# Test Report for
# EAC 2005 VVSG Certification Testing
# Performed on Dominion Voting Systems 4.14-E

# Issue Date: 06/19/2015

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## REVISIONS

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| NR | Initial Release | 5/27/15 |
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## 1.0    INTRODUCTION

The purpose of this National Certification Test Report is to document the findings from National Technical Systems, Inc. (NTS) certification testing of the Dominion Voting Systems (Dominion), herein referred to as manufacturer, Democracy Suite (D-Suite) 4.14-E voting system to the requirements set forth for Voting Systems in the U.S. Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (EAC 2005 VVSG).  D-Suite 4.14-E is a modification to the previously 2005 VVSG certified D-Suite 4.14-D voting system (Certification number: DVS-DemSuite4.14-D), and as such, was tested by NTS Huntsville  based on the "modified system" requirements set forth in section 4.4.2.3 of the EAC Testing and Certification Program Manual, Version 1.0.

### 1.1    Description of EAC Certified System Being Modified

The following subsection describes the EAC Certified System that is 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

The baseline system for this modification is the D-Suite 4.14-D voting system. Tables 1-1 and 1-2 describe the proprietary and commercial-off-the-shelf (COTS) hardware and software/firmware versions.  For a complete description of the configuration and description of the D-Suite 4.14-D product, refer to the D-Suite 4.14-D Test Report located on the EAC's website at http://www.eac.gov.

### Table 1-1.  Baseline Certified Software.

| Software Required For Testing | Software/Firmware Version |
|---|---|
| **Proprietary** ||
| EMS Election Event Designer (EED) | 4.14.37 |
| EMS Results Tally and Reporting (RTR) | 4.14.37 |
| EMS File System Service (FSS) | 4.14.37 |
| EMS Audio Studio (AS) | 4.14.37 |
| EMS Data Center Manager (DCM) | 4.14.37 |
| EMS Election Data Translator (EDT) | 4.14.37 |
| EMS Application Server (APPS) | 4.14.37 |
| EMS Adjudication | 2.4.1.3201 |
| ImageCast Central (ICC) | 4.14.17-US |
| ImageCast Precinct (ICP) | 4.14.20-US |
| ImageCast Evolution (ICE) | 4.14.21 |
| **COTS** ||
| Cepstral Voices | 6.2.3.801 |
| Microsoft Windows 7 x64 | 6.1 |
| Windows Server 2008 R2 x64 | 6.1 |
| Adobe Reader | 10.1.1 |
| Microsoft .NET Framework 4.0 | 4.0 |
| Microsoft SQL Server 2008 R2 x64 | 10.0 |
| Microsoft SQL Server 2008 Express R2 x64 | 10.50.4000.0 |
| Microsoft SQL Server 2008 R2 SP2x64 | 10.50.4000.0 |

**1.1.1    Baseline Certified System (Continued)**

### Table 1-1.  Baseline Certified Software (Continued)

| Software Required For Testing | Software/Firmware Version |
|---|---|
| COTS | |
| Microsoft Visual J# 2.0 Redistributable Package – Second Edition (x64) | 2.0 |
| 1-Wire Driver version 4.0.3b x64 | 4.0.3 |
| Java Runtime Environment 6.0 x64 | 6.0.290 |
| Microsoft Visual C++ 2010 SP1 Redistributable Package(x86) | 10.0.40219 |
| Microsoft Access Database Engine 2010 Redistributable | 1 (published 12/16/2010) |

### Table 1-2.  Baseline Certified Voting System Equipment.

| Component | Make | Model |
|---|---|---|
| Proprietary | | |
| ImageCast Precinct (ICP) | Dominion | PCOS-320A and PCOS 320-C |
| ImageCast Evolution (ICE) | Dominion | PCOS-410A |
| ICE – Plastic ballot box | Dominion | Box-410A |
| ICE – Coroplast Ballot Box | Dominion | Box-420A |
| ICP – Metal ballot box | Dominion | Box-310A |
| ICP – Plastic Ballot Box | Dominion | Box-330C |
| ICP – Coroplast Ballot Box | Dominion | Box-340C |
| ICP – Coroplast Ballot Box w/latch | Dominion | Box-341-C |
| COTS | | |
| ImageCast Central (ICC)* | Cannon | DR-G1130 and DR-X10C |
| USB reader/Writer | Maxim | USB R/W:  DS9490R |
| iButton (SHA-1) | Maxim | DS1963S |
| ICE external LCD monitor | AOC | E1649FWU |
| LCD Monitor | Soyo | 18.5" wide LCD |
| LCD Monitor | Samsung | 23" wide LCD |
| LCD Monitor | Dell | 1909W |
| LCD Monitor | Dell | N445N |
| Footswitch Pair | Kinesis | N/A |
| Audio Adapter | Soundwave | USB Soundwave 7.1 Audio Adapter |
| PCI Software | Soundwave | Soundwave 7.1 PCI Software |
| USB Software | Soundwave | USB Soundwave 7.1 Software |
| Compact Flash Cards | RiData | CFC-14A |
| | | RDCF8G-233XMCB2-1 |
| | | RDCF16G-233XMCB2-1 |
| | | RDCF32G-233XMCB2-1 |
| | SanDisk Extreme | SDCFX-016G |
| | | SDCFX-032G |
| | SanDisk | 8 GB |

### 1.1.1 Baseline Certified System (Continued)

**Table 1-2. Baseline Certified Voting System Equipment (Continued)**

| Component | Make | Model |
|---|---|---|
| COTS | | |
| Compact Flash Reader | SanDisk | USB |
| | GGI Gear | USB |
| Networking Switch | D-Link | D-Link DES-1105 5-Port Switch |
| Headphones | Cyber Acoustics | ACM-70 |
| Sip & Puff | Origin Instruments | Air Voter |
| UPS for ICC | APC | SMC1000 |
| UPS for EMS | | SMC1500 |

### 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 1.0

- Election Assistance Commission Voting System Test Laboratory Program Manual, Version 1.0

- 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

- Quality Assurance Program Manual, Revision 5

- ANSI/NCSL Z540-1, "Calibration Laboratories and Measuring and Test Equipment, General Requirements"

- ISO 10012-1, "Quality Assurance Requirements for Measuring Equipment"

- EAC Requests for Interpretation and Notices of Clarification (listed on www.eac.gov)

- EAC Quality Monitoring Program residing on:

- http://www.eac.gov/testing_and_certification/quality_monitoring_program.aspx

- Dominion Voting Systems' Democracy Suite 4.14-D Modification VSTL Certification Test Report Rev. C (listed on www.eac.gov)

- Dominion Voting Systems Democracy Suite 4.14-D Technical Data Package

- Dominion Voting Systems Democracy Suite 4.14-E 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 | -- | A result and/or event that deviates from what is standard, normal, or expected in which no root cause has been determined. |
| Americans with Disabilities Act of 1990 | ADA | ADA is a wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability. |
| Audio Studio | AS | EMS application used to record audio files. |
| Audio Tactile Interface | ATI | Voter interface designed to not require visual reading of a ballot. The same ATI is utilized for both the ICP and ICE. |
| Configuration Management | CM | --- |
| Commercial Off-the-Shelf | COTS | Commercial, readily available hardware devices (such as card readers, printers or personal computers) or software products (such as operating systems, programming language compilers, or database management systems) |
| Deficiency | -- | Any repeatable test result or event that is counter to the expected result or violates the specified requirements. |
| Direct Record Electronic | DRE | An electronic voting system that utilizes electronic components for the functions of ballot presentation, vote capture, vote recording, and tabulation which are logically and physically integrated into a single unit. A DRE produces a tabulation of the voting data stored in a removable memory component and in printed hardcopy. |
| 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. |
| EMS Election Event Designer | EED | EMS application used for election definition functionality. |
| Election Management System | EMS | An umbrella term for the software application used to define and report election projects. |
| Functional Configuration Audit | FCA | Exhaustive verification of every system function and combination of functions cited in the manufacturer's documentation. |
| Help America Vote Act | HAVA | Act created by United States Congress in 2002. |
| ImageCast Precinct | ICP | Precinct-level optical scanner and tabulator with audio voting capabilities. |
| ImageCast Evolution | ICE | Precinct-level optical scanner, tabulator with audio voting and integrated Ballot-marking Device. |
| ImageCast Central | ICC | COTS High-speed central ballot scan tabulator. |

**1.3    Terms and Abbreviations (Continued)**

**Table 1-3.  Terms and Abbreviations**

| Term | Abbreviation | Definition |
|---|---|---|
| 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. |
| Operating Procedure | OP | Test Method or Test Procedure. |
| Relational Database Management System | RDBMS | A database management system (DBMS) that is based on the relational model. |
| 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. |
| Quality Assurance | QA | --- |
| Request for Interpretation | RFI | A means by which a registered Manufacturer or Voting System Test Laboratory (VSTL) may seek clarification on a specific Voluntary Voting System Guidelines (VVSG) standard. |
| Results, Tally and Reporting | RTR | EMS application used to integrate election results and reporting. |
| Technical Data Package | TDP | Manufacturer documentation related to the voting system required to be submitted as a precondition of certification testing. |
| 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". |
| Voluntary Voting System Guidelines | EAC 2005 VVSG | Published by the EAC, the third iteration of national level voting system standards. |
| Virtual Review Tool | VRT | Test campaign management software used by the EAC, VSTLs and vendors applying for qualification testing. |
| Voting System Test Laboratory | VSTL | An independent, non-federal laboratory qualified to test voting systems to Federal standards. |

## 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 |
|---|---|---|---|---|
| D-Suite 4.0 | New System | Original | 05/10/2012 | DVS-40-G-10 |
| D-Suite 4.14 | Modification | D-Suite 4.0 | 07/18/2013 | DemSuite-4-14 |
| D-Suite 4.14-A | Modification | D-Suite 4.14 | 09/20/2013 | DemSuite-4-14-A |
| D-Suite 4.14-A.1 | Modification | D-Suite 4.14-A | 06/16/2014 | DVS-DemSuite-4-14-A.1 |
| D-Suite 4.14-B | Modification | D-Suite 4.14-A | 01/07/2014 | DVS-DemSuite4.14-B |
| D-Suite 4.14-D | Modification | D-Suite 4.14-B | 11/25/2014 | DVS-DemSuite4.14-D |
| D-Suite 4.14-E | Modification | D-Suite 4.14-D | TBD | DVS-DemSuite4.14-E |

### 2.2    Scope of Testing

The focus of the D-Suite 4.14-E test campaign was to verify functionality of modifications applied to the previously certified D-Suite 4.1.4-D voting system.  This report is valid only for the system identified in section 1.1, Description of EAC Certified System Being Modified.  In addition, modifications summarized herein represent the only changes that were reviewed by NTS.  Any changes, revisions, or corrections not listed in this report or made to the system after this evaluation are required to be submitted to the EAC for assessment.

### 2.2.1 Modification Overview

Modifications outlined below transition Dominion Suite 4.1.4 revision D to revision E and were submitted by the manufacturer for testing.

1. On the ICE, captured write-in images are printed on the paper tape reports for ballot layouts at precinct using a General and a Primary election database.

2. On the ICE, candidate order for consolidated split precincts is printed on the paper tape report printouts in the candidate order for the ballot layouts for that precinct using a General and a Primary election database.

3. On the ICE, exclusive inclusion of Blank Ballot violation notice is in AuditMark image (bottom left corner) when casting a blank ballot in Open Primary election.

4. On the ICE, when a dynamic audio file is missing for the second language, the English audio plays as a default using a General and a Primary election database rather than playing "The audio file is missing" error message.

5. On the ICP, Captured write-in images are printed on the paper tape reports for ballot layouts at precinct using a General and a Primary election database.  Print ability of write-in images on paper tape report printouts for ballot layouts at precinct.

6. On the EMS, Ballot layout file changed where term "Write-In" appears in a ballot layout, allowing for flexibility in size and layout of write-in box and position of term "Write-In relative to other elements.

All other software and documentation from the D-Suite 4.14-D system, with the exception of the ICE, ICP, and EMS application software and the MBS/DCF configuration file (and related records), is included in the D-Suite 4.14-E system.

### 2.2.2 Test Materials

D-Suite 4.14-E system proprietary software and hardware submitted by the manufacturer for testing is listed in Table 2-2 and 2-3 respectively.  All COTS hardware and software is unchanged from the baseline certification listed in section 1.1.1.

**Table 2-2.  Dominion-Suite 4.14-E Proprietary Software**

| Software Required For Testing | Software Version |
|---|---|
| Election Event Designer (EED) | 4.14.38 |
| Results Tally and Reporting (RTR) | 4.14.38 |
| File System Service (FSS) | 4.14.38 |
| Audio Studio (AS) | 4.14.38 |
| Data Center Manager | 4.14.38 |
| Application Server | 4.14.38 |
| EMS Adjudication | 2.4.1.3201 |
| EMS Database Server | 4.14.38 |
| EMS Election Data Translator (EDT) | 4.14.38 |
| EMS NAS Server | 4.14.38 |
| ImageCast Evolution | 4.14.24 |
| ImageCast Precinct | 4.14.20 |
| ImageCast Central | 4.14.17 |

## 2.2.2    Test Materials (Continued)

### Table 2-3.  Dominion -Suite 4.14-E Proprietary Hardware

| Equipment | Model |
|---|---|
| ImageCast Precinct (ICP) | PCOS-320A and PCOS 320-C |
| ImageCast Evolution (ICE) | PCOS-410A |
| ICE – Plastic ballot box | Box-410A |
| ICE – Coroplast Ballot Box | Box-420A |
| ICP – Metal ballot box | Box-310A |
| ICP – Plastic Ballot Box | Box-330C |
| ICP – Coroplast Ballot Box | Box-340C |
| ICP – Coroplast Ballot Box w/latch | Box-341-C |

### 2.2.3    Block Diagram

Dominion's D-Suite 4.1.4-E is a paper-based, optical scan voting system.  Figure 1-1 provides a visual system overview.
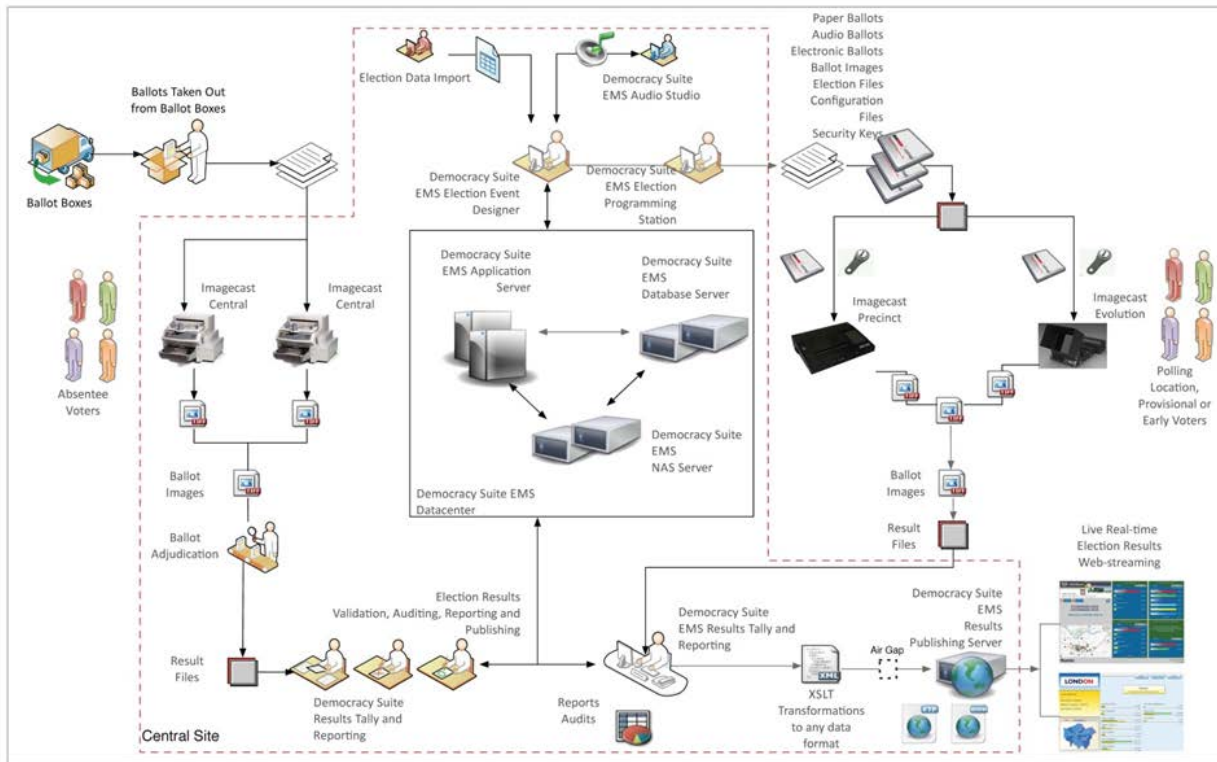


Figure 1-1.  D-Suite 4.14-E System Overview

### 2.2.4 Supported Languages

Table 2-2 list the languages supported by the submitted D-Suite 4.14-E voting system.

**Table 2-2. D-Suite 4.14-E Supported Languages**

| System Supported Languages | | | | |
|---|---|---|---|---|
| Alaska Native - Aleut | Filipino | Korean | Native American - See Below | |
| Athabascan | French | Spanish | Apache | Seminole |
| Chinese | Hindi | Thai | Jicarilla | Towa |
| English | Japanese | Vietnamese | Keres | Ute |
| Eskimo | Khmer | -- | Navajo | Yuma |

### 2.2.5 RFIs

Table 2-3 lists the applicable RFIs the EAC has released as of the date of the Plan as it pertains to this test campaign.

**Table 2-3. Applicable RFIs**

| RFI ID | Name |
|---|---|
| 2007-02 | EAC Decision on Variable Names |
| 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 |
| 2010-08 | EAC Decision on Calling Sequence |
| 2012-04 | EAC Decision on Software Setup Validation |
| 2013-03 | EAC Decision on Timestamps |

### 2.2.6 NOCs

Table 2-4 lists the applicable NOCs the EAC has released as of the date of the Plan as it pertains to this test campaign.

**Table 2-4. Applicable NOCs**

| NOC ID | Name |
|---|---|
| 2008-003 | EAC Conformance Testing Requirements |
| 2009-002 | Laboratory Independence Requirement |
| 2009-005 | Development and Submission of Test Plans for Modifications to EAC Certified Systems |
| 2012-02 | Clarification of System Identification Tool Functionality |
| 2013-02 | Detailed Description of Changes for Modifications |

## 3.0     TEST FINDINGS

The Dominion Voting Systems Democracy Suite 4.14-E Voting System, as identified in Section 2.2.1 of this report, was subjected to the tests as summarized in this section.

## 3.1     Summary Finding

NTS Huntsville performed system level testing on ICE, ICP, and EMS software of the Dominion D-Suite 4.1.4-E Voting System due to modifications made to the Democracy suite 4.1.4-D Voting System.  There were no anomalies nor additional findings associated with this test campaign.  Source Code Review deficiencies are listed in Section 3.1.3 and details of deficiencies are in the Deficiency Report located in Appendix B.  There are no State Test Reports included in this test report.

## 3.1.1   Hardware Testing

There were no hardware configuration or design changes submitted for D-Suite 4.14-E, therefore, no hardware testing was required.

## 3.1.2   System Level Testing

System-level testing examines the ability of proprietary software, hardware, and peripherals in addition to the COTS software, hardware, and peripherals to operate as a complete system.  NTS Huntsville utilizes test cases designed to ensure that integrated components function as specified by the manufacturer's documentation and meet the requirements of the VVSG.

## 3.1.2.1   TDP Review

The Democracy Suite 4.14-E Voting System 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.  There were nine deficiencies reported to Dominion and internally tracked by NTS Huntsville as test exceptions until verified that the applicable documents had been corrected.  Dominion 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**

A total of nine TDP deficiencies were discovered during testing.  The deficiencies were as follows:

- Some required documents were missing.
- Some documents included were older versions.
- Some content needed to be updated to properly describe the submitted modifications.

All identified TDP deficiencies were resolved prior to the conclusion of the TDP review process.

### 3.1.2.2  Functional Configuration Audit (FCA)

A Functional Configuration Audit of the Democracy Suite 4.14-E was performed in accordance with Section 6.7 of Volume II of the VVSG.  The purpose of the FCA was to verify that the submitted modifications listed in section 2.2.1 performed as documented in the manufacturer supplied technical documentation during pre-voting, voting, and post-voting activities and validated that the modifications meet the requirements of the EAC 2005 VVSG.  The FCA for the Democracy Suite 4.14-E campaign included elements of the EMS, ICPs, and ICEs.  The FCA tests were designed to ensure compatibility of voting machine functions using the referenced firmware.  During the FCA, both normal and abnormal data was input into the system to attempt to introduce errors and test for error recovery.

**Summary Findings**

One deficiency was discovered during the FCA test.  During testing, the ICP stopped responding while printing the write-in report.  Full details of the deficiency can be found in Appendix B – Deficiency Report.  After correcting the deficiency, the FCA was conducted without further incident or deficiencies.

### 3.1.3  Source Code Review

As part of testing activities, the source code submitted for the Democracy Suite 4.14-E System was compared to the baseline version included in the Democracy Suite 4.14-D System.  Any code changes were reviewed by NTS to determine its compliance to the 2005 VVSG and manufacturer coding standards. Three software suites were examined during this test campaign; EMS, ICE, ICP.

**Summary Findings**
A total of seventy-five source code deficiencies were discovered during testing. The deficiencies were as follows:

| ICP: | | EMS: | |
|---|---|---|---|
| Header Return | 1 | No issues | |
| Header Purpose | 3 | | |
| Header File References | 7 | **ICE:** | |
| Header Revision History | 16 | Header File References | 1 |
| Header Globals Missing | 3 | Header Globals Missing | 1 |
| Units Called | 10 | Units Called | 12 |
| Unit Size Too Large | 1 | Inconsistent- Indenting | 1 |
| No Parameter Validation | 2 | Non Enumerated Constant | 9 |
| Line Too Long | 1 | | |
| Non Enumerated Constant | 1 | | |
| Header or File Name Missing | 6 | | |

All identified source code deficiencies were resolved prior to the conclusion of the source code review process.

### 3.2    Anomalies and Resolutions

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.

No anomalies occurred during testing of the Democracy Suite 4.14-E System.

### 3.3    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 (Mantis) and the EAC's Virtual Review Tool (VRT) for disposition and resolution.

Deficiencies encountered during testing were successfully resolved prior to test completion. Deficiencies 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.

## 4.0    RECOMMENDATION FOR CERTIFICATION

NTS Huntsville performed conformance testing on the Dominion Democracy Suite 4.14-E Voting System to the EAC 2005 VVSG (Version 1.0).  NTS determined that the modifications met the requirements of the EAC 2005 VVSG and the manufacturer's technical documentation.  Based on test findings, NTS Huntsville recommends the EAC grant the Democracy Suite 4.14-E Voting System certification to the EAC 2005 VVSG.  This report is valid only for the equipment identified in Section 2 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 their implementation within their jurisdiction.

**APPENDIX A.  ADDITIONAL FINDINGS**

This page INTENTIONALLY LEFT BLANK as there were no ADDITIONAL FINDINGS associated with this Test Campaign.

**APPENDIX B.  DEFICIENCY REPORT**

## B.1 DEFICIENCY REPORT

==Table B-1 describes the functional deficiency and resolution discovered during the D-Suite 4.14-E test campaign.==

**Table B-1. Functional Deficiency Report**

| EAC VRT ID[1] | Deficiency Summary | Resolutions |
|---|---|---|
| 173 | During FCA testing of the ICP the unit experienced a freeze up while printing the write-in report. Testers were able to duplicate failure multiple times with two outcomes. Either the unit would freeze up while printing or completely power down. | The deficiency was related to code changes made in response to the ICP source code review. A variable name had been changed. The variable name was corrected and the deficiency has been resolved. |

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[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**

This page INTENTIONALLY LEFT BLANK as no Anomalies occurred during this Test Campaign.

**APPENDIX D.  TEST PLAN**

**D.1     AS-RUN TEST PLAN**

The following change was made to the test plan as a result of testing:

- On page 14, Table 3-1 Proprietary Software Utilized for Testing, The software version for ImageCast Precinct was changed from 4.14.18 to 4.14.20.

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**APPENDIX E.  TECHNICAL DATA PACKAGE**

## E.1 DEMOCRACY SUITE 4.14-E TECHNICAL DATA PACKAGE

The documents listed in Table E-1 comprise the Democracy Suite 4.14-E Voting System TDP

### Table E-1. Democracy 4.14-E Voting System TDP

| Document Title | Version | Date | Document Number |
|---|---|---|---|
| System Overview | 4.14.E::324 | 4/6/15 | 2.02 |
| System Security Specification | 4.14.E::436 | 5/13/15 | 2.06 |
| Configuration Management Plan | 4.14.D::205 | 10/22/14 | 2.11 |
| Quality Assurance Program | 1.2.0::80 | 10/16/12 | 2.12 |
| System Test and Verification Plan | 1.1.0::104 | 10/16/12 | 2.07 |
| System Test and Verification Suites | 4.14.D::1 | 8/21/14 | 2.07 |
| Personnel Training and Deployment Requirements | 1.1.0::53 | 4/9/13 | 2.10 |
| EMS Functionality Description | 4.14.D::251 | 7/22/14 | 2.03 |
| ICE Functionality Description | 4.14-D::80 | 10/2/14 | 2.03 |
| ICP Functionality Description | 4.14.E::136 | 3/31/15 | 2.03 |
| ICC Functionality Description | 4.14.D::88 | 10/17/14 | 2.03 |
| ICE System Hardware Specification | 1.2.0::305 | 10/20/14 | 2.04 |
| ICP System Hardware Specification | 1.1.0::98 | 10/20/14 | 2.04 |
| ICE System Hardware Characteristics | 1.2.0::95 | 10/20/14 | 2.04.1 |
| ICP System Hardware Characteristics | 1.1.0::56 | 10/20/14 | 2.04.1 |
| EMS Software Design and Specification | 4.14.D::219 | 7/22/14 | 2.05 |
| ICE Software Design and Specification | 4.14.E::121 | 3/31/15 | 2.05 |
| ICP Software Design and Specification | 4.14.E::116 | 3/31/15 | 2.05 |
| ICC Software Design and Specification | 1.0.0::34 | 11/30/12 | 2.05 |
| Adjudication Software Design and Specification | 4.14.D::25 | 7/22/14 | 2.05 |
| ICP System Operation Procedures | 4.14.E::227 | 5/12/15 | 2.08 |
| EMS System Operation Procedures | 4.14.E::629 | 5/13/15 | 2.08 |
| ICE System Operation Procedures | 4.14.E::174 | 5/13/15 | 2.08 |
| ICC System Operation Procedures | 4.14.D::122 | 10/16/14 | 2.08 |
| ICP System Maintenance Manual | 1.1.0::66 | 10/16/12 | 2.09 |
| ICE System Maintenance Manual | 1.1.0::115 | 10/16/12 | 2.09 |
| EMS System Maintenance Manual | 1.0.0::50 | 10/16/12 | 2.09 |
| Adjudication System Maintenance Manual | 4.14D::9 | 7/27/14 | 2.09 |
| EMS Election Event Designer User's Guide | 4.14.E::253 | 5/12/15 | N/A |
| EMS Results Tally & Reporting User's Guide | 4.14.D::153 | 9/23/14 | N/A |
| EMS Audio Studio User's Manual | 4.14.D::49 | 10/1/14 | N/A |
| Adjudication User's Manual | 4.14.D::41 | 7/28/14 | N/A |
| EMS Build and Install | 2.1.0::18 | 8/11/14 | N/A |
| ICP Device Configuration Files | 4.14.E::37 | 4/1/15 | N/A |
| ImageCast Election Definition Files | 3.0.13 | 4/9/14 | N/A |
| ICP Firmware Build and Install | 4.2.14 | 10/3/12 | N/A |
| ICP Firmware Update Procedure | 1.0.0::15 | 8/14/14 | N/A |
| ICP Technical Guide | 1.0.0::9 | 10/17/12 | N/A |
| ICE Technical Guide | 1.0.0::60 | 10/17/12 | N/A |
| ICE Build Procedure | 4.14.D::49 | 7/21/14 | N/A |
| ICE Firmware Installation Procedure | 4.14.E::46 | 3/31/15 | N/A |
| Dominion Voting C C++ Coding Standard | 1.0.0::8 | 7/27/12 | N/A |
| Dominion Voting Usability Study – ICP | 1.0.0::26 | 7/27/12 | N/A |
| Dominion Voting Usability Study – ICE | 1.0.0::36 | 7/13/12 | N/A |