.1.4 TECHNICAL DATA PACKAGE (CONTINUED)

Table E-1. Unity 3.4.1.4 TDP (Continued)

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
System Test/Verification Specification			
System Test Plan	1.0	05-01	U3414_QA_D_0500_SysTestPlan
Usability Test Reports	--	05-02	01_Usability Test Reports (folder)
ES&S AutoMARK VAT	1.X	05-02-01	AMVATHW_P_D_0510_CIFRptAMVAT
DS200 Precinct Ballot Scanner	1.2.1	05-02-02	DS200HW_P_D_0512_CIFRptDS200
System Security Specification			
Voting System Security Specification	1.0	06-01	U3414_SSS00
Security Script Description	1.0	06-02	U3414_SSS02.01_SecScriptDesc
Hardening Procedures for the Election System	1.1	06-03	U3414_SSS02_HardeningProcedures
System Operations Procedure			
Ballot on Demand Printer Setup & Printing Procedures	1.1	07-01	U3414_ESSIM02_BOD
ES&S Audit Manager User's Guide	1.1	07-02	U3414_SOP00_AM
DS200 Operator's Guide	1.0	07-03	U3414_SOP00_DS200
DS850 Operator Guide	1.0	07-04	U3414_SOP00_DS850
Election Data Manager Operator's Guide	1.1	07-05	U3414_SOP00_EDM
Election Reporting Manager User's Guide	1.1	07-06	U3414_SOP00_ERM
ES&S Image Manager User's Guide	1.1	07-07	U3414_SOP00_ESSIM
Hardware Programming Manager User's Guide	1.0	07-08	U3414_SOP00_HPM
ES&S Log monitor User's Guide	1.0	07-09	U3414_SOP00_LogMonitor
M100 Operator Guide	1.1	07-10	U3414_SOP00_M100
ES&S Model 650 System Operators Guide	1.1	07-11	U3414_SOP00_M650
System Maintenance Manuals			
DS200 Maintenance Guide	1.0	08-1	U3414_SMM00_DS200
DS850 Maintenance Guide	1.1	08-2	U3414_SMM00_DS850
M100 Maintenance Guide	1.1	08-3	U3414_SMM00_M100
ES&S Model 650 System Maintenance Guide	1.0	08-4	U3414_SMM00_M650
Personnel Deployment and Training			
Personnel Deployment and Training Program	3.0	09-01	ESSSYS_T_D_0900_TrainingProgram
Configuration Management Plan			
Configuration Management Program	2.1	10-1	ESSSYS_CM_P_1000_CMProgram
Technical Documentation Program	5.0	10-2	ESSSYS_DOC_P_1000_TDProgram
QA Program			
Manufacturing Quality Assurance Program	1.2	11-01	ESSSYS_M_P_1100 _MNFQualityAssurancePlan
Software Quality Assurance Program	2.0	11-02	ESSSYS_QA_P_1100 _SoftwareQualityAssuranceProgram

E.1 UNITY 3.4.1.4 TECHNICAL DATA PACKAGE (CONTINUED)

Table E-1. Unity 3.4.1.4 TDP (Continued)

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
System Change Notes			
System Change Notes	1.1	12-01	U3414_DOC_D_0100_ChangeNotes
Attachments			
Ballot Production Guide for Unity	3.0	13-01	UNITY_DOC_SOP_BPG
AMVAT AIMS			
AIMS TDP	-	14-01	AIMS_TDP (Folder)
AutoMARK Information Management System Cover Page	N/A	14-01-01	AIMS 3414 Sect00A Cover Page
AutoMARK Information Management System Technical Data Package Table of Contents	N/A	14-01-02	AIMS 3414 Sect00B TDP TOC
AIMS Requirements Trace Matrix	1	14-01-03	AIMS 3414 Sect00C Requirements Trace Matrix AQS-13-5000-203-R
AutoMARK Information Management System Release Notes	15	14-01-04	AIMS 3414 Sect00D Release Notes AQS-13-5002-204-R
AutoMARK Information Management System System Overview	10	14-01-05	AIMS 3414 Sect01 System Overview AQS-13-5002-200-R
AutoMARK Information Management System System Functionality	9	14-01-06	AIMS 3414 Sect02 System Functionality AQS-13-5001-201-R
AutoMARK Information Management System Hardware Specifications	8	14-01-07	AIMS 3414 Sect03 System Hardware Specification AQS-13-5000-201-R
AutoMARK Information Management System Compact Flash memory Card Design Specifications	8	14-01-08	AIMS 3414 Sect04 AutoMark Compact FMC Specs AQS-13-5001-008-R
AutoMARK Information Management System Programming Specifications Details	7	14-01-09	AIMS 3414 Sect04 Programming Specifications Details AQS-13-5001-212-R
AutoMARK Information Management System Software Design Specifications	9	14-01-10	AIMS 3414 Sect04 Software Design Specifications AQS-13-5001-202-R
AutoMARK Information Management System Election Official's Guide	24	14-01-11	AIMS 3414 Sect05 Election Officials Guide AQS-13-5001-208-R 07
AutoMARK Information Management System System Operating Procedures	8	14-01-12	AIMS 3414 Sect05 System Operations Procedures AQS-13-5011-200-R
AutoMARK Information Management System System Security Specifications	9	14-01-13	AIMS 3414 Sect06 System Security Specification AQS-13-5002-201-R.pdf
AutoMARK Information Management System Quality Assurance Policy & Procedures	9	14-01-14	AIMS 3414 Sect07 Quality Assurance Policy & Procedures AQS-13-5011-000-R
AutoMARK Information Management System Quality Assurance Test Cases	10	14-01-15	AIMS 3414 Sect07 Quality Assurance Test Cases AQS-13-5011-002-R
AutoMARK AIMS Quality Assurance Test Procedures	8	14-01-16	AIMS 3414 Sect07 Quality Assurance Test Procedures AQS-13-5011-001-R
AutoMARK Information Management System Configuration Management Plan	8	14-01-17	AIMS 3414 Sect08 Configuration Management Plan AQS-13-5020-200-R
AIMS System Change Notes	30	14-01-18	AIMS 3414 System Change Notes AQS-13-3010-002-A
AutoMARK AIMS Software Compilation Instructions	3	14-01-19	AutoMARK AIMS Software Compilation Instructions

E.1 Technical Data Package (Continued)

Table E-1. Unity 3.4.1.4 TDP (Continued)

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
AMVAT TDP	-	14-02	AMVAT_TDP (Folder)
PREFACE	-	14-02-01	PREFACE (Folder)
AutoMARK Release Notes	20	14-02-01-01	AutoMARK 3414 Release Notes AQS-13-5002-205-R
AutoMARK VAT Requirements Trace Matrix	1	14-02-01-02	AutoMARK 3414 Requirement Trace Matrix AQS-13-5000-003-F
AutoMARK System Change Notes	96	14-02-01-03	AutoMARK 3414 System Change Notes AQS-13-3010-001-A
AutoMARK TECHNICAL DATA PACKAGE	N/A	14-02-01-04	AutoMARK 3414 TDP TOC
SECTION 01	-	14-02-02	SECTION01 (Folder)
AutoMARK System Introduction	8	14-02-02-01	AutoMARK 3414 System Introduction AQS-13-5001-000-R
AutoMARK System Overview	10	14-02-02-02	AutoMARK 3414 System_Overview AQS-13-5002-000-S
SECTION 02	-	14-02-03	SECTION02 (Folder)
AutoMARK System Functionality	10	14-02-03-01	AutoMARK 3414 System Functionality AQS-13-5001-001-R
SECTION 03	-	14-02-04	SECTION03 (Folder)
AutoMARK System Hardware Specification	8	14-02-04-01	AutoMARK 3414 System Hardware Specification AQS-13-5000-001-F
AutoMARK 1.1-1.2 BOM	N/A	14-02-04-02	U3414_SHS01_AutoMARK1.1-1.2 BOM
AutoMARK 1.3 BOM	N/A	14-02-04-03	U3414_SHS01_AutoMARK1.3 BOM
Cables	-	14-02-04-04	Cables (Folder)
Cable Diagrams	Phase 2	14-02-04-04-01	CABLE_PHASE2
Schematics	-	14-02-04-05	Schematics (Folder)
Printer Engine Board	B	14-02-04-05-01	PEB_RevB
Power Supply Board	B	14-02-04-05-02	PSB_RevB
AutoMARK Schematics	B	14-02-04-05-03	SBC_640117-4000C-2AGP
PI211MC-B4DR Schematic	A	14-02-04-05-04	Scanner_PI211MC-B4DR May04
Gas Gauge Board	A	14-02-04-05-05	SD_GGB_REV_A
Switch Interface Board	A3	14-02-04-05-06	SIB_A3
Ultrasonic Sheet Detector	A	14-02-04-05-07	USD-A-SCH
SECTION 04	-	14-02-05	SECTION04 (Folder)
AutoMARK Ballot Image Processing Specifications	9	14-02-05-01	AutoMARK 3414 Ballot Image Processing Specification AQS-13-5002-003-S
AutoMARK Ballot Scanning and Printing Specification	8	14-02-05-02	AutoMARK 3414 Ballot Scanning and Printing Specification AQS-13-5002-007-S
AutoMARK Driver Application Programming Interface Specifications	8	14-02-05-03	AutoMARK 3414 Driver API Specification AQS-13-5000-002-F
AutoMARK Embedded Database Interface Specification	10	14-02-05-04	AutoMARK 3414 Embedded Database Interface Specifications AQS-13-5002-005-S
AutoMARK Graphical User Interface (GUI) Design Specifications	8	14-02-05-05	AutoMARK 3414 GUI Design Specifications AQS-13-5001-005-R
Auto MARK Operating Software Design Specifications	8	14-02-05-06	AutoMARK 3414 Operating Software Design Specifications AQS-13-5001-002-R

E.1 Technical Data Package (Continued)

Table E-1. Unity 3.4.1.4 TDP (Continued)

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
AutoMARK Programming Specifications Details	10	14-02-05-07	AutoMARK 3414 Programming Specifications Details AQS-13-5001-011-R
AutoMARK Rapid Application Development Methodology	9	14-02-05-08	AutoMARK 3414 RAD Methodology AQS-13-5001-010-R
AutoMARK Software Design Specifications	9	14-02-05-09	AutoMARK 3414 Software Design Spec AQS-13-5001-004-S
AutoMARK Software Development Environment Specifications	9	14-02-05-10	AutoMARK 3414 Software Development Environment AQS-13-5001-006-R
AutoMARK Software Diagnostic Specifications	9	14-02-05-11	AutoMARK 3414 Software Diagnostics Specifications AQS-13-5000-004-F
AutoMARK Software Standards Specification	9	14-02-05-12	AutoMARK 3414 Software Standards Specification AQS-13-4000-000-S
SECTION 05	-	14-02-06	SECTION05 (Folder)
AutoMARK System Security Specifications	11	14-02-06-01	AutoMARK 3414 System Security Specification AQS-13-5002-001-S
AutoMARK System Security Test Cases	9	14-02-06-02	AutoMARK 3414 System Security Test Cases AQS-13-5030-005-S
AutoMARK System Security Test Procedures	8	14-02-06-03	AutoMARK 3414 System SecurityTest Procedures AQS-13-5012-000-S
SECTION 06	-	14-02-07	SECTION06 (Folder)
Environmental	-	14-02-07-01	ENVIRONMENTAL (Folder)
AutoMARK Environmental Test Cases	10	14-02-07-01-01	AutoMARK 3414 Environmental Test Cases AQS-13-5030-001-F
AutoMARK Environmental Test Plan	10	14-02-07-01-02	AutoMARK 3414 Environmental Test Plan AQS-13-5020-001-F
AutoMARK Environmental Test Procedures		14-02-07-01-03	AutoMARK 3414 Environmental Test Procedure AQS-13-5010-013-F
Operations & Diagnostic Log	-	14-02-07-02	OPERATIONS & DIAGNOSTIC LOG (Folder)
AutoMARK Operations and Diagnostic Log Specifications	10	14-02-07-02-01	AutoMARK 3414 Operations and Diagnostic Log Specs AQS-13-5002-004-S
AutoMARK Operations and Diagnostic Log Test Cases	9	14-02-07-02-02	AutoMARK 3414 Operations Log Test Cases AQS-13-5032-005-S
AutoMARK Operations and Diagnostic Log Test Procedures	9	14-02-07-02-03	AutoMARK 3414 Operations Log Test Procedures AQS-13-5012-004-S
SQA	-	14-02-07-03	SQA (Folder)
AutoMARk Software Quality Assurance Test Plan	8	14-02-07-03-01	AutoMARK 3414 SQA Test Plan AQS-13-5021-000-R
AutoMARK Software Quality Assurance Test Cases	10	14-02-07-03-02	AutoMARK 3414 SQA_Test_Cases AQS-13-5031-000-R
AutoMARK Software Quality Assurance Test Procedures	9	14-02-07-03-03	AutoMARK 3414 SQA_Test_Procedures AQS-13-5011-001-R
System Level Test Cases	-	14-02-07-04	SYSTEM LEVEL TEST CASES (Folder)
AutoMARK System Level Test Cases	9	14-02-07-04-01	AutoMARK 3414 System Level Test Cases AQS-13-5030-000-F

E.1 Technical Data Package (Continued)

Table E-1. Unity 3.4.1.4 TDP (Continued)

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
AutoMARK System Level Test Plan	8	14-02-07-04-02	AutoMARK 3414 System Level Test Plan AQS-13-5020-002-F
AutoMARK System Level Test Procedures	8	14-02-07-04-03	AutoMARK 3414 System Level Test Procedures AQS-13-5010-000-F
SECTION 07	-	14-02-08	SECTION07 (Folder)
AutoMARK Jurisdiction Guide	13	14-02-08-01	AutoMARK 3414 Jurisdiction Guide AQS-13-5061-003-R
AutoMARK Poll Worker's Guide	14	14-02-08-02	AutoMARK 3414 Poll Workers Guide AQS-13-5061-002-R
AutoMARK Voter's Guide	13	14-02-08-03	AutoMARK 3414 Voters Guide AQS-13-5061-001-R
SECTION 08	-	14-02-09	SECTION08 (Folder)
AutoMARK System Installation and Maintenance Guide	16	14-02-09-01	AutoMARK 3414 System Installation and Maintenance Guide AQS-13-5010-001-F
SECTION 09	-	14-02-10	SECTION09 (Folder)
AutoMARK ATS Employee Training Procedure	8	14-02-10-01	ATS 3414 Employee Training Procedure AQS-13-5010-012-F
AutoMARK Personnel Deployment and Training Requirements	9	14-02-10-02	AutoMARK 3414 Personnel Deployment and Training AQS-13-5000-000-F
SECTION 10	-	14-02-11	SECTION10 (Folder)
AutoMARK VAT – Printer Engine Board Firmware Compilation Instructions	8	14-02-11-01	ATS 3414 AutoMARK PEB Firmware Compilation Instructions
ES&S AutoMARK Configuration Management Policy	9	14-02-11-02	ATS 3414 Configuration Management Policy AQS-13-2000-004-F
AutoMARK Software and Hardware Release Process	10	14-02-11-03	ATS 3414 Software and Hardware Release Process AQS-13-2011-000-R
AutoMARK Configuration Management Plan	9	14-02-11-04	AutoMARK 3414 Configuration Management Plan AQS-13-5020-000-F
AutoMARK Initial Software Installation Procedure	6	14-02-11-05	AutoMARK 3414 Initial Software Installation Procedure AQS-13-5012-008-S
ES&S AutoMARK Software and Firmware Compilation Instructions	5	14-02-11-06	AutoMARK VAT 1.3.2907 Software and Firmware Compilation Instructions
AutoMARK VAT – Version 1.3 & 1.4 Firmware, Hardware, & Windows CE Installation Instructions	5	14-02-11-07	AutoMARK VAT Firmware and Hardware Installation Instructions
AutoMARK VAT Software and Firmware Compilation Instructions	17	14-02-11-08	AutoMARK VAT Software and Firmware Compilation Instructions AQS-13-5013-000-A
Pre-Build Task List ES&S Automark(i) Applications	1.0	14-02-11-09	Unity_PreBuildTaskList_VAT_1.3.2907
Pre-Build Task List ES&S Automark(i) Applications	2.0	14-02-11-10	Unity_PreBuildTaskList_VAT_1.3.2907a
SECTION 11	-	14-02-12	SECTION11 (Folder)
AutoMARK Component Storage and Handling Procedure	8	14-02-12-01	ATS 3414 Component Storage and Handling Procedure AQS-13-5010-007-F
AutoMARK Design Review Policy	7	14-02-12-02	ATS 3414 Design Review Policy AQS-13-2000-002-F
AutoMARK Document Change and Issue Procedure	8	14-02-12-03	ATS 3414 Document Change and Issue Procedure AQS-13-5010-004-F

E.1 Technical Data Package (Continued)

Table E-1. Unity 3.4.1.4 TDP (Continued)

Unity 3.4.1.4 TDP Documents	Version	Doc No.	Document Code
AutoMARK Document Control Policy	8	14-02-12-04	ATS 3414 Document Control Policy AQS-13-2000-007-F
AutoMARK Engineering Change Request/Change Order Process	9	14-02-12-05	ATS 3414 Engineering Change Request Change Order Process AQS-13-5010-010-F
AutoMARK Engineering Development Policy	8	14-02-12-06	ATS 3414 Engineering Development Policy AQS-13-2000-003-F
AutoMARK Purchasing Procedure	8	14-02-12-07	ATS 3414 Purchasing Procedure AQS-13-5010-011-F
AutoMARK Quality Assurance Policy	8	14-02-12-08	ATS 3414 Quality Assurance Policy AQS-13-2000-001-F
AutoMARK Quality System Audit Process	8	14-02-12-09	ATS 3414 Quality System Audit Process AQS-13-2010-001-F
AutoMARK Receiving Procedure	8	14-02-12-10	ATS 3414 Receiving Process AQS-13-5010-005-F
AutoMARK System Report (Bug Reporting) Procedure	8	14-02-12-11	ATS 3414 System Bug Reporting Procedure AQS-13-5010-006-F

END OF TEST REPORT